

ORIGINATION FORM

Proposed Revisions to a Design Standards Index
(Please provide all information – Incomplete forms will be returned)

Contact Information:

Date: August 7, 2017
Originator: **Ed Cashman**
Phone: (850) 414-4314
Email: edward.cashman@dot.state.fl.us

Design Standards:

Index Number: **17346**
Sheet Number (s): ALL SHEETS
Index Title: Pavement Markings

Summary of the changes:

SEE PAGE 2 FOR SUMMARY.

Commentary / Background:

Added some sheets to show longitudinal markings more clearly. As part of the Rumble Striping criteria effort, removed Profiled Thermoplastic sheets.

Other Affected Offices / Documents: (Provide name of responsible personnel)

- | Yes | No | |
|-------------------------------------|-------------------------------------|---|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Other Design Standards – Derwood Sheppard |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Plans Preparation Manual – Mary Jane Hayden |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Basis of Estimates Manual – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Standard Specifications – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Approved Product List – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Construction – |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Maintenance – |

Origination Package Includes: (Email or hand deliver package to Derwood Sheppard)

- | Yes | N/A | |
|-------------------------------------|--------------------------|-------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Redline Mark-ups |
| <input type="checkbox"/> | <input type="checkbox"/> | Proposed IDS |
| <input type="checkbox"/> | <input type="checkbox"/> | Revised IDS |
| <input type="checkbox"/> | <input type="checkbox"/> | Other Support Documents |

Implementation:

- Design Bulletin (DSR) DCE Memo Program Mgmt. Bulletin Design Standards e-Booklet (Next Release)

Contact the Roadway Design Office for assistance in completing this form

ORIGINATION FORM

Proposed Revisions to a Standard Plans Index
(Please provide all information – Incomplete forms will be returned)

Contact Information:

Date: **August 7, 2017**
Originator: **Ed Cashman**
Phone: (850) 414-4314
Email: ed.cashman@dot.state.fl.us

Standard Plans:

Index Number: 17346
Sheet Number (s): ALL SHEETS
Index Title: Pavement Markings

Summary of the changes:

Sheet 1: Added dimensions to pavement messages.

Sheet 2: Clarified Contrast Markings; Added a new pavement marking skip pattern: 2'-2' Dotted Edge Line Extension.

Added new Sheet 3.

Added new Sheet 4.

Sheet 3: Updated labels. Added dimensions of longitudinal solid lines. Deleted left-turn extension.

Sheet 4: Updated labels. Added dimensions of longitudinal solid lines. Deleted left-turn extension.

Sheet 5: Deleted sign detail.

Sheet 6: Deleted Typical Crosswalk Markings for Curb Ramps.

Sheet 7: Deleted Restricted Left Turn Marking. Deleted Typical Intersection 2 Thru Lanes Plus Left Turn Lane, with Crosswalk. Corrected Turn Lane Drop and Island Details. Deleted Stop Bars, Crosswalks and Double Center Line Details. Updated labels.

Sheet 8: Deleted One-Way Signs on Divided Highway Intersections. Deleted Pavement Markings for Traffic Channelization at Gore. Updated labels.

Sheet 9: Deleted sign details. Changed tables. Updated labels.

Sheet 10: Deleted sheet.

Sheet 11: Deleted Railroad Crossing at 2-Lane Roadway. Deleted Railroad Crossing at 4-Lane Roadway. Deleted Typical Pavement Markings for R/R Crossing. Updated labels.

Sheet 12: Changed General Notes.

Sheet 13: Deleted Notes 1, 3, and 4. Changed Note 2.

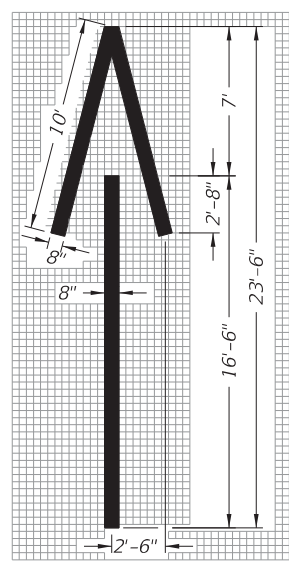
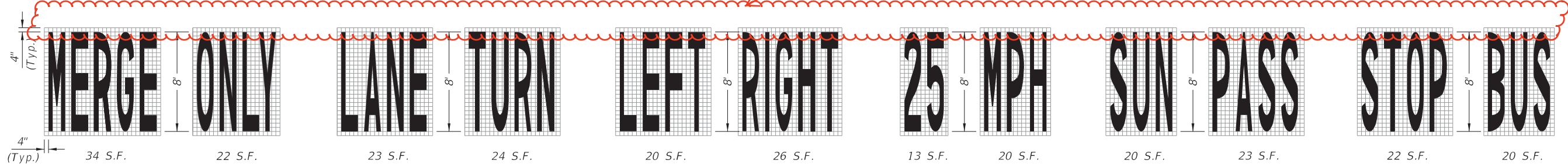
Sheet 14: Deleted Notes. Updated labels. Added labels. Added 12" White (3'-9').

Sheet 15: Deleted Perpendicular Parking Detail. Deleted Minimum Parking Restriction for Nonsignalized Intersections. Deleted Minimum Parking Restriction for Signalized Intersection. Added Reverse-in Parking Detail.

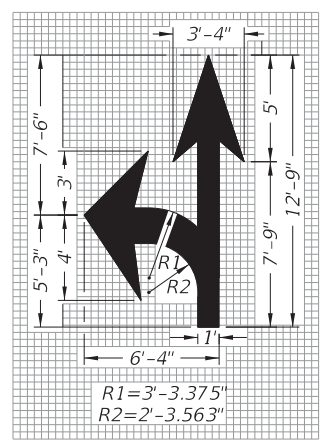
Sheet 16: Deleted sheet.

Sheet 17: Deleted Sheet.

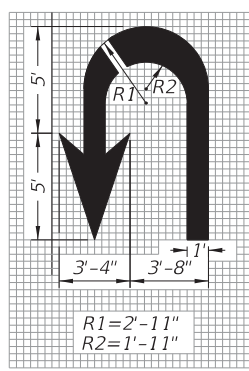
Added Dimensions



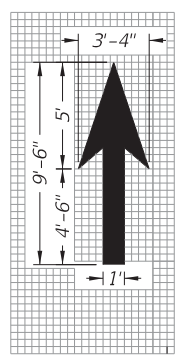
Wrong-Way Arrow
24 S.F.



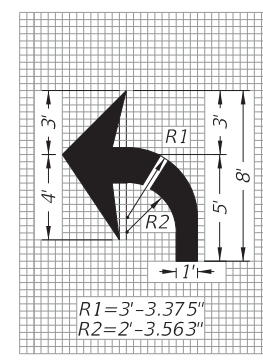
Turn and Through Lane-Use Arrow
29 S.F.



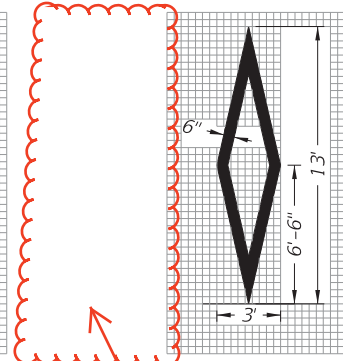
U Turn Lane-Use Arrow
27 S.F.



Through Lane-Use Arrow
12 S.F.



Turn Lane-Use Arrow (Left Turn Shown - Right Turn Similar by Opposite Hand)
17 S.F.



Preferential Lane Symbol
11 S.F.

Added Roundabout Approach Arrow

NOTES:

1. When an arrow and a pavement message are used together, locate the arrow 25' downstream from the pavement message. Measure the distance from the base of the arrow to the base of the pavement message.
2. Place stop message 25' back from the stop line.
3. Dimensions are within 1" ±.
4. All grids are 4" x 4".

PAVEMENT ARROW AND MESSAGE DETAILS

10/14/2016 8:37:55 AM

LAST REVISION	DESCRIPTION:
11/01/16	
11/01/17	

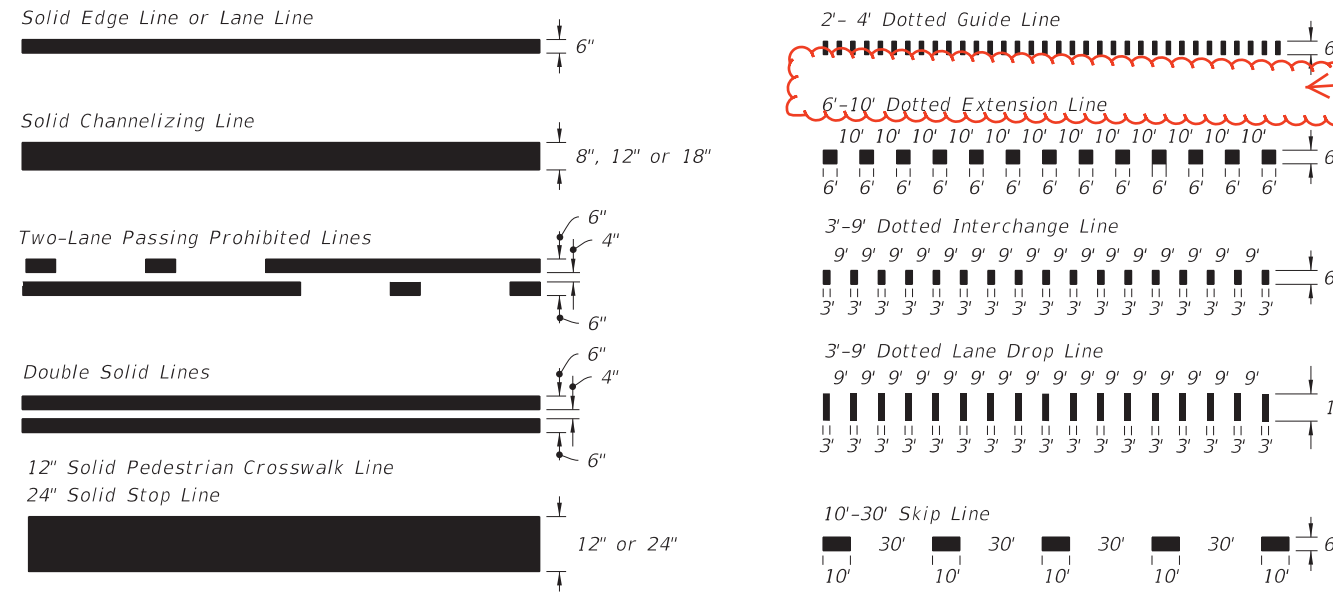


PAVEMENT MARKINGS

711-001

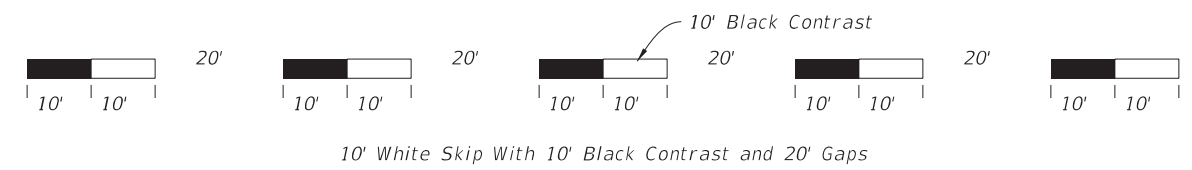
INDEX NO.
17346

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SHEET NO.
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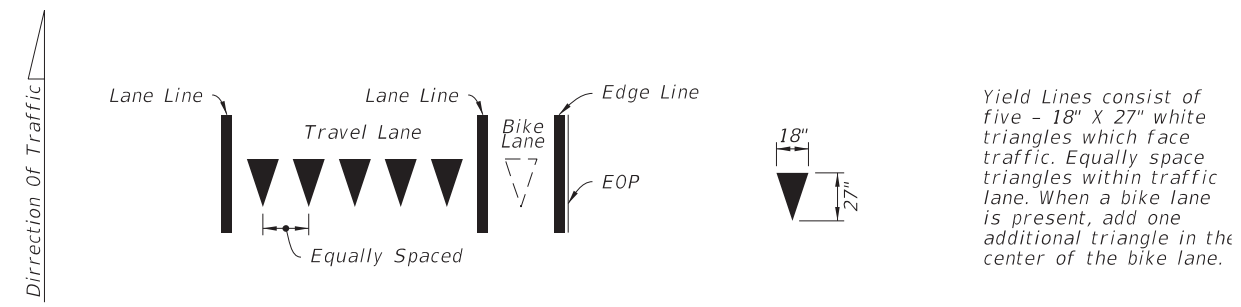


Added 2' -2' x 12" Dotted Extension Line

PAVEMENT MARKING LINES



CONTRAST MARKINGS



YIELD LINES

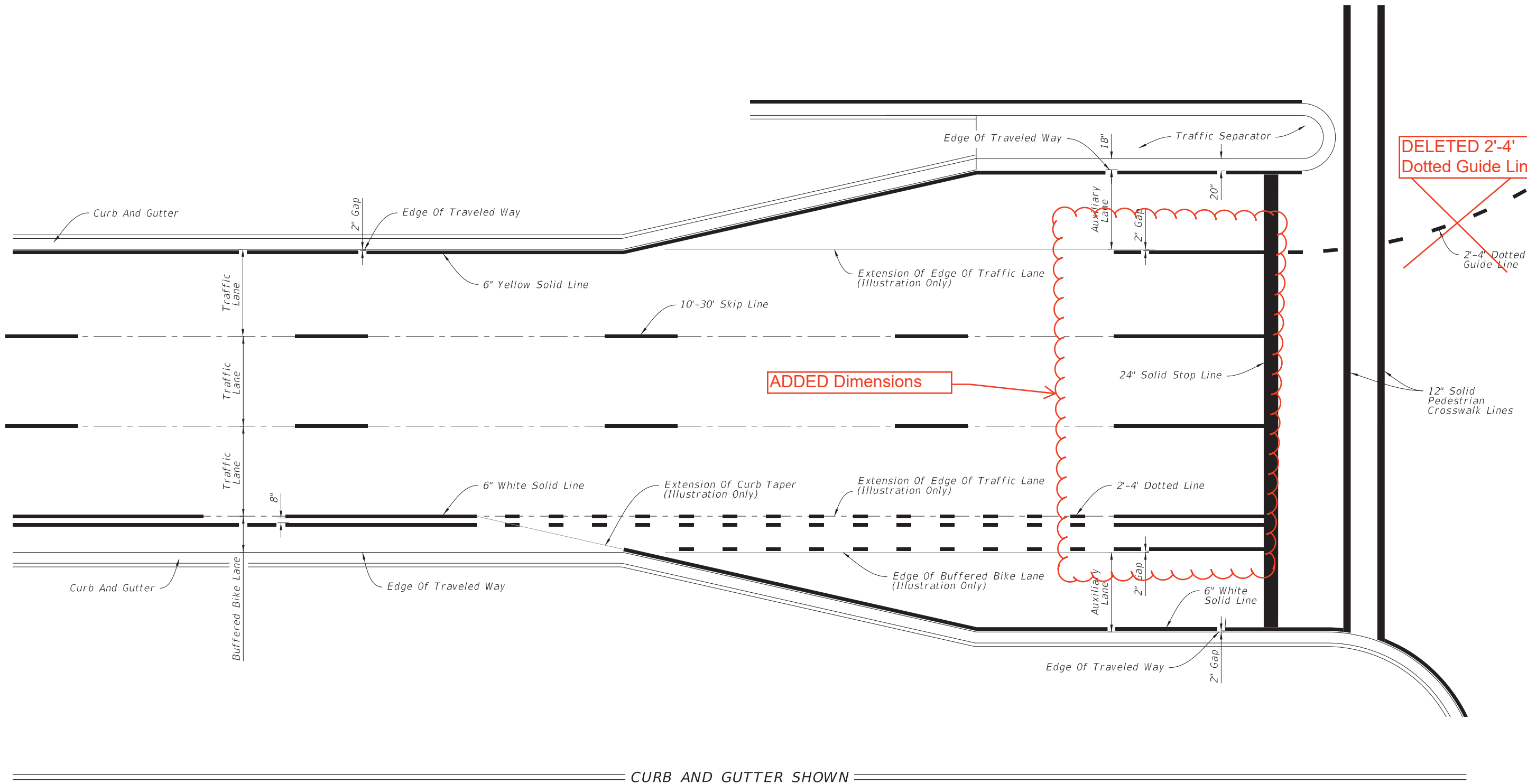
10/14/2016 8:37:57 AM

LAST REVISION	REVISION DESCRIPTION
11/01/17	
11/01/16	

NEW SHEET

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

NEW SHEET
PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS



CURB AND GUTTER SHOWN

11/09/2016 8:59:05 AM

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION	DESCRIPTION:
11/01/16	
11/01/17	

FDOT FY 2017-18
DESIGN STANDARDS

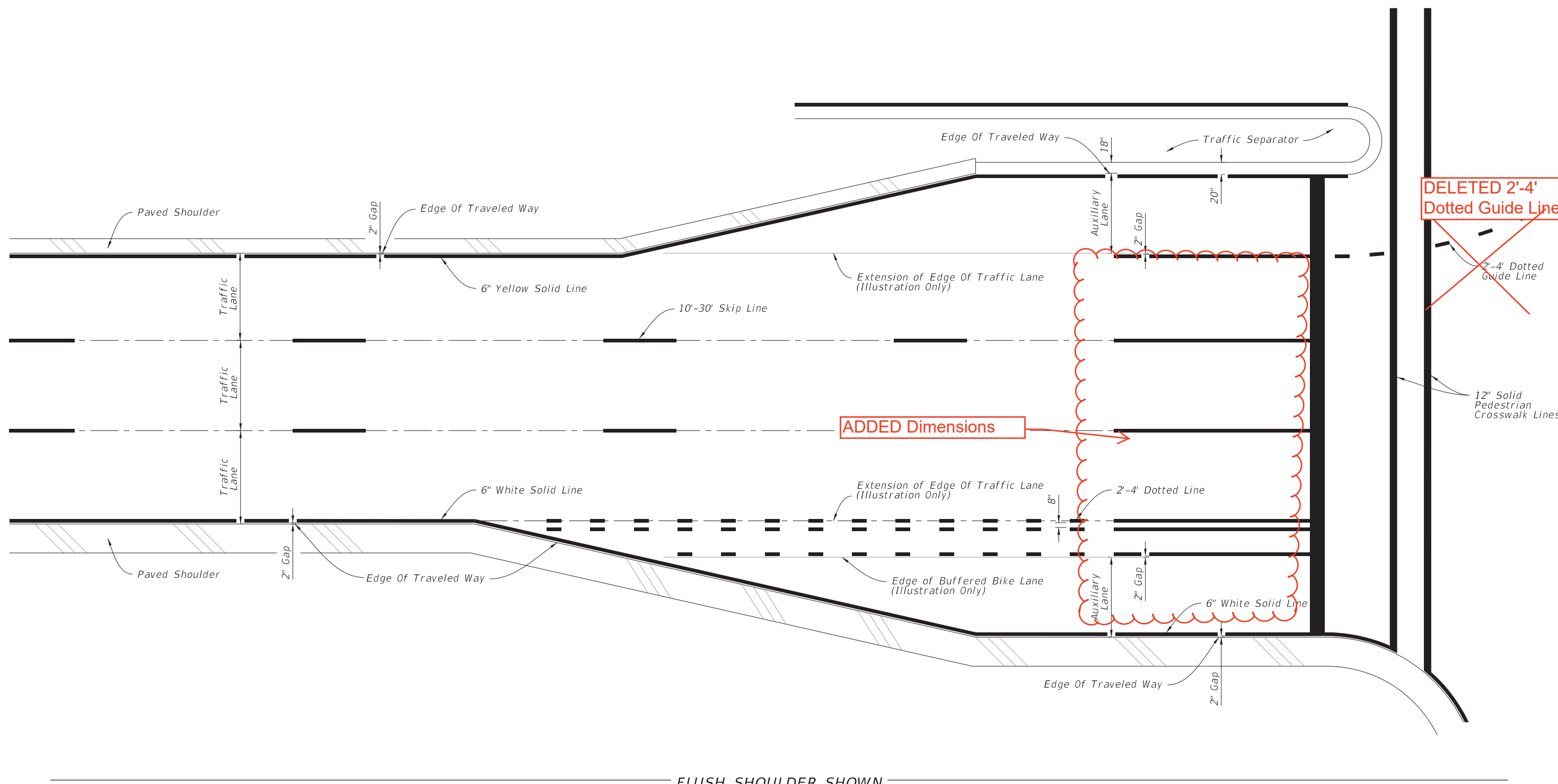
PAVEMENT MARKINGS

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11/09/2016 8:59:07 AM



PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION	REVISION DESCRIPTION
11/01/16	
11/01/17	

FDOT FY 2017-18
DESIGN STANDARDS

PAVEMENT MARKINGS

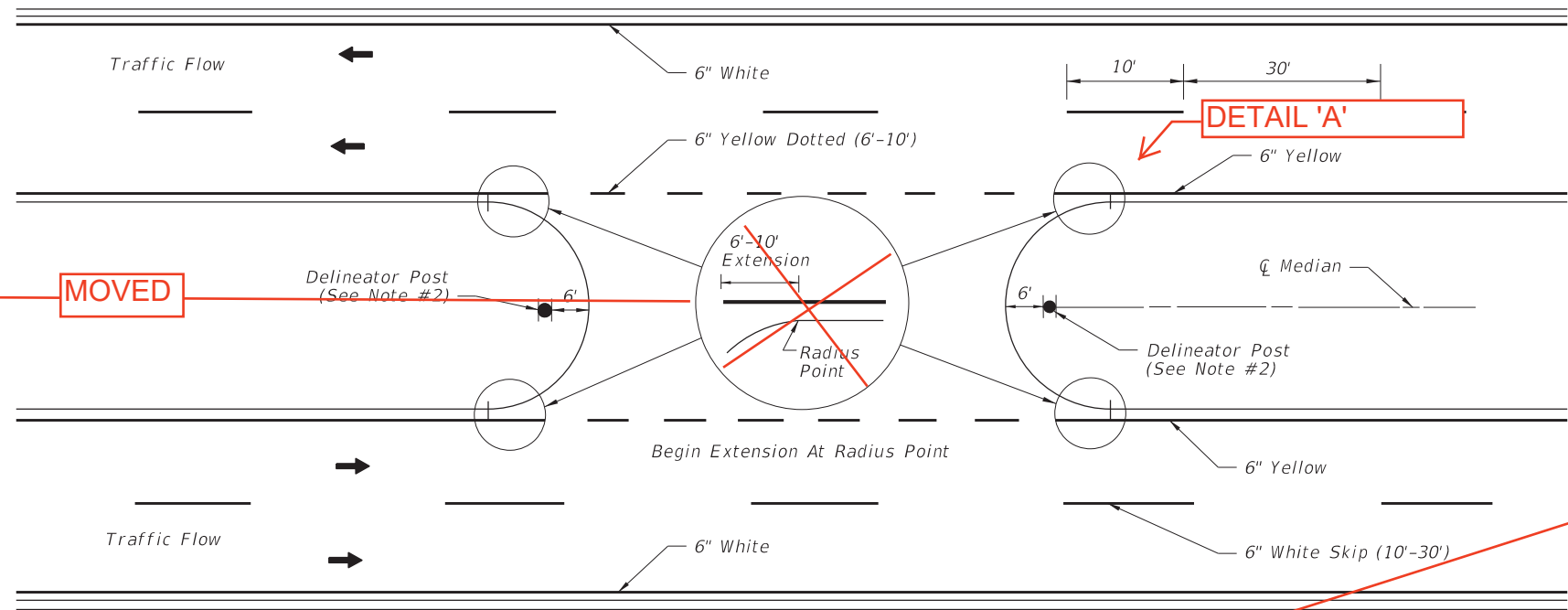
711-001

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~~17346~~

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DETAIL 'A'



DETAIL 'A'

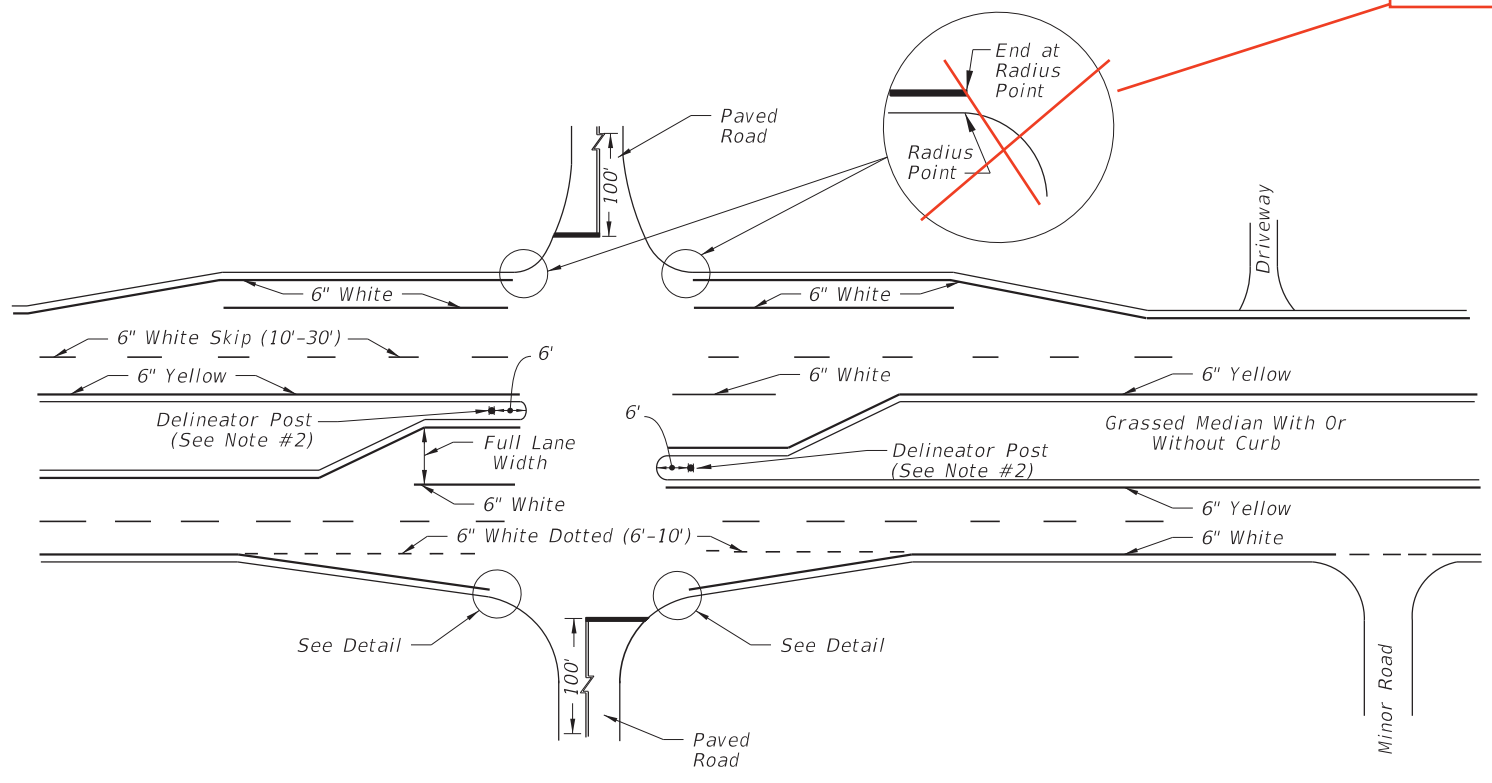
DETAIL 'B'

PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER

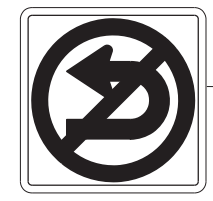
MOVED

NOTE:

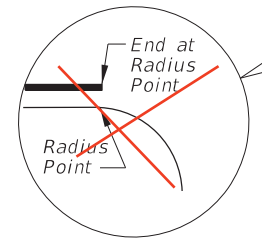
1. Apply yellow markings to the median noses.
2. Use yellow retro-reflective sheeting on both sides of the delineator. Install the post so that the top is 4' above the grade at the edge of the pavement.



PAVEMENT MARKINGS FOR INTERSECTIONS WITH MAJOR AND MINOR ROADS



R3-4



DETAIL 'B'

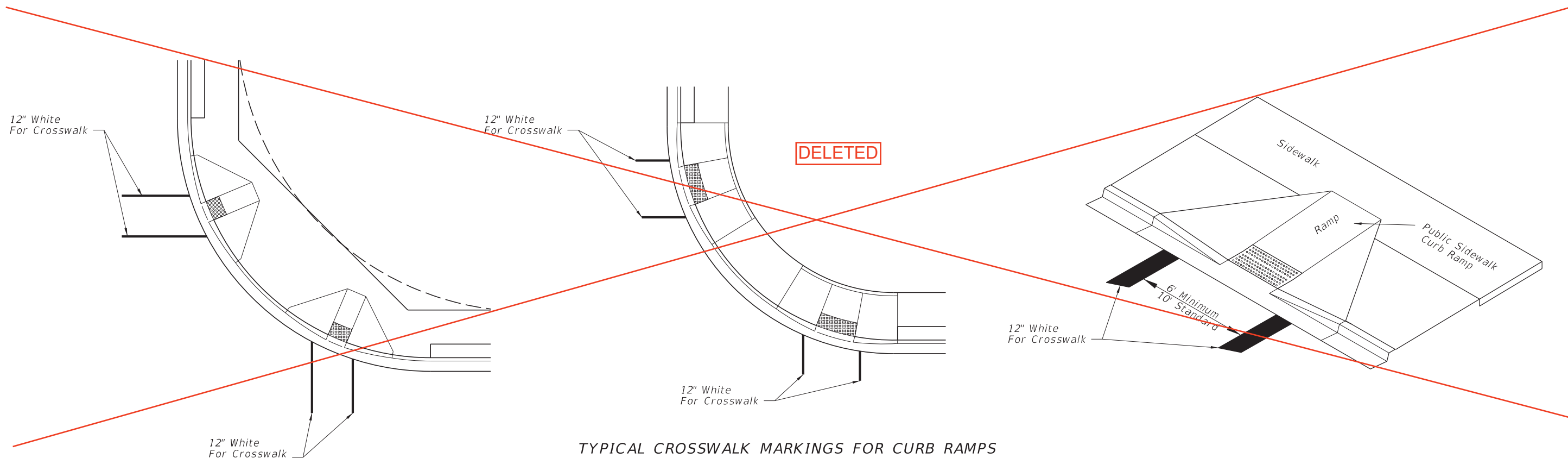
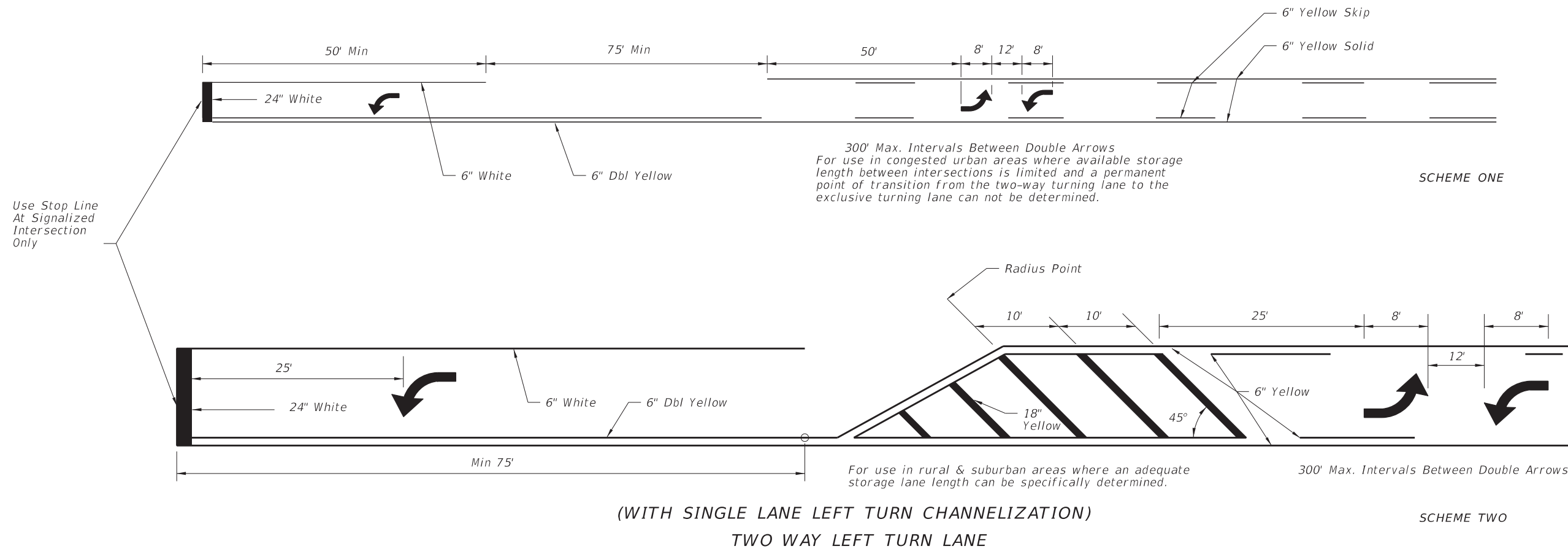
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LAST REVISION	11/01/17
REVISION	

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FY 2017-18
DESIGN STANDARDS

PAVEMENT MARKINGS

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LAST REVISION	11/01/17	DESCRIPTION:
11/01/16		



FY 2017-18
 DESIGN STANDARDS

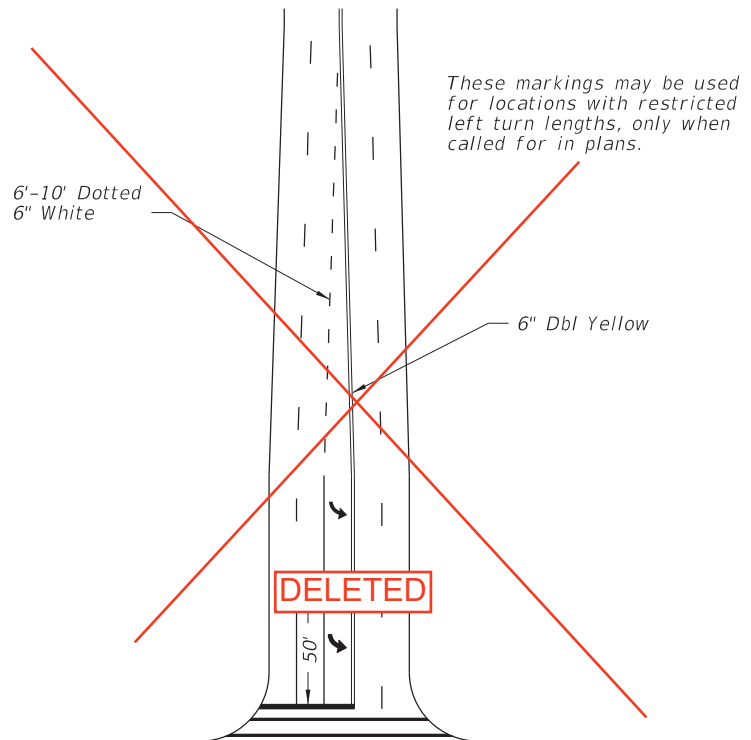
PAVEMENT MARKINGS

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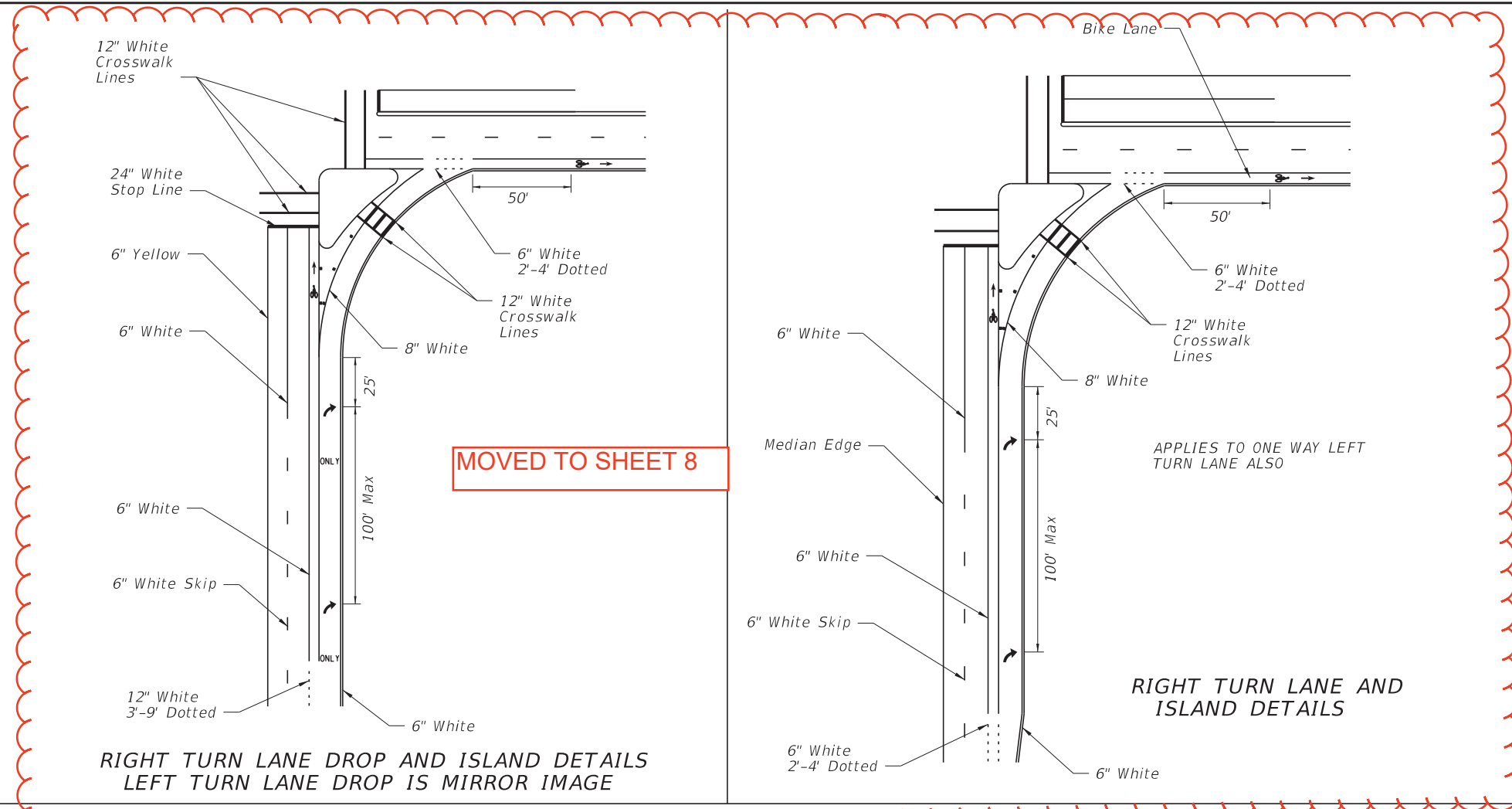
SHEET NO.
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These markings may be used for locations with restricted left turn lengths, only when called for in plans.

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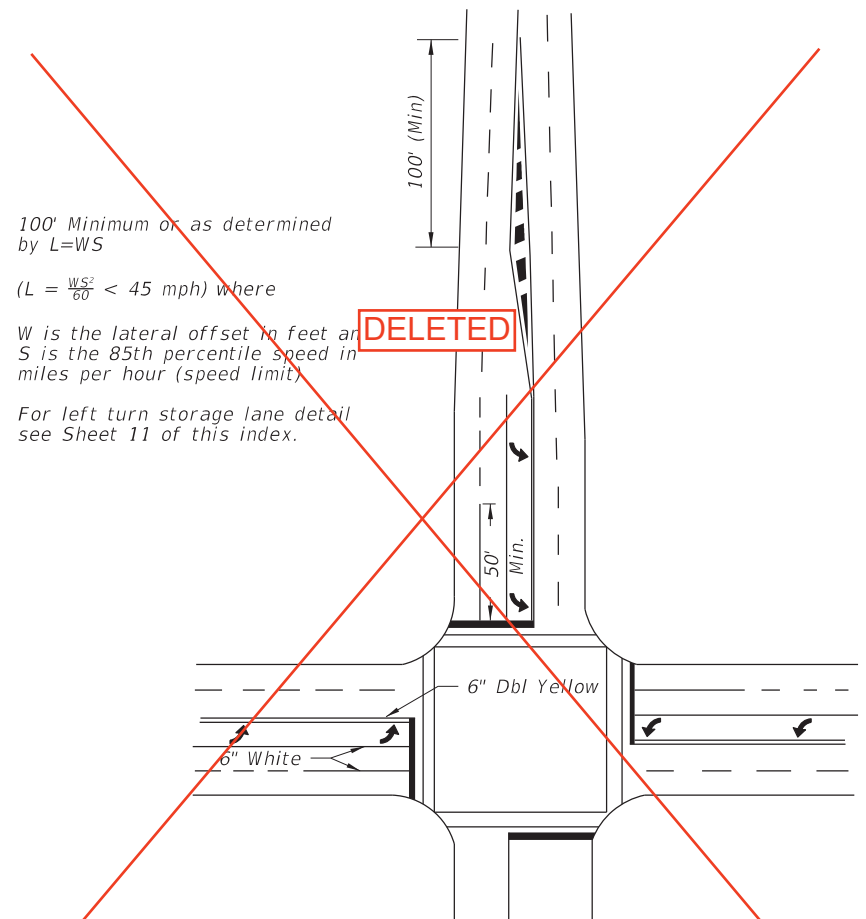
RESTRICTED LEFT TURN MARKING



MOVED TO SHEET 8

RIGHT TURN LANE DROP AND ISLAND DETAILS
LEFT TURN LANE DROP IS MIRROR IMAGE

RIGHT TURN LANE AND ISLAND DETAILS



100' Minimum or as determined by $L=WS$

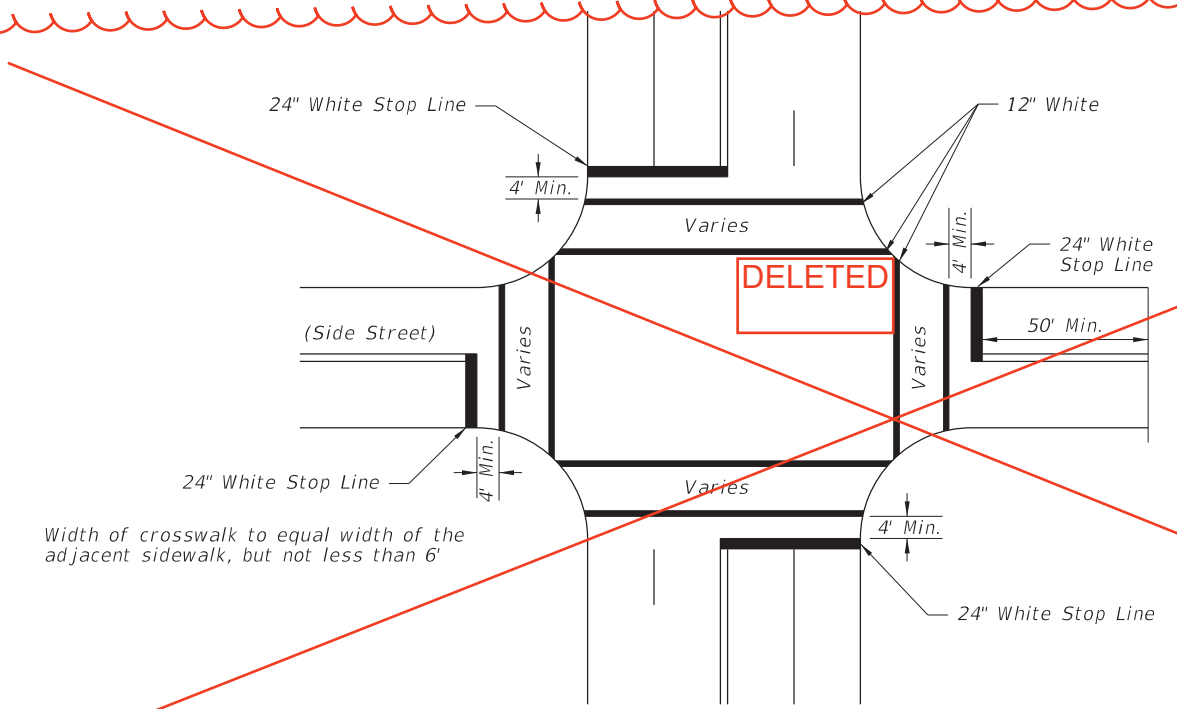
$(L = \frac{WS^2}{60} < 45 \text{ mph})$ where

W is the lateral offset in feet and S is the 85th percentile speed in miles per hour (speed limit)

For left turn storage lane detail see Sheet 11 of this index.

DELETED

TYPICAL INTERSECTION 2 THRU LANES PLUS LEFT TURN LANE, WITH CROSSWALK



Width of crosswalk to equal width of the adjacent sidewalk, but not less than 6'

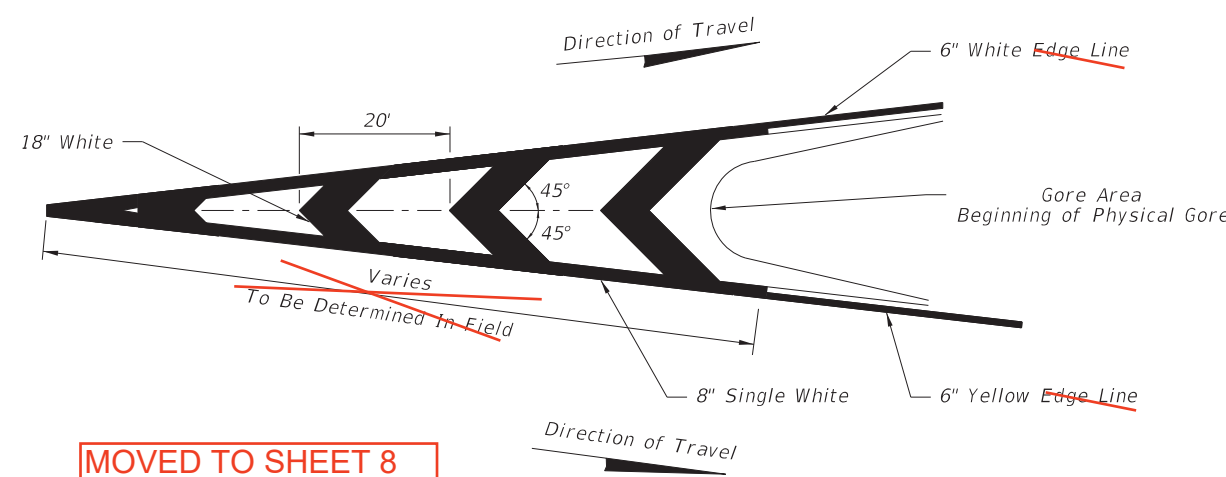
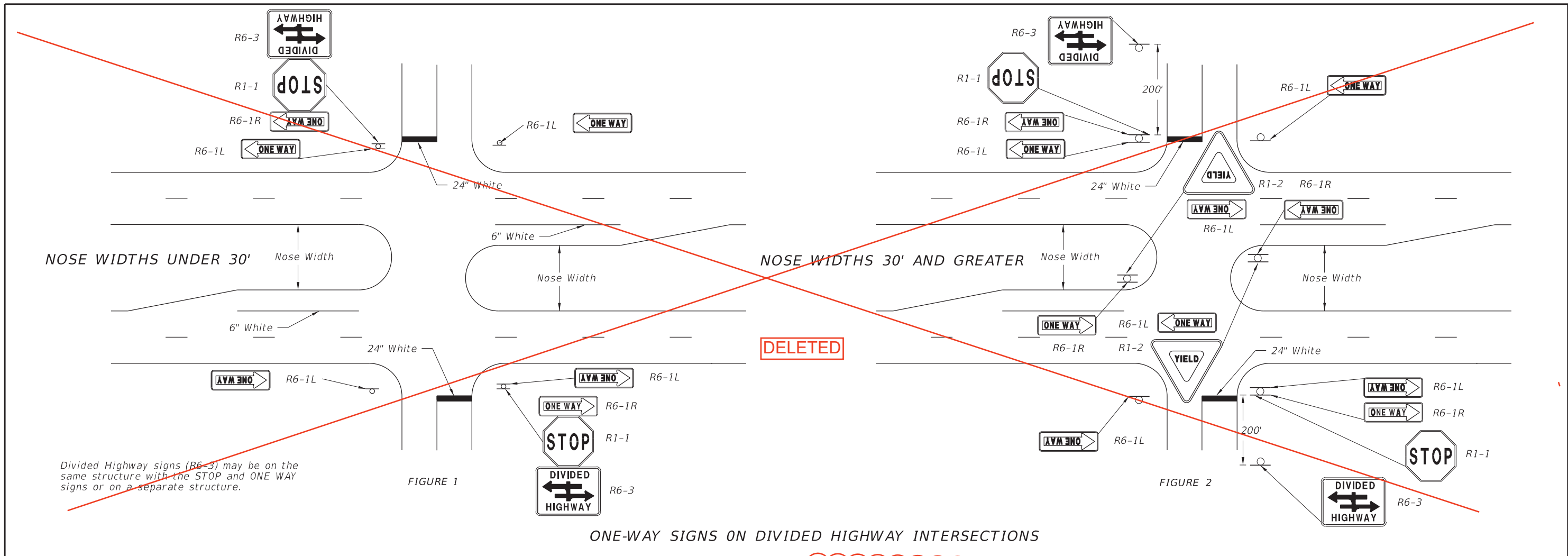
NOTES:

1. When public sidewalk curb ramps are present, refer Index No. 17344 and Index No. 304 for crosswalk widths.
2. Double yellow longitudinal center lines on all roadway approaches shall be extended back 100' for projects involving intersection improvements only.
3. When specified, "stop" message shall be placed 25' back of stop lines.

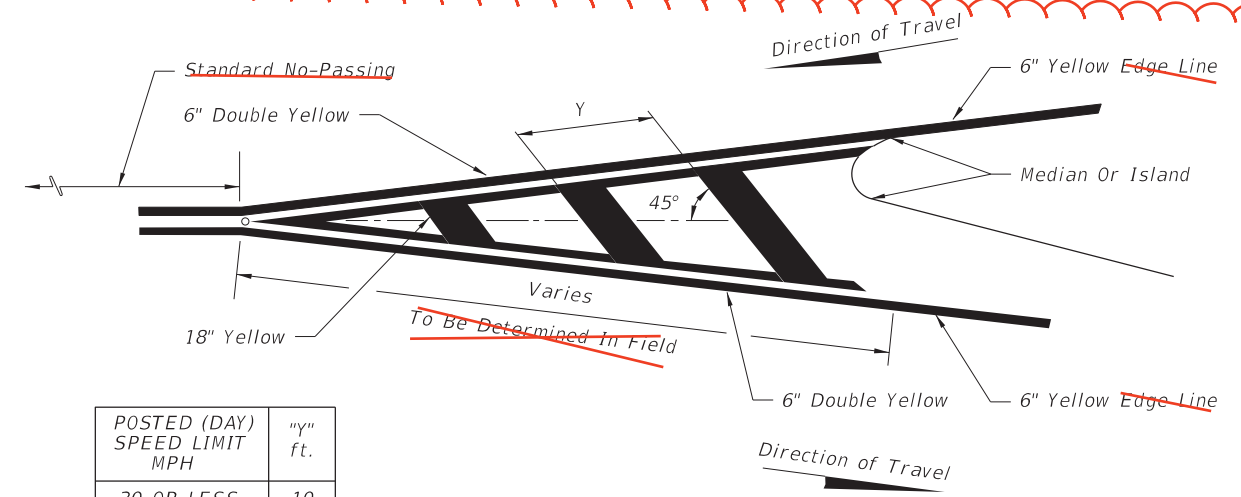
STOP BARS, CROSSWALKS AND DOUBLE CENTER LINE DETAILS

10/14/2016 8:36:07 AM

LAST REVISION 11/01/16	REVISION	DESCRIPTION:	 FY 2017-18 DESIGN STANDARDS	PAVEMENT MARKINGS	INDEX NO. 17346	SHEET NO. 7 of 17
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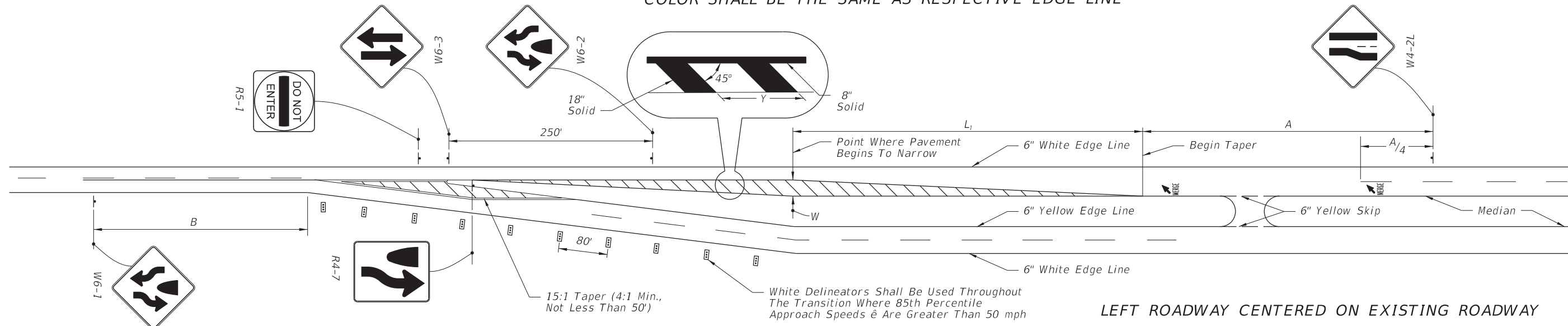
PAVEMENT MARKINGS FOR TRAFFIC CHANNELIZATION AT GORE
(TRAFFIC FLOWS IN SAME DIRECTION)



PAVEMENT MARKING FOR TRAFFIC SEPARATION
(TRAFFIC FLOWS IN OPPOSING DIRECTIONS)

10/14/2016 8:38:09 AM

TYPICAL TRANSITION MARKING
 COLOR SHALL BE THE SAME AS RESPECTIVE EDGE LINE

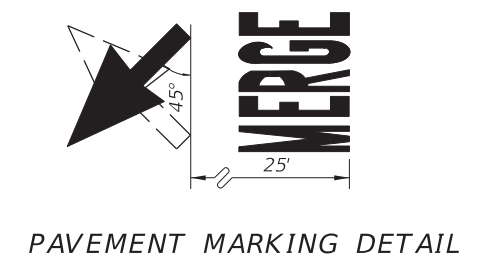
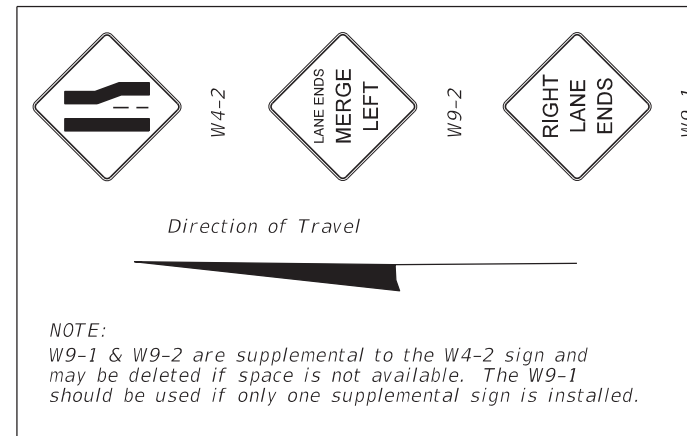


LEFT ROADWAY CENTERED ON EXISTING ROADWAY

**W *S	TRANSITION DISTANCE L_1 (FEET)						
MPH	8	9	10	11	12	13	14
30	120	135	150	165	180	195	210
35	165	185	205	225	245	265	285
40	215	240	270	295	320	350	375
45	360	405	450	495	540	585	630
50	400	450	500	550	600	650	700
55	440	495	550	605	660	715	770
60	480	540	600	660	720	780	840
65	520	585	650	715	780	845	910

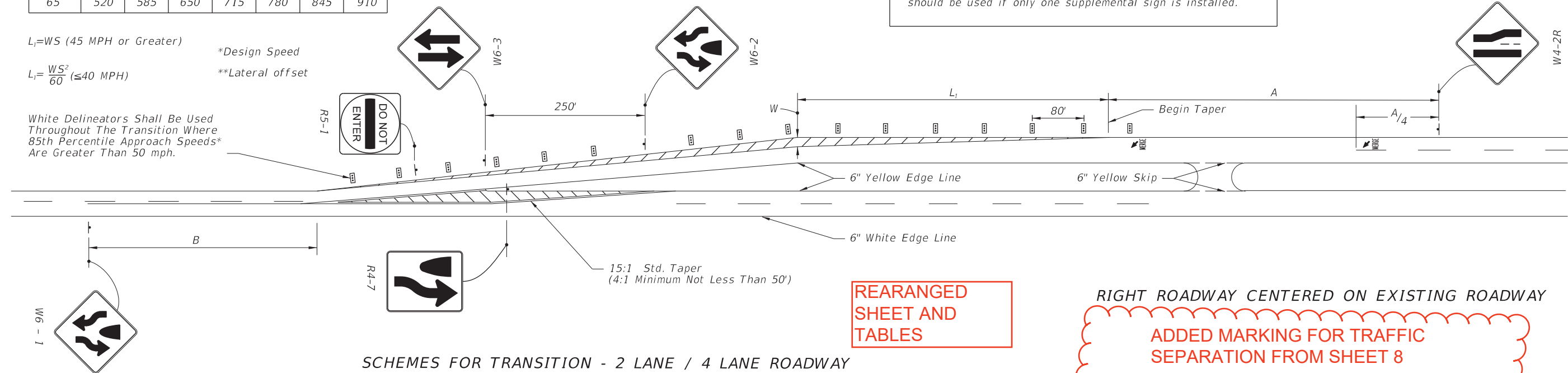
SPEED* MPH	"A" (FT.)	"B" (FT.)
60	---	640
55	950	595
50	850	550
45	750	500
40	650	455
30	450	365

POSTED (DAY) SPEED LIMIT MPH	"y" (FT.)
30 OR LESS	10
35	20
40	20
45	30
50 OR MORE	40



$L_1 = WS$ (45 MPH or Greater) *Design Speed
 $L_1 = \frac{WS^2}{60}$ (≤ 40 MPH) **Lateral offset

White Delineators Shall Be Used Throughout The Transition Where 85th Percentile Approach Speeds* Are Greater Than 50 mph.



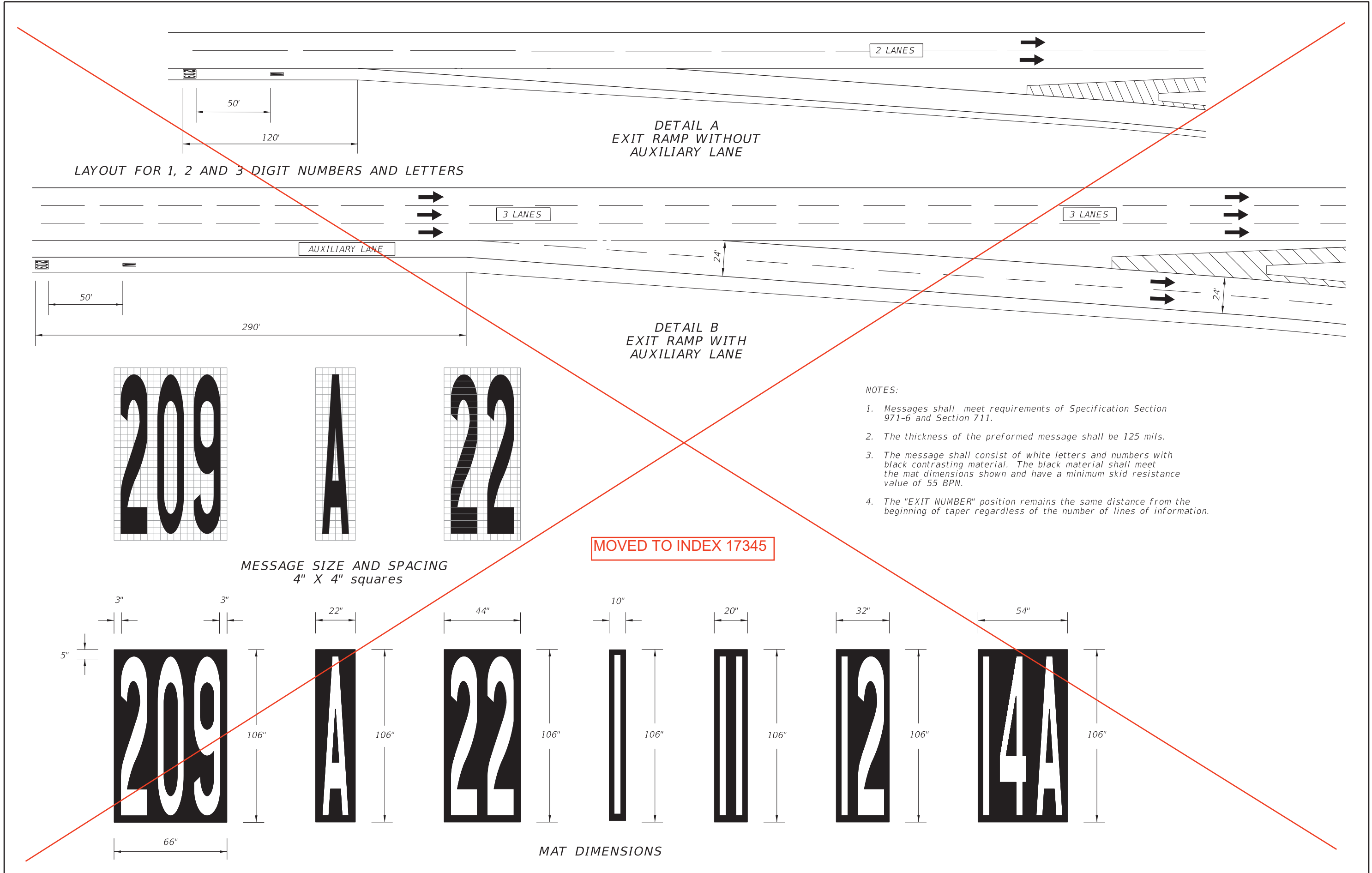
SCHEMES FOR TRANSITION - 2 LANE / 4 LANE ROADWAY

REARRANGED SHEET AND TABLES

RIGHT ROADWAY CENTERED ON EXISTING ROADWAY
 ADDED MARKING FOR TRAFFIC SEPARATION FROM SHEET 8

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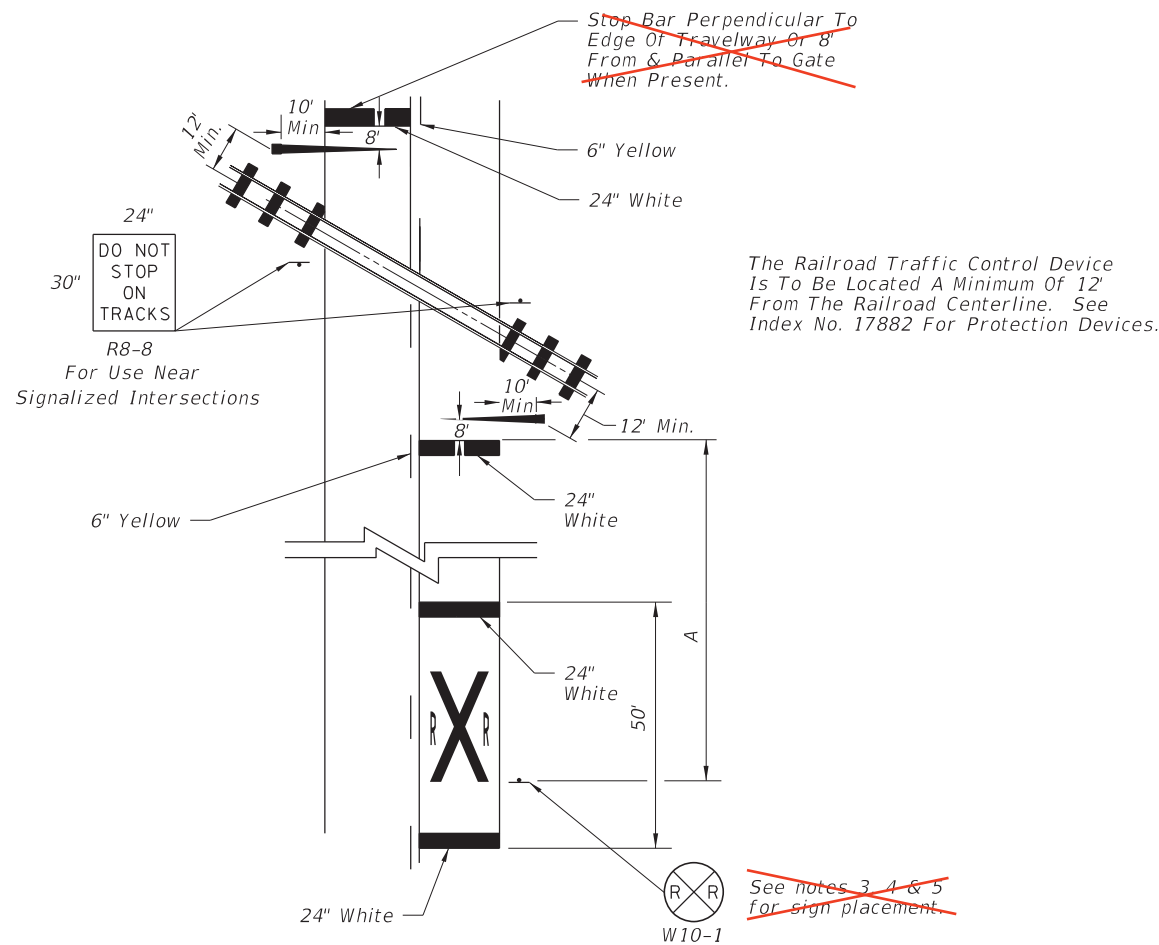
LAST REVISION	REVISION	DESCRIPTION
11/01/16		
11/01/17		



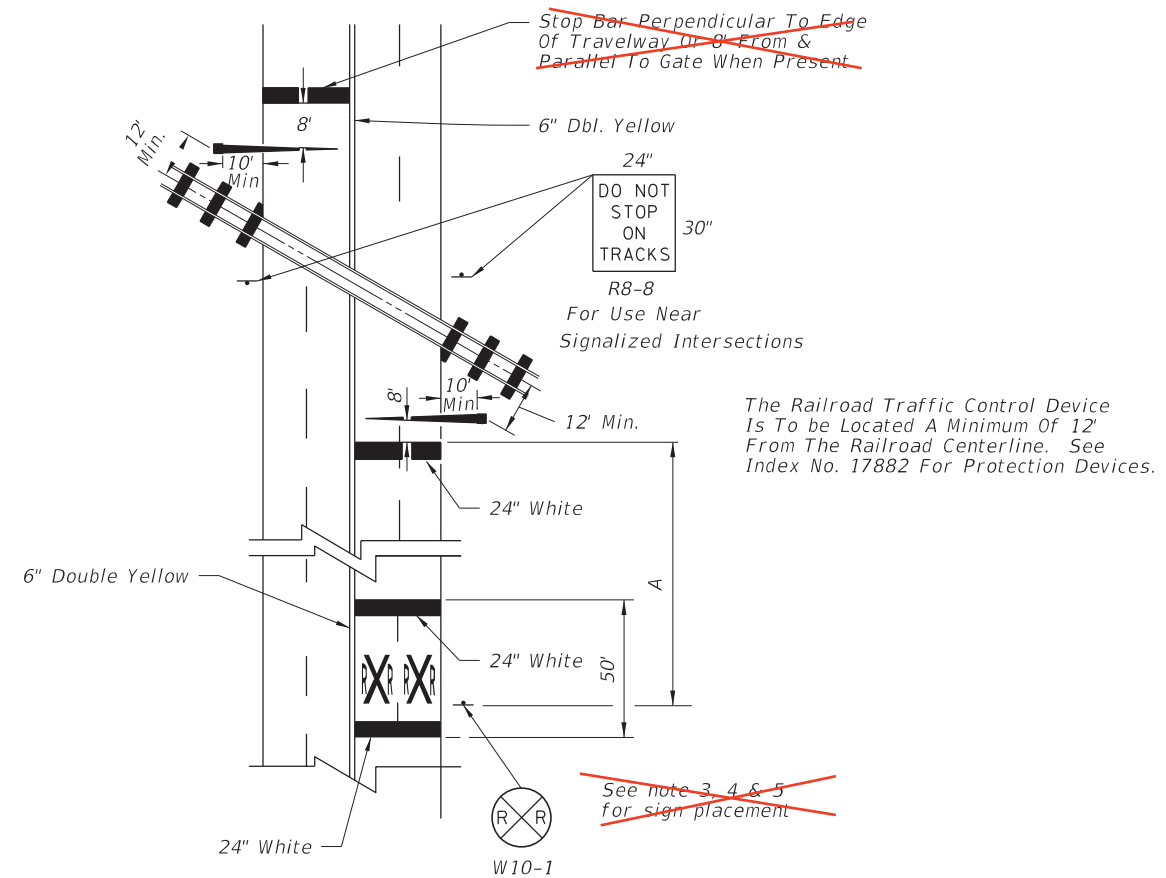
MOVED TO INDEX 17345

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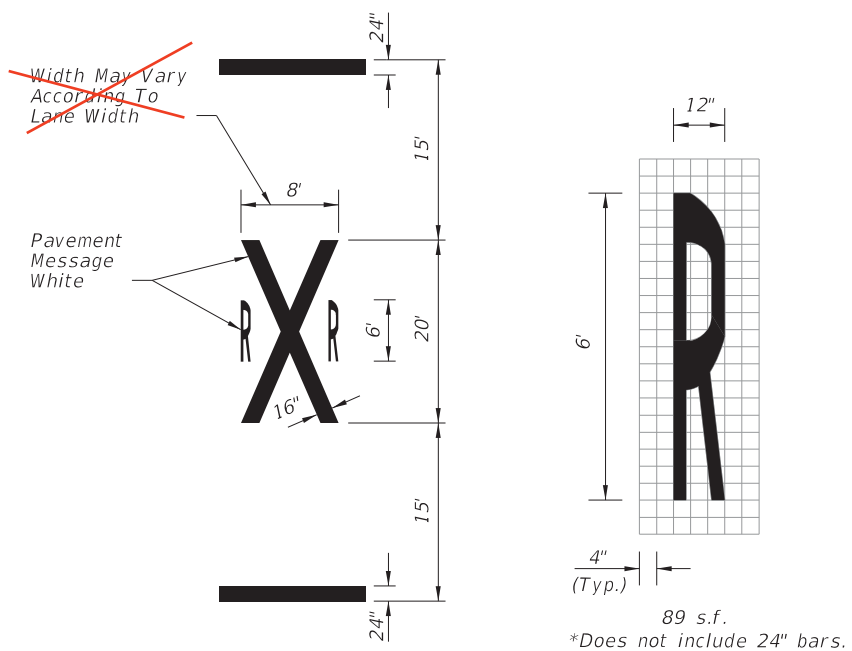
LAST REVISION 11/01/16	DESCRIPTION:	 FY 2017-18 DESIGN STANDARDS	PAVEMENT MARKINGS	INDEX NO. 17346	SHEET NO. 10 of 17
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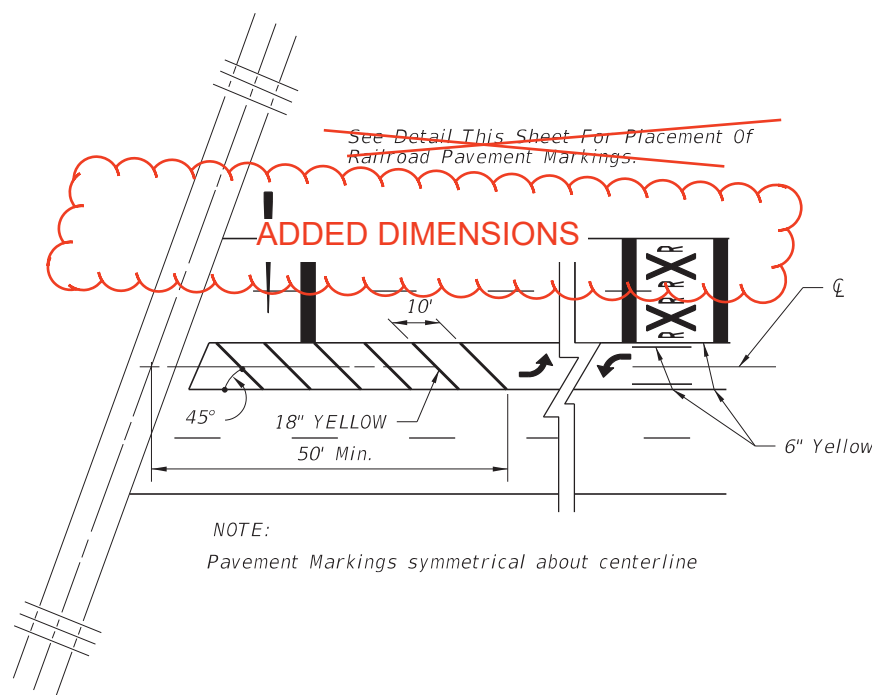
RAILROAD CROSSING AT 2-LANE ROADWAY



RAILROAD CROSSING AT 4-LANE ROADWAY



TYPICAL PAVEMENT MARKINGS FOR R/R CROSSING



PAVEMENT MARKINGS FOR TERMINATION OF TWO WAY LEFT TURN AT R/R CROSSINGS

NOTES:

1. When computing pavement messages, quantities do not include transverse lines.
2. When dynamic devices are not present or are to be installed, the crossbuck shall be located a minimum of 12' from the RR gate or signal and gate. **CHANGED NOTES** lo. 17882.
3. Placement of sign W10-1 in a residential or business district, where low speeds are prevalent. The W10-1 sign may be placed a minimum distance of 100' from the crossing. Where street intersections occur between the RR pavement message and the tracks an additional W10-1 sign & additional Pavement message should be used.
4. Recommended location for FTP-61-06 or FTP-62-06 sign, 100' urban & 300' rural in advance of the crossing.
5. A portion of the pavement marking symbol should be directly opposite the W10-1 sign.

SPEED MPH	" A " IN FT.
60	400
55	325
50	250
45	175
40	125
35	100
URBAN	85 MIN.

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11/01/16

FDOT FY 2017-18 DESIGN STANDARDS

PAVEMENT MARKINGS

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GENERAL NOTES

1. For traffic and pedestrian signal installation, refer to Index No. 17721 through 17890.
2. For public sidewalk curb ramps, refer to Index No. 304.
3. For pavement marking and sign installation, refer to Indexes 11200 through 17356.
4. Crosswalk minimum widths: Intersection Crosswalk 6'. Midblock Crosswalk 10'.
5. All crosswalk marking must be white.

CHANGED NOTES

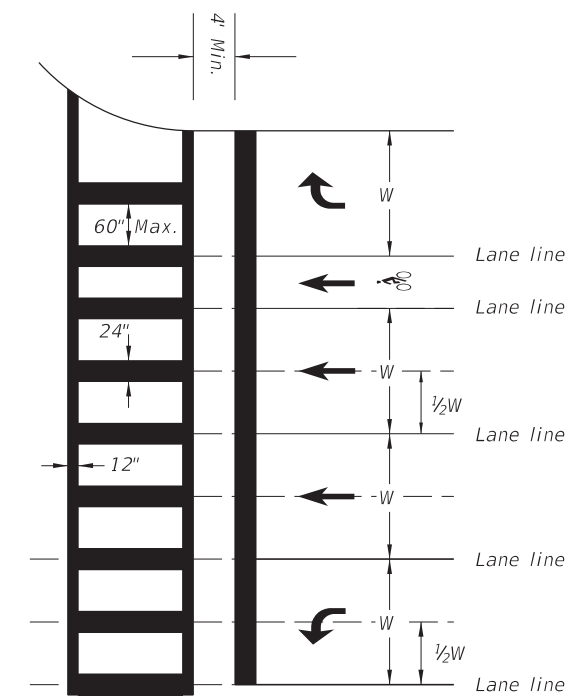
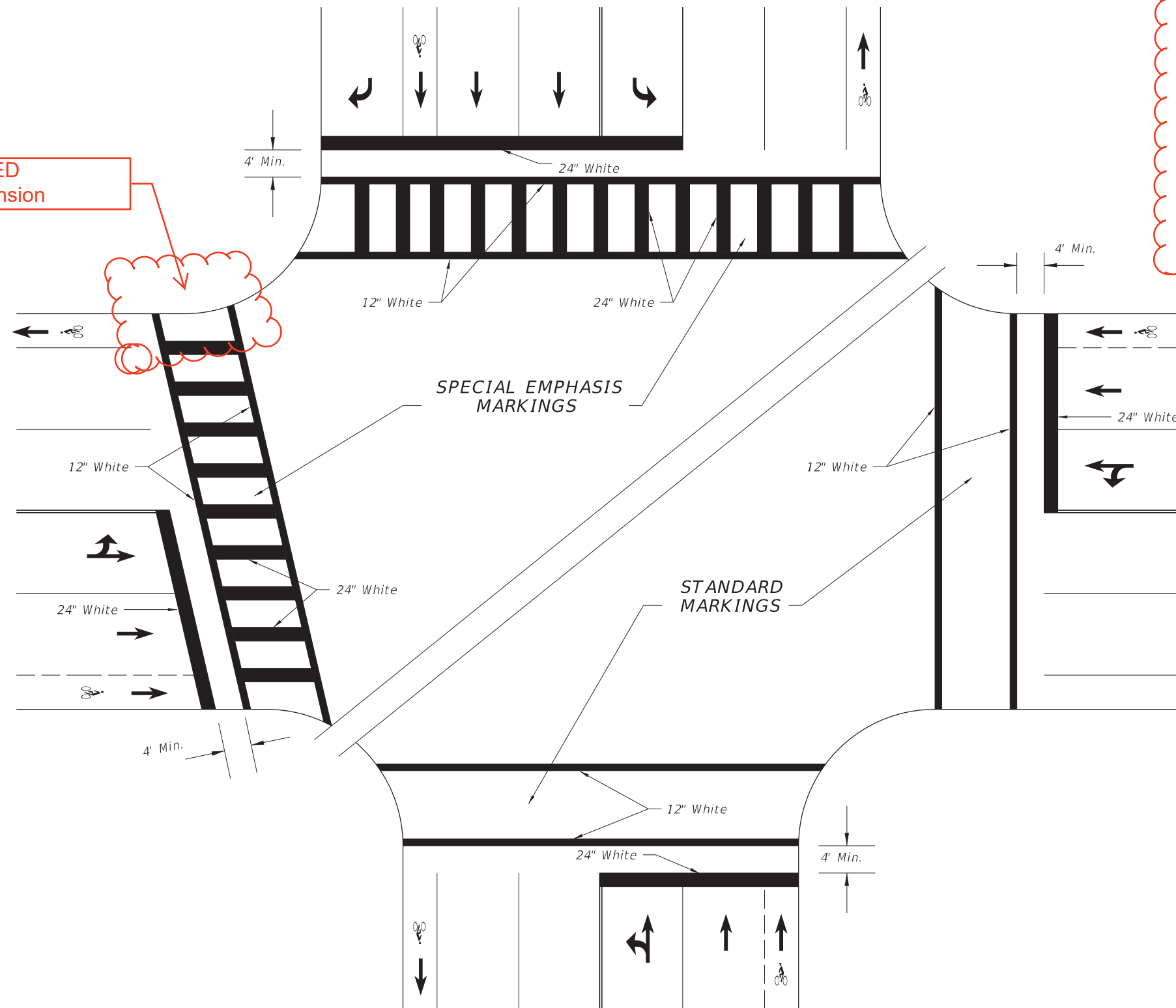
6. Longitudinal markings in the wheel path of vehicles (see detail). Center the longitudinal markings at each lane line. Place additional longitudinal markings at the center of each lane (1/2W). The maximum spacing allowed between longitudinal markings is 60".

When the Crosswalk is skewed to the lane lines, the longitudinal markings should be parallel to the lane lines.

24" Longitudinal Bars in Special Emphasis Crosswalk must be preformed thermoplastic.

12" Transverse lines in the Special Emphasis Crosswalk may be standard thermoplastic or preformed thermoplastic.

ADDED Dimension



SPECIAL EMPHASIS CROSSWALK MARKING DETAIL

SPECIAL EMPHASIS AND STANDARD CROSSWALKS SIGNALIZED OR STOP SIGN CONTROLLED INTERSECTION

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LAST REVISION	DES	11/01/17
11/01/16	DES	

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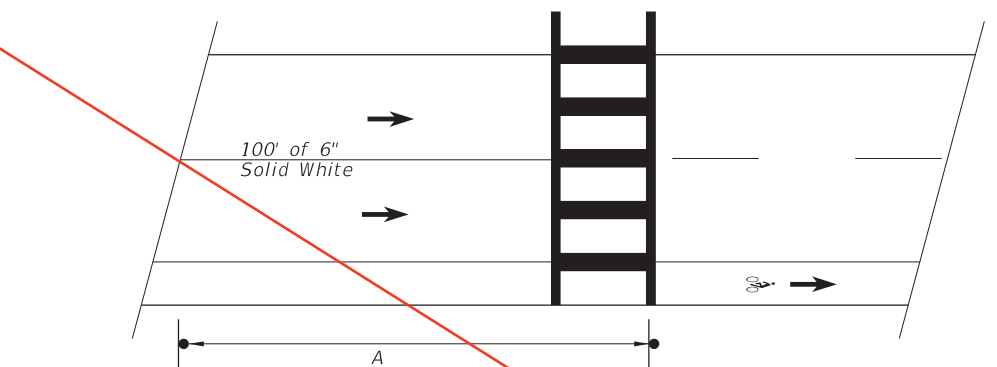
PAVEMENT MARKINGS

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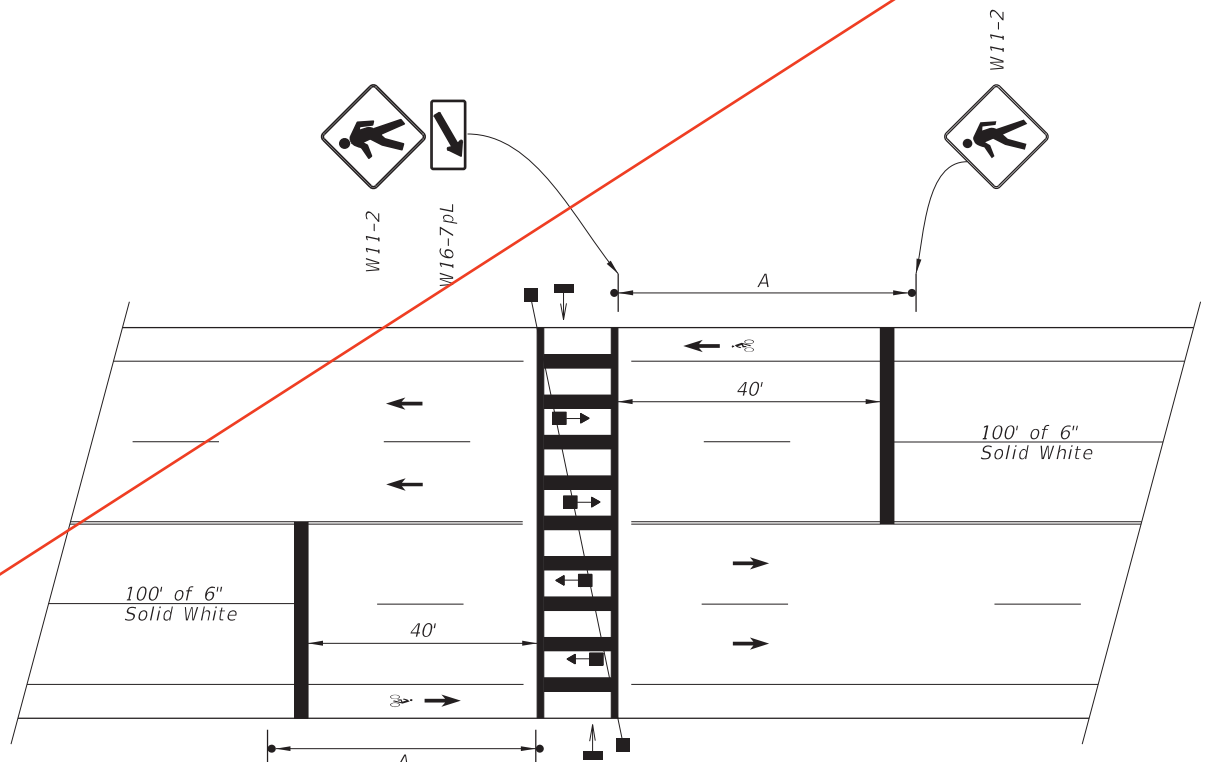
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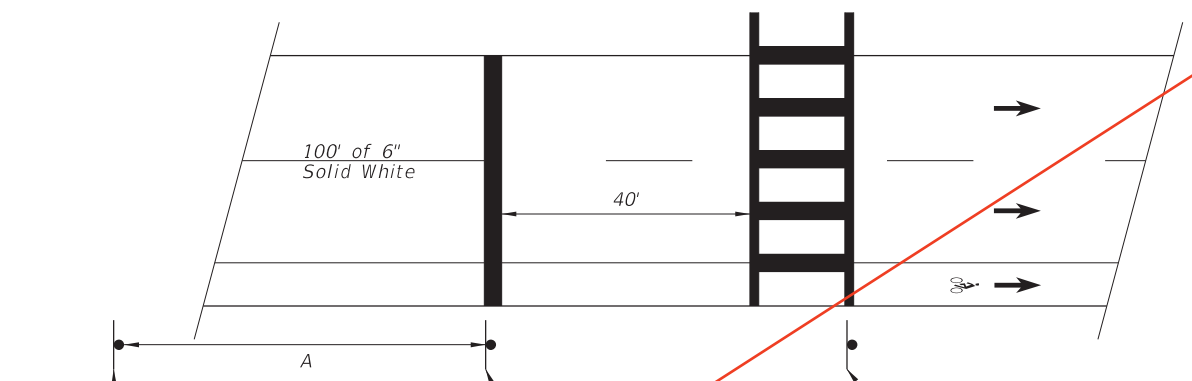


SCHEME 1
Crosswalk
with Warning Signing

**MOVED TO FDOT
DESIGN MANUAL**



SCHEME 3
Signalized
Crosswalk

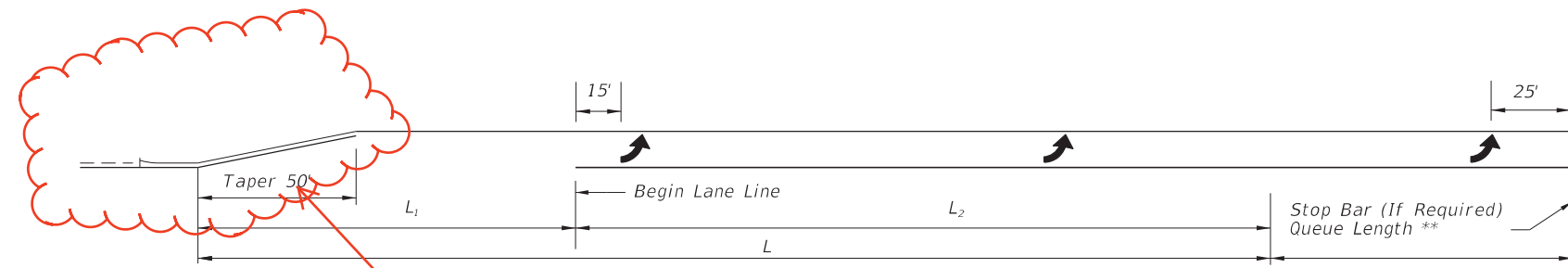


SCHEME 2
Crosswalk
with Stop Signing

APPROACH SPEED MPH	A-SUGGESTED DISTANCE (Ft.)
25 Or Less	200
26 To 35	250
36 To 45	300

1. Plans shall indicate which crosswalk scheme is to be used.
2. The details shown do not depict the signing and markings for multi-lane roadways with divided medians. For these applications, additional signs shall be installed on the median side. Minimum width of Mid-Block Crosswalks is 10'.
3. All mid-block crosswalks shall use special emphasis crosswalk markings.
4. Crosswalk marking shall be preformed marking materials.

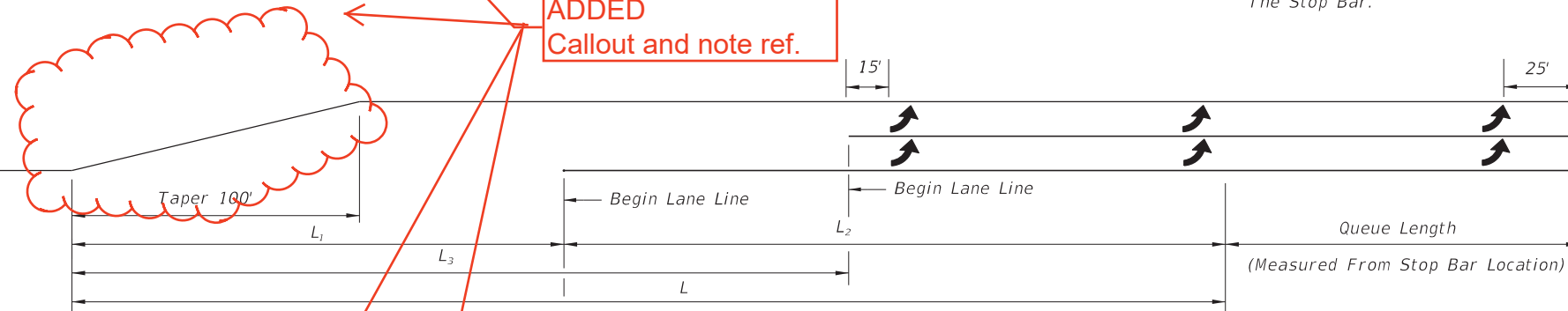
10/14/2016 8:38:20 AM



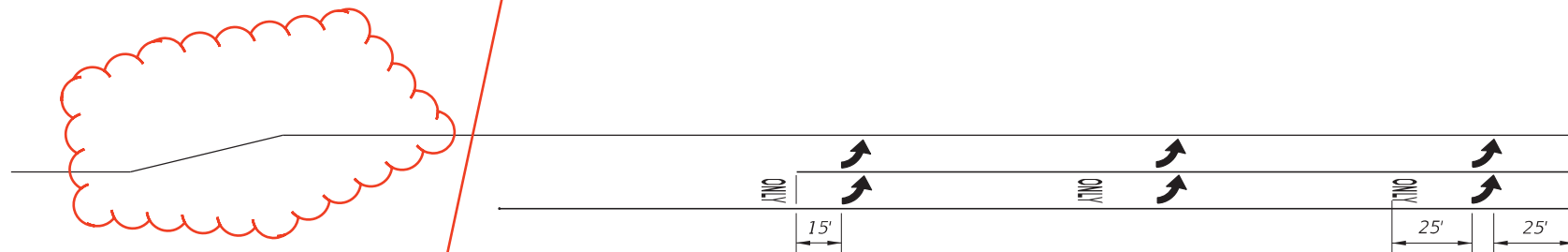
SINGLE LEFT TURNS

** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.

ADDED
Callout and note ref.

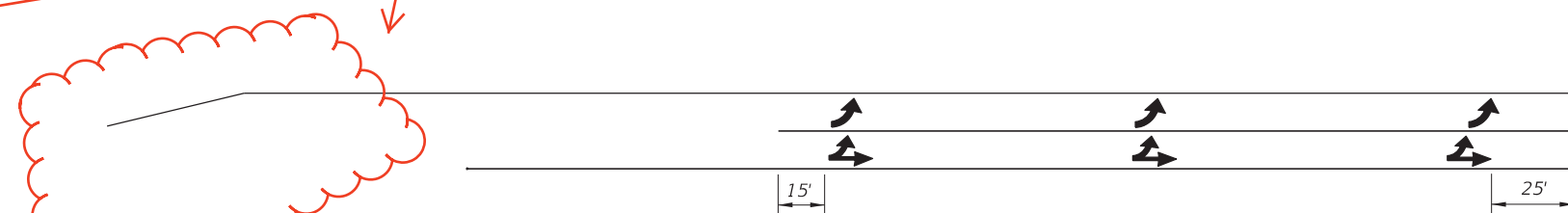


~~DOUBLE LEFT TURNS~~



Through Lane Becomes Exclusive Left Turn

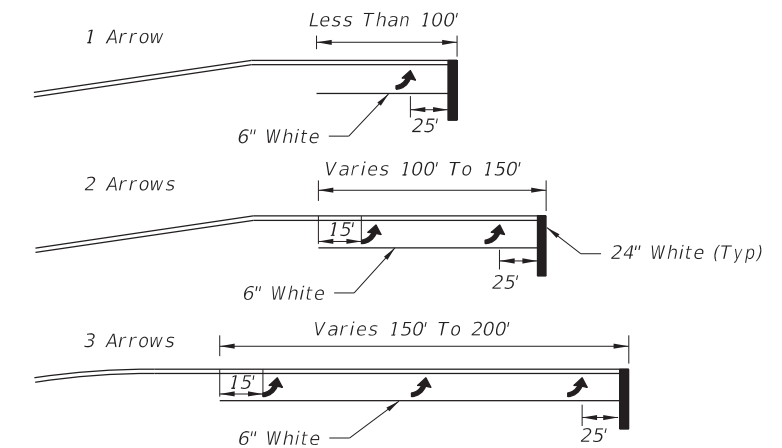
The ONLY pavement message is required for turn lanes, where the thru lane becomes turn lane



Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURN MARKINGS

Design Speed (mph)	TURN LANES - CURBED AND UNCURBED MEDIANS						
	Clearance Distance	URBAN CONDITIONS			RURAL CONDITIONS		
		Brake To Stop Distance	Total Decel. Distance	Clearance Distance	Brake To Stop Distance	Total Decel. Distance	Clearance Distance
L_1	L_2	L	L_3	L_2	L	L_3	
35	70'	75'	145'	110'	---	---	---
40	80'	75'	155'	120'	---	---	---
45	85'	100'	185'	135'	---	---	---
50	105'	135'	240'	160'	185'	290'	160'
55	125'	---	---	---	225'	350'	195'
60	145'	---	---	---	260'	405'	230'
65	170'	---	---	---	290'	460'	270'



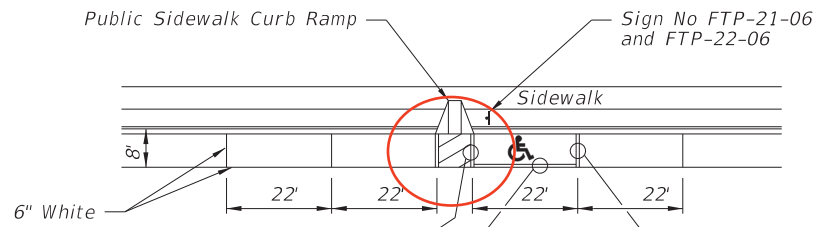
Arrow should be evenly spaced between first and last arrow. Turn lanes longer than 200' add one arrow for each 100' additional length.

ARROW SPACING

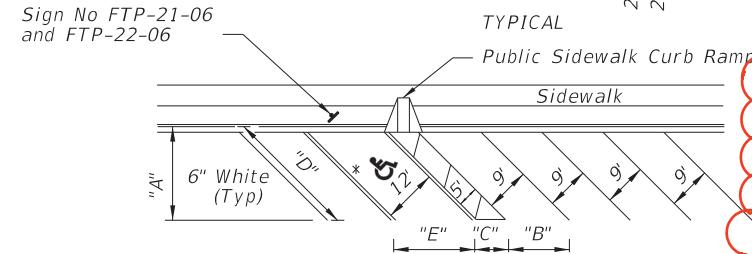
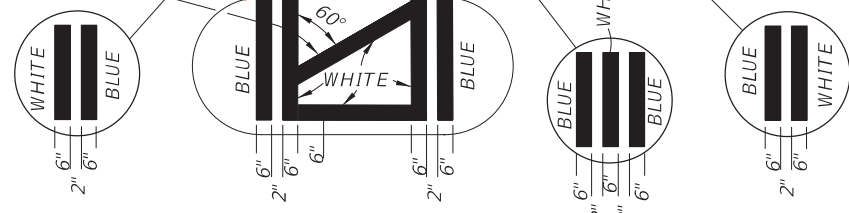
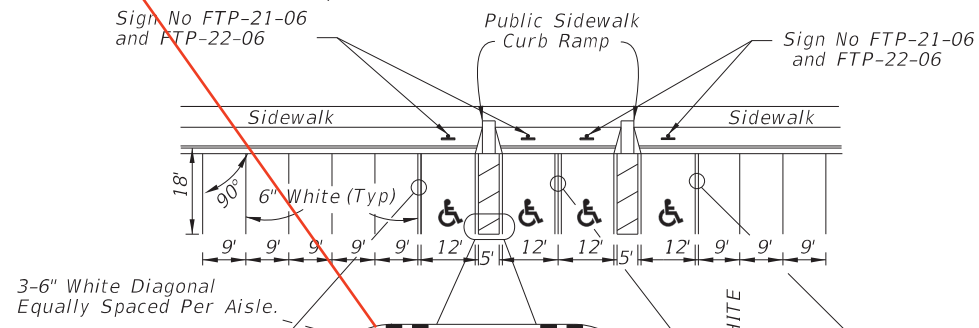
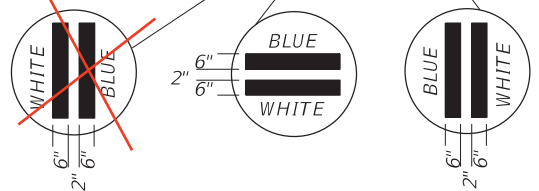
NOTES:

1. The "Begin Lane Line" locations are based on the standard lengths shown in Design Standard 301. These locations must be adjusted on a case by case basis for turn lanes not meeting the standard lengths.
2. Yellow left turn **CHANGED NOTES** adjacent to raised curb or grass medians if their use is not readily apparent to drivers approaching a left turn storage lane.
3. Refer to Design Standard Index 301 for Roadway Details.
4. This Index also applies to right turn lanes.

10/14/2016 8:38:22 AM



ADDED DETAIL AS BELOW

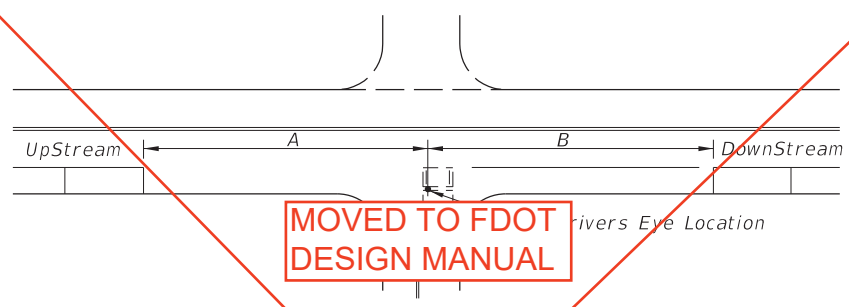


* FOR ACCESSIBLE MARKINGS - SEE ABOVE

"DIMENSIONS"					
∠ θ	"A"	"B"	"C"	"D"	"E"
45°	19'-1"	12'-9"	7'-0"	27'-0"	17'-0"
60°	20'-1"	10'-5"	5'-9"	23'-2"	13'-10"

- NOTES:
1. Dimensions are to the centerline of markings.
 2. An Access Aisle is required for each accessible space when angle parking is used.
 3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
 4. Blue pavement markings shall be tinted to match shade 15180 of Federal Standards 595a.
 5. The FTP-22-06 panel shall be mounted below the FTP-21-06 sign.

PAVEMENT MARKING FOR PUBLIC SIDEWALK CURB RAMP IN REST AREAS



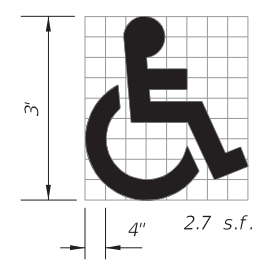
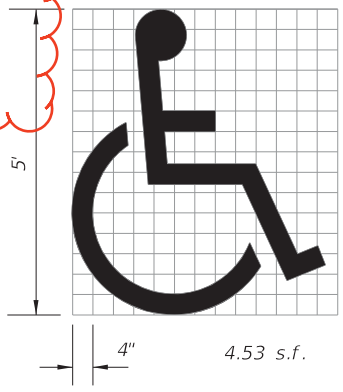
SPEED MPH	UP STREAM (A)	DOWN STREAM (B)	
		2 LANE	4 LANE
0-30	85'	60'	45'
35	100'	70'	50'

NOTES

1. Distances measured longitudinally along the street from driver location of entering vehicle to end of parking restriction.
2. Distances applicable to intersecting street, major driveways and other driveways to the extent practical.
3. For nonsignalized intersections, the values above shall be compared with the values for signalized intersections and the maximum restrictions implemented. These restrictions apply to both accessible and nonaccessible parking.

MINIMUM PARKING RESTRICTION FOR NONSIGNALIZED INTERSECTIONS

ADDED REVERSE-IN PARKING



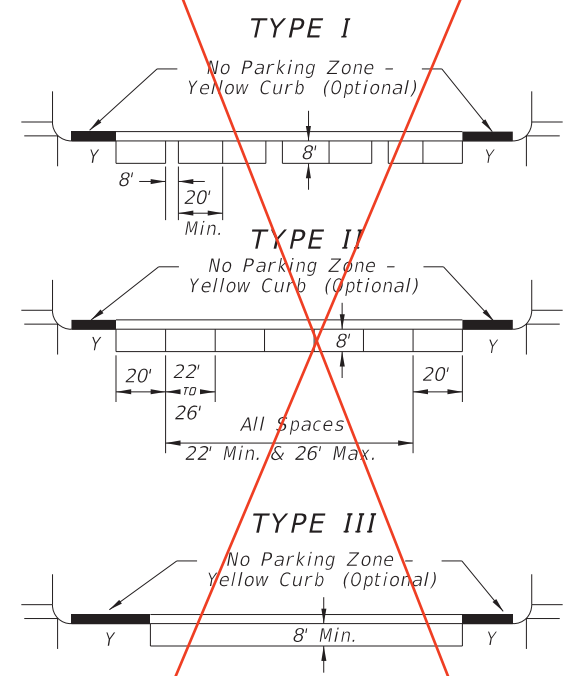
Use of pavement symbol in accessible parking spaces is optional, when used the symbol shall be 3' or 5' high and white in color.

UNIVERSAL SYMBOL OF ACCESSIBILITY

GENERAL NOTES (Signalized & Nonsignalized)

1. For entrances to a one-way street, the downstream restriction may be reduced to 20'.
2. Parking shall not be allowed within 20' of a crosswalk.
3. All parking lane markings shall be 6" white.
4. Parking lane lines shall be broken at driveways.
5. Refer to Chapter 316, Fla. Statutes, for laws governing parking spaces.
6. Where curb and gutter is used, the gutter pan width may be included as part of the minimum width of parking lane, but desirably the lane width should be in addition to that.

MOVED TO FDOT DESIGN MANUAL



SPEED LIMIT MPH	SIGNALIZED INTERSECTIONS
0-30	30'
35	50'

DISTANCE FROM CURB RADIUS (Y)

PARKING RESTRICTION (FT.) FOR SIGNALIZED INTERSECTION

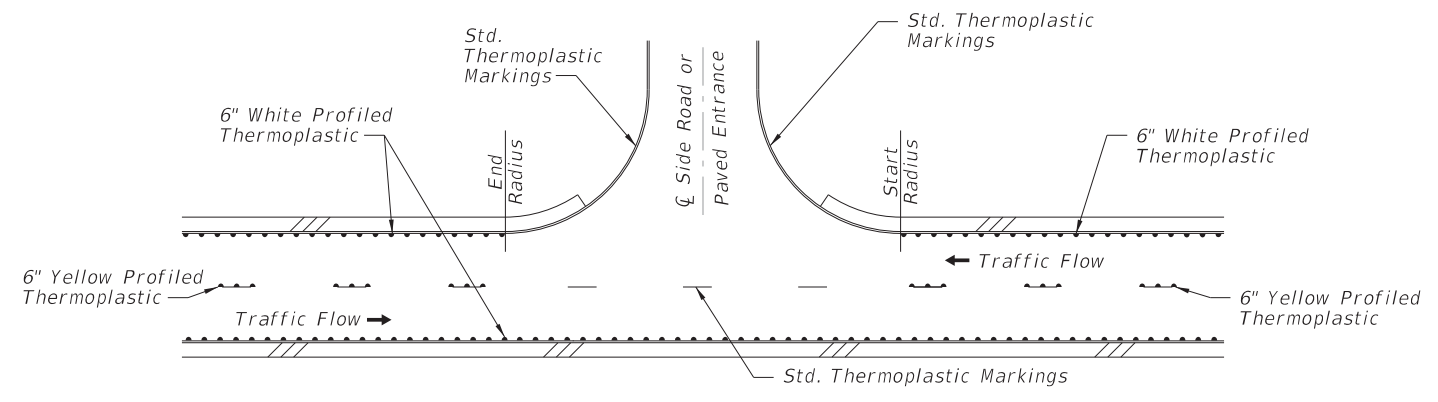
NOTES:

1. Parking restrictions measured from curb radius point.
2. Restrictions for accessible parking are the same as those applied to nonsignalized intersections.

MINIMUM PARKING RESTRICTION FOR SIGNALIZED INTERSECTION

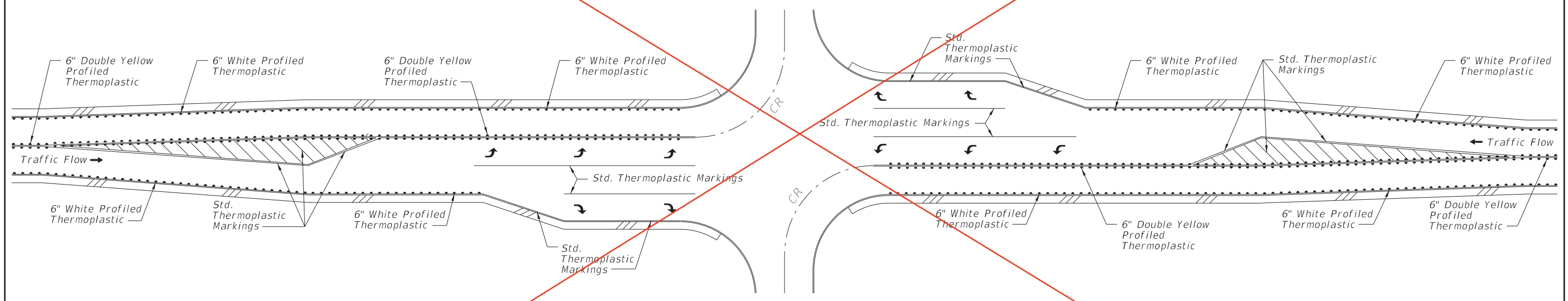
10/14/2016 8:38:24 AM

LAST REVISION 11/01/16
REVISION D 11/01/17



TYPICAL RURAL INTERSECTION WITHOUT TURN LANES

DELETED SHEET



TYPICAL RURAL INTERSECTION WITH TURN LANES

GENERAL NOTES:

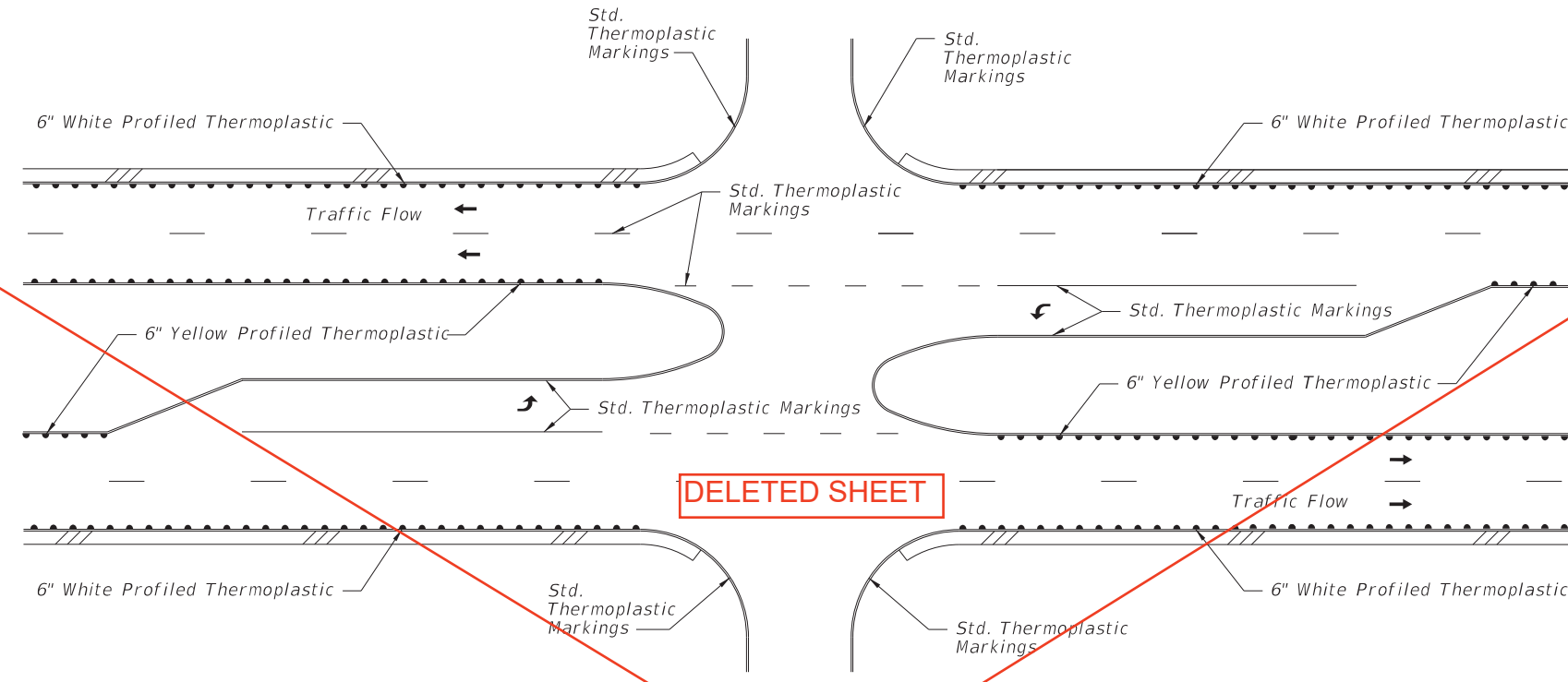
1. Remove raised retroreflective pavement markers when in conflict with the installation of the centerline profiled thermoplastic pavement markings. The cost of removal is included in the cost of the profiled thermoplastic pavement marking.
2. Replacement of retroreflective pavement markers removed during the installation of the centerline profiled thermoplastic pavement markings will be paid for under Pay Item 706.

10/14/2016 8:38:27 AM

PROFILED THERMOPLASTIC MARKINGS 2 LANE ROADWAYS

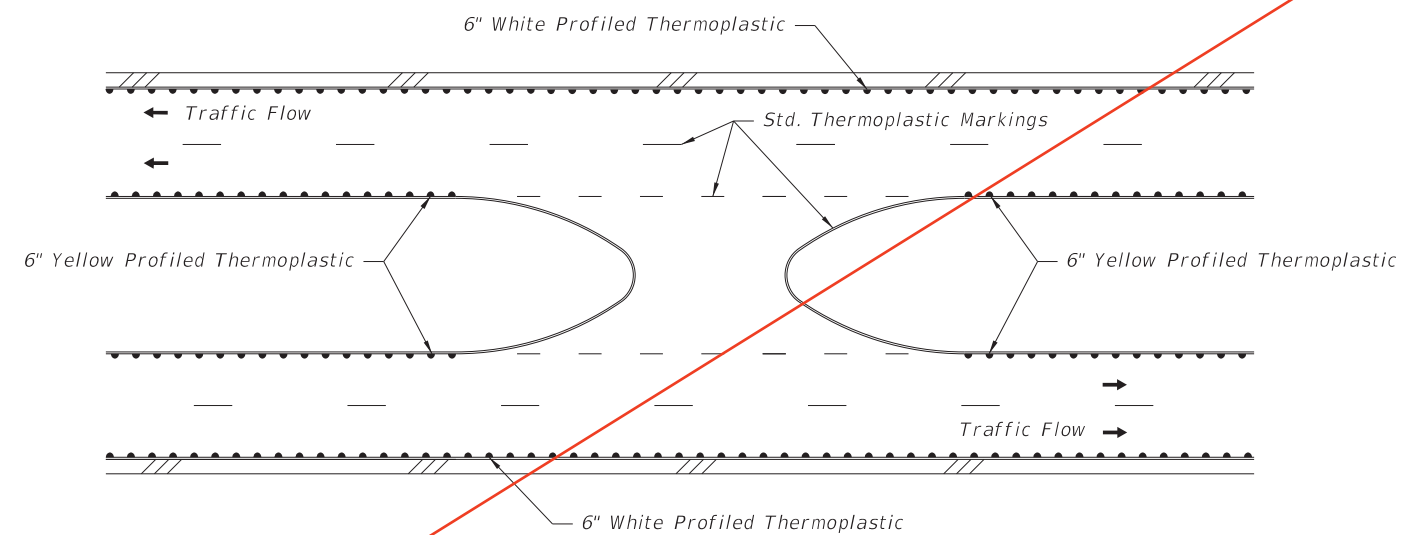
LAST REVISION 11/01/16	DESCRIPTION:	 FY 2017-18 DESIGN STANDARDS	PAVEMENT MARKINGS	INDEX NO. 17346	SHEET NO. 16 of 17

REFERENCE:
See Profiled Thermoplastic Markings General Notes on Sheet 13.

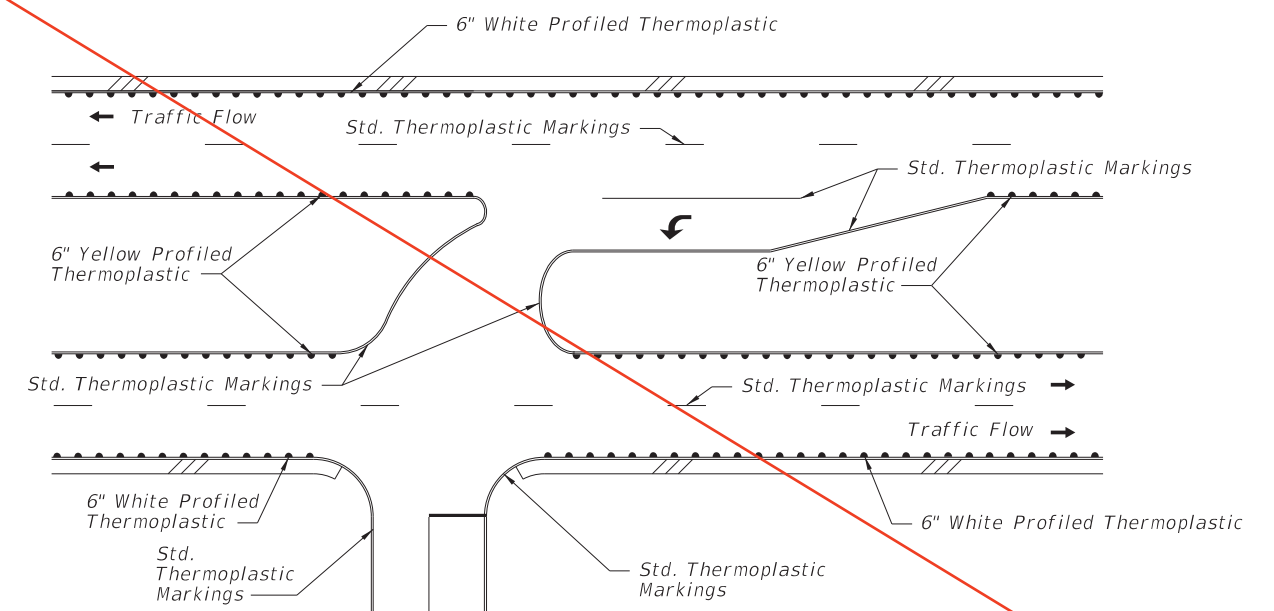


DELETED SHEET

TYPICAL RURAL INTERSECTION



TYPICAL RURAL MEDIAN OPENING



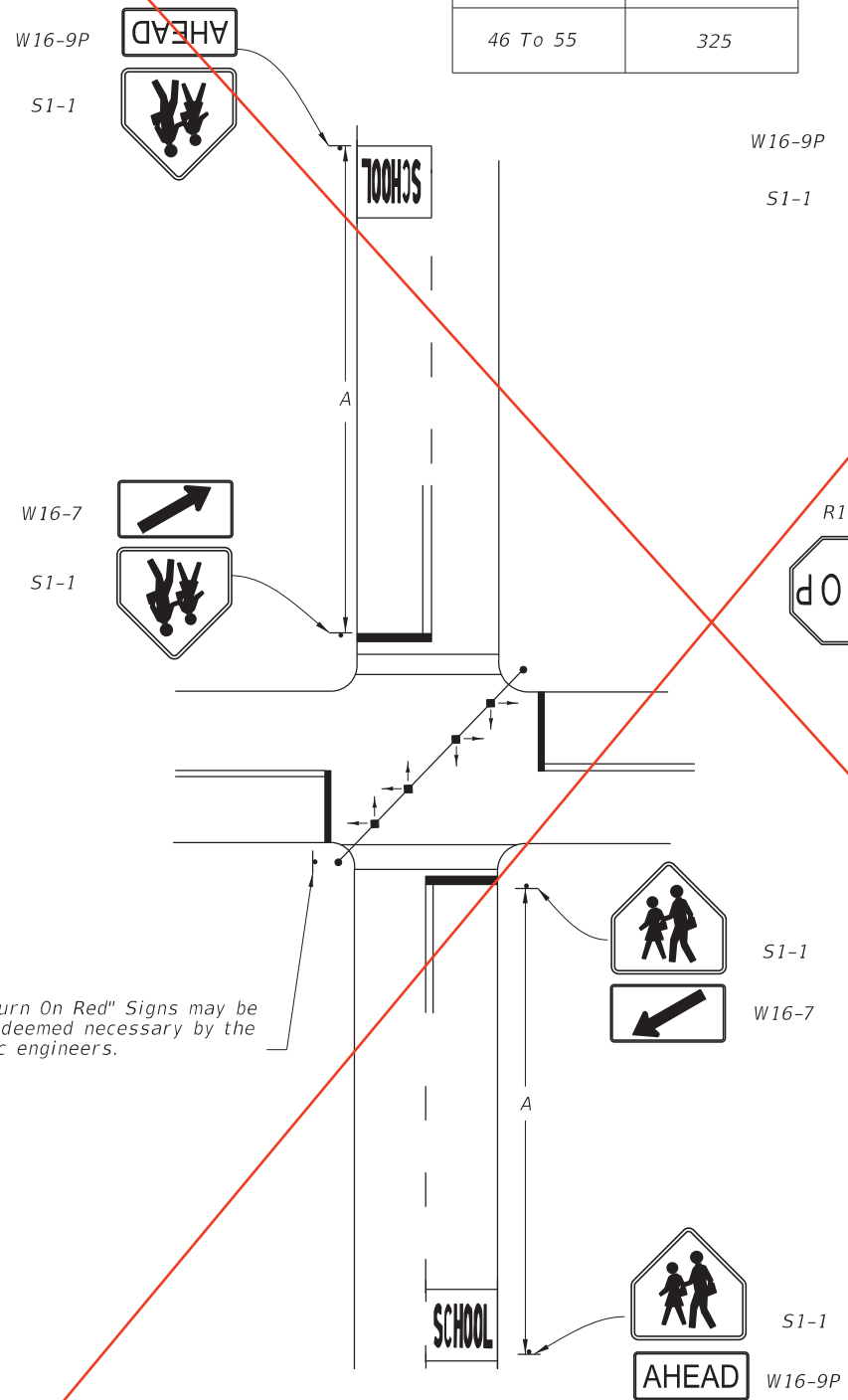
TYPICAL RURAL DIRECTIONAL INTERSECTION

PROFILED THERMOPLASTIC MARKINGS MULTI-LANE ROADWAYS

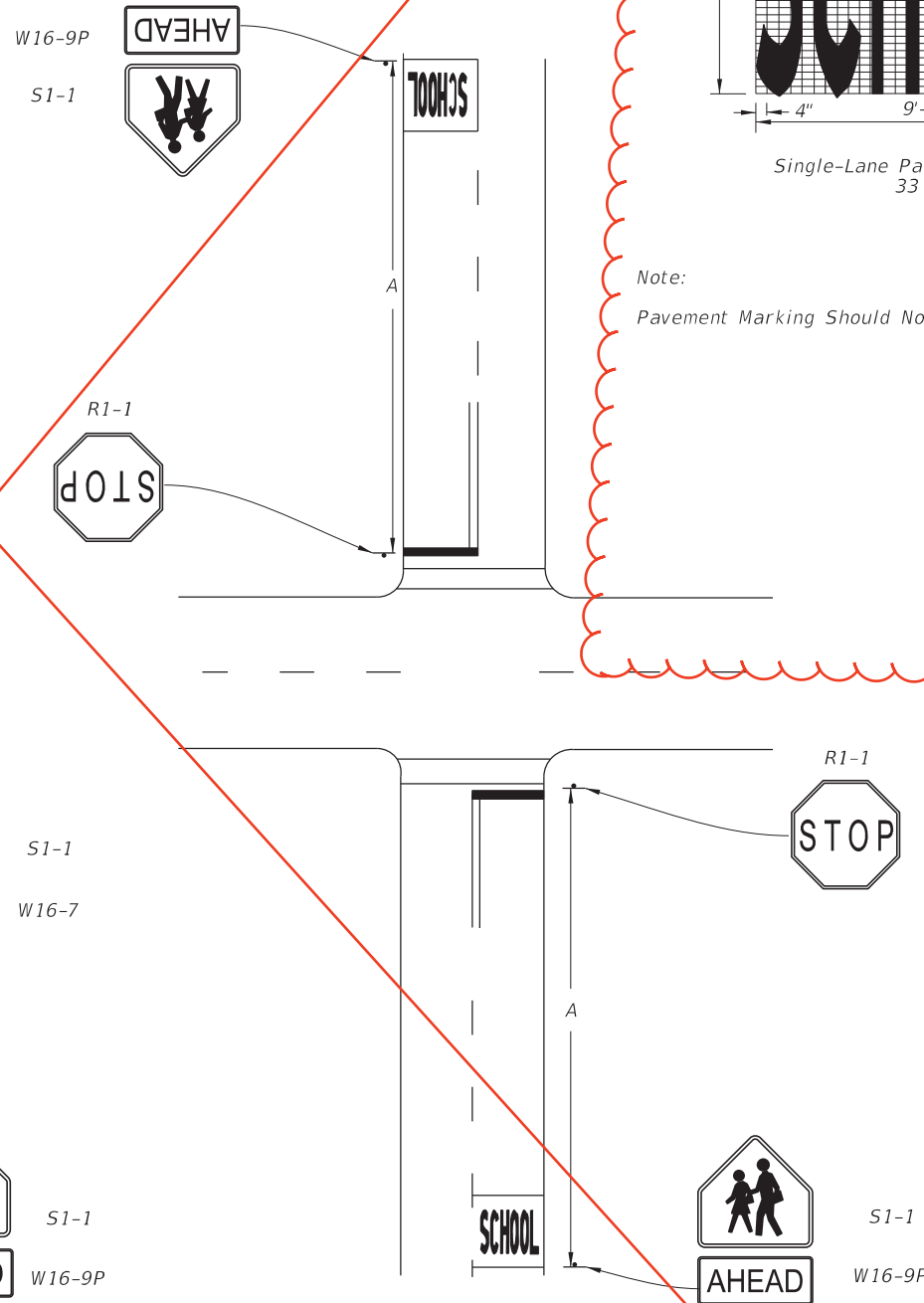
10/14/2016 8:38:29 AM

LAST REVISION 11/01/16	REVISION DESCRIPTION:	 FY 2017-18 DESIGN STANDARDS	PAVEMENT MARKINGS	INDEX NO. 17346	SHEET NO. 17 of 17
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Approach Speed (MPH)	Distance A (FT.)
25 or Less	200
26 To 35	250
36 To 45	300
46 To 55	325

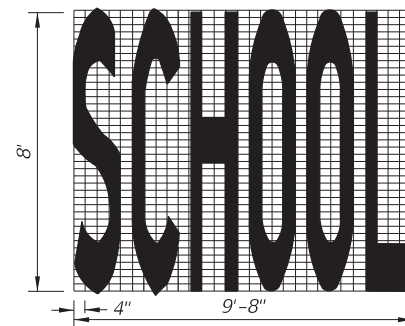


1. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A SIGNALIZED INTERSECTION



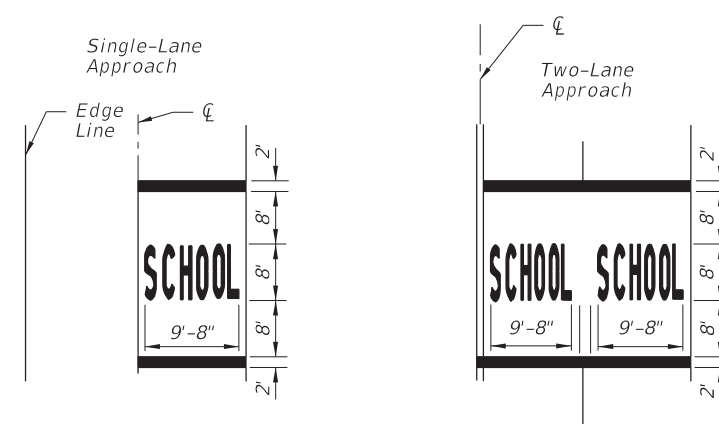
2. TRAFFIC CONTROL DEVICES FOR A SCHOOL CROSSWALK AT A STOP CONTROLLED INTERSECTION

Note:
Special speed restrictions are not normally applicable to these two cases.

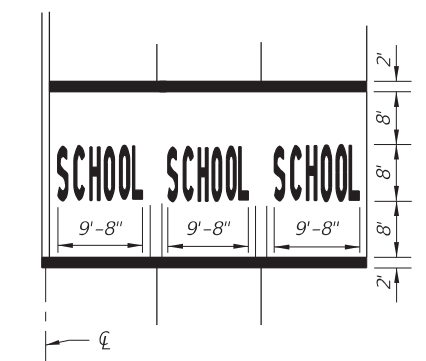


Single-Lane Pavement Marking
33 s.f.

Note:
Pavement Marking Should Not Extend Into Opposing Lane.



Multi-Lane Approach
(Three or More)



PAVEMENT MARKINGS

Notes:
Signs shall be erected in accordance with index No. 17302.
When computing pavement messages quantities do not include transverse lines.
School crosswalk widths at intersections shall be 6' minimum 10' standard without public sidewalk curb ramps 10' minimum with public sidewalk curb ramps. The width is measured from inside of line to inside of line.
For additional marking information, see Index 17346, Sheet 2.

NEW SHEET

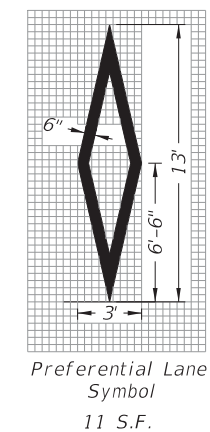
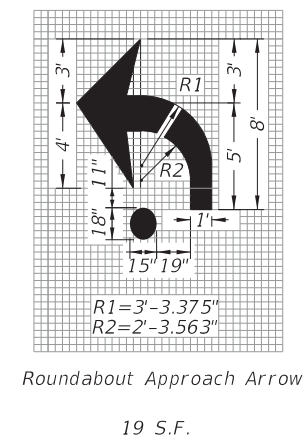
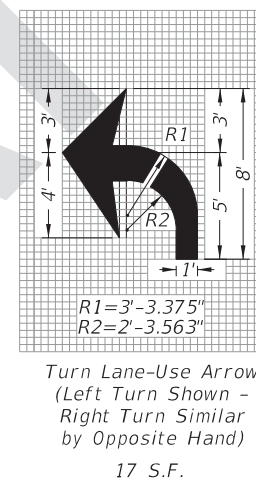
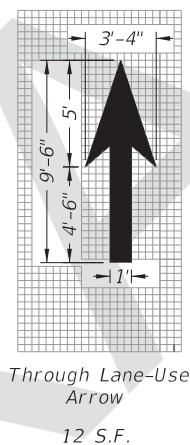
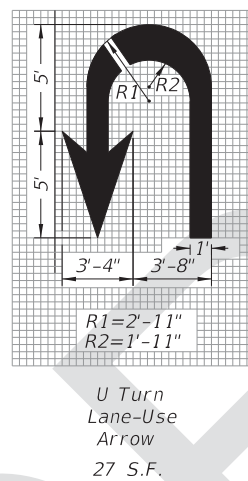
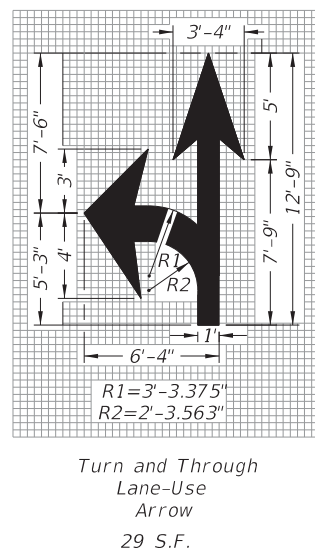
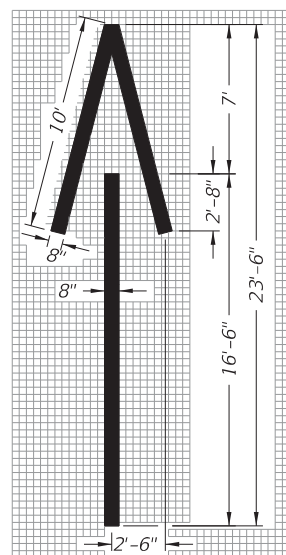
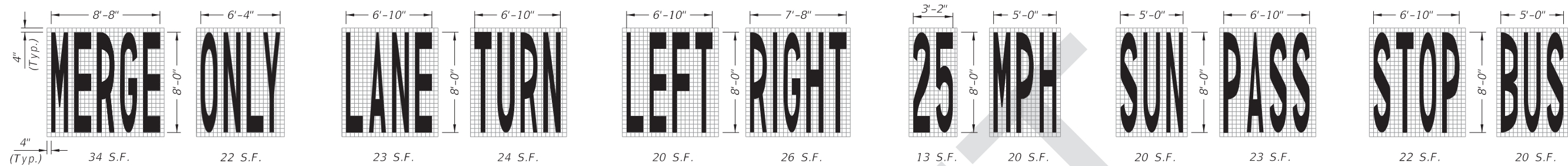
PAVEMENT MARKINGS

711-001

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10/14/2016 8:24:17 AM

REVISION	DESCRIPTION:	FDOT	FY 2017-18	INDEX NO.	SHEET NO.
LAST REVISION			DESIGN STANDARDS	17344	1 of 6
01/01/12					



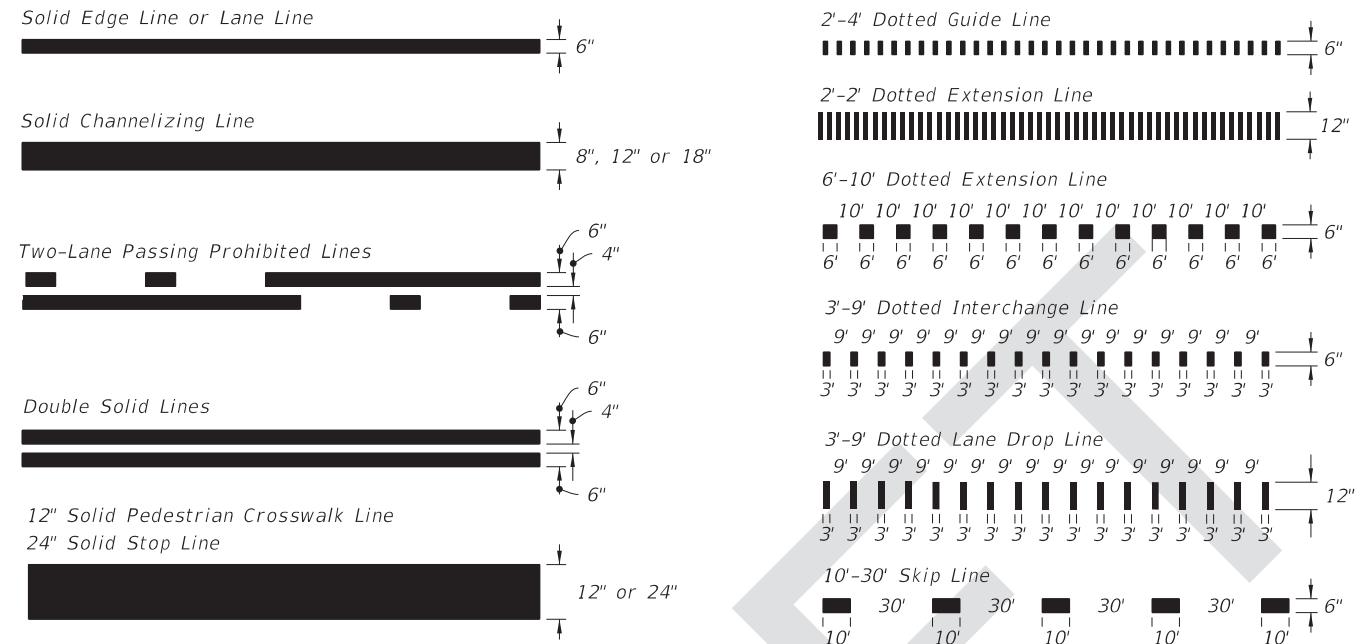
NOTES:

1. When an arrow and a pavement message are used together, locate the arrow 25' downstream from the pavement message. Measure the distance from the base of the arrow to the base of the pavement message.
2. Place stop message 25' back from the stop line.
3. Dimensions are within 1" ±.
4. All grids are 4" x 4".

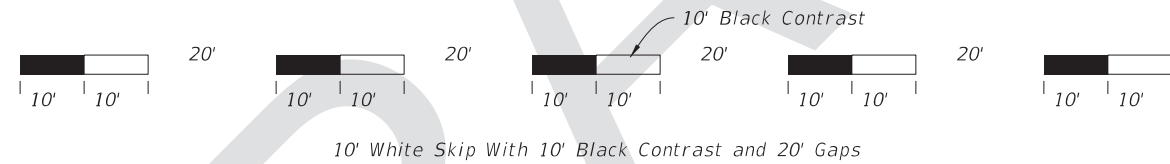
PAVEMENT MESSAGE AND ARROW DETAILS

8/29/2017 3:52:55 PM

LAST REVISION 11/01/17	REVISION	DESCRIPTION:		FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 1 of 14
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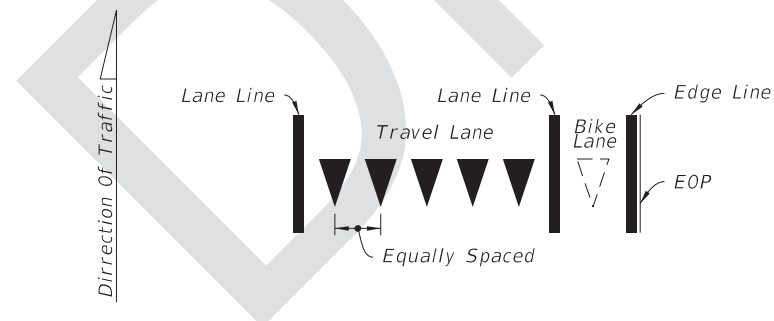


PAVEMENT MARKING LINES



CONTRAST MARKINGS WITH ALTERNATING SKIP PATTERN


(10'-30' Skip Line Shown, Dotted Lines Similar)

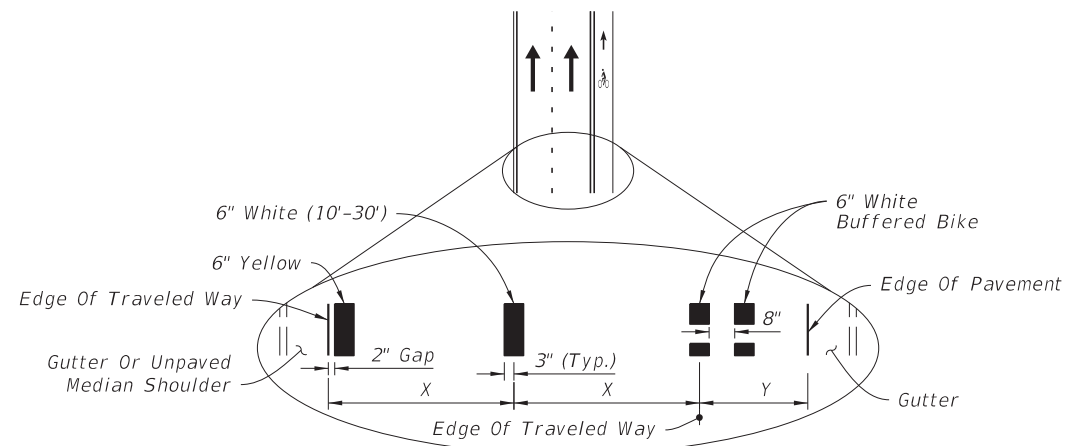


Yield Lines consist of five - 18" X 27" white triangles which face traffic. Equally space triangles within traffic lane. When a bike lane is present, add one additional triangle in the center of the bike lane.

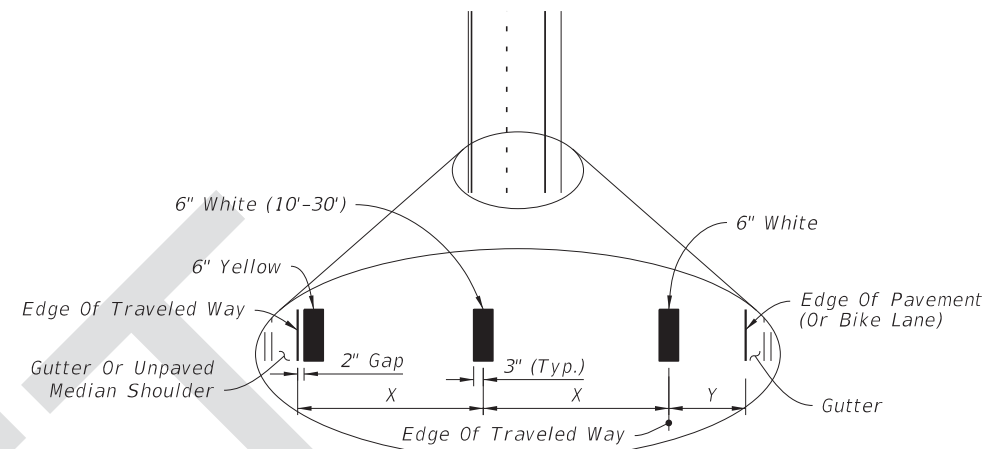
YIELD LINES

8/29/2017 3:52:55 PM

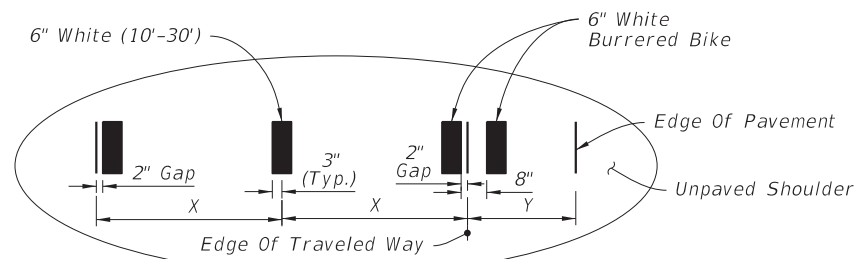
LAST REVISION 11/01/17	REVISION	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 2 of 14
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CURB AND GUTTER

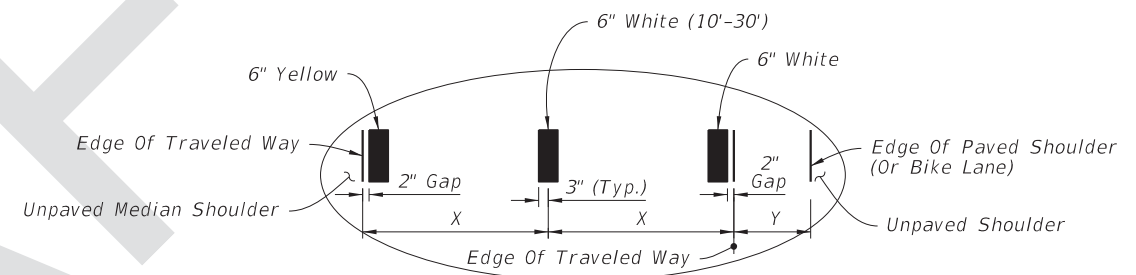


CURB AND GUTTER



FLUSH SHOULDER

X = LANE WIDTH (FT.)
Y = BUFFERED BIKE LANE WIDTH (FT.)

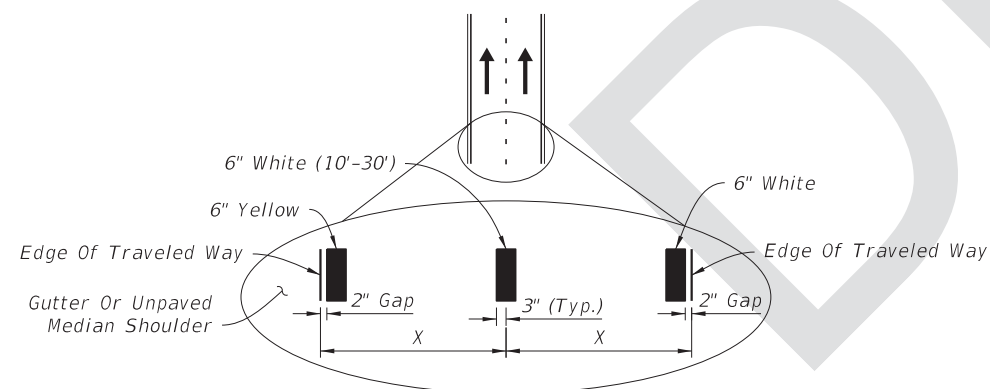


FLUSH SHOULDER

X = LANE WIDTH (FT.)
Y = PAVED SHOULDER / BIKE LANE

STRIPING FOR BUFFERED BIKE LANE

STRIPING WITH SHOULDER OR NON-BUFFERED BIKE LANE



X = LANE WIDTH (FT.)


STRIPING WITH NO SHOULDER OR BIKE LANE

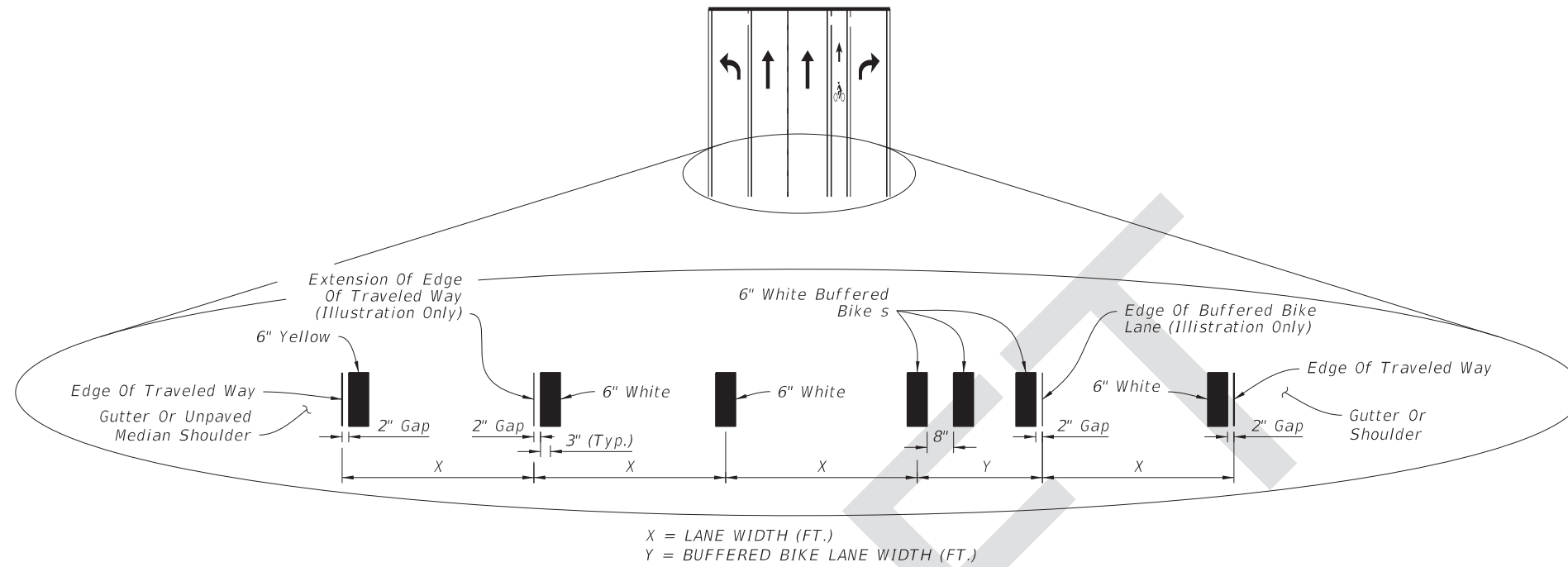
NOTES:

1. Lane widths (X) may not be same for each lane in the section.
2. For placement of RPMs, see Index 706-001.

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

8/29/2017 3:52:55 PM

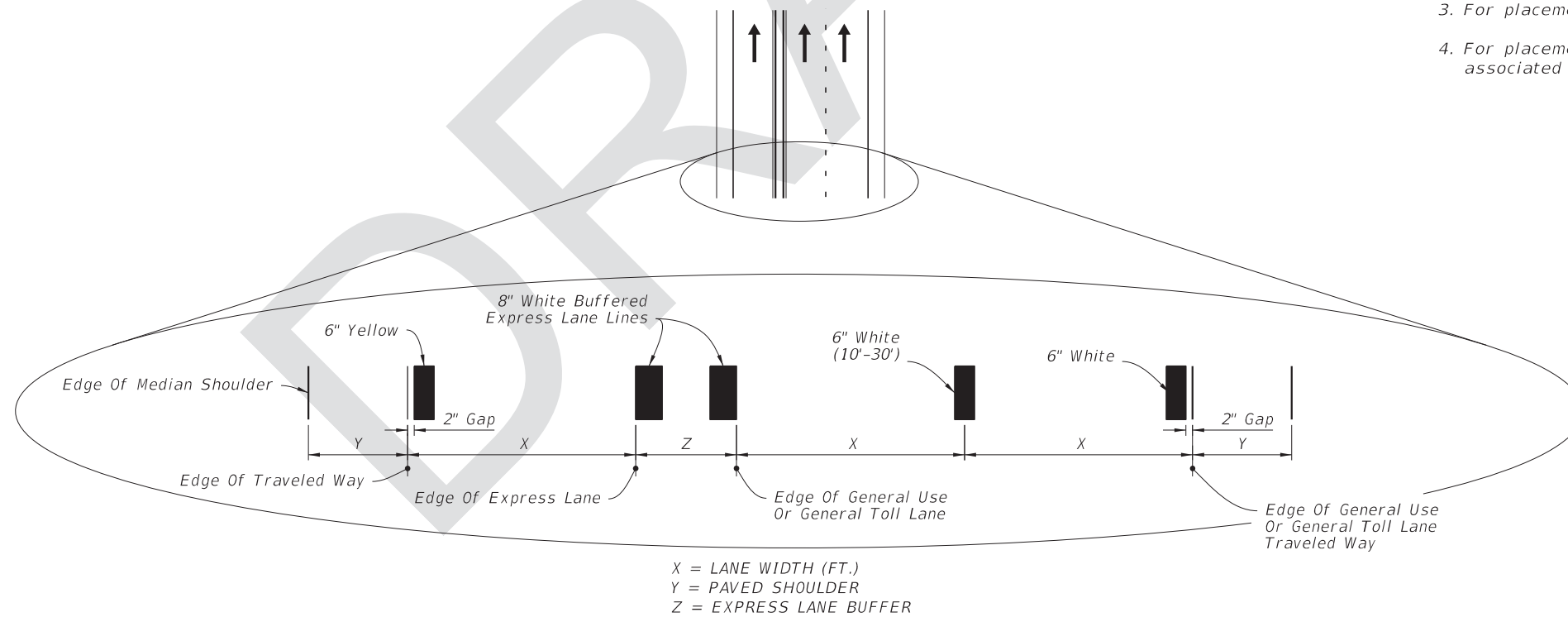
LAST REVISION 11/01/17	REVISION	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 3 of 14
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**INTERSECTION APPROACH STRIPING WITH TURN
LANES AND BUFFERED BIKE LANE KEY HOLE**

NOTES:


1. Lane widths (X) may not be same for each lane in the section.
3. For placement of RPMs, see Index 706-001.
4. For placement of Express Lane markers and associated RPMs, see the Plans.

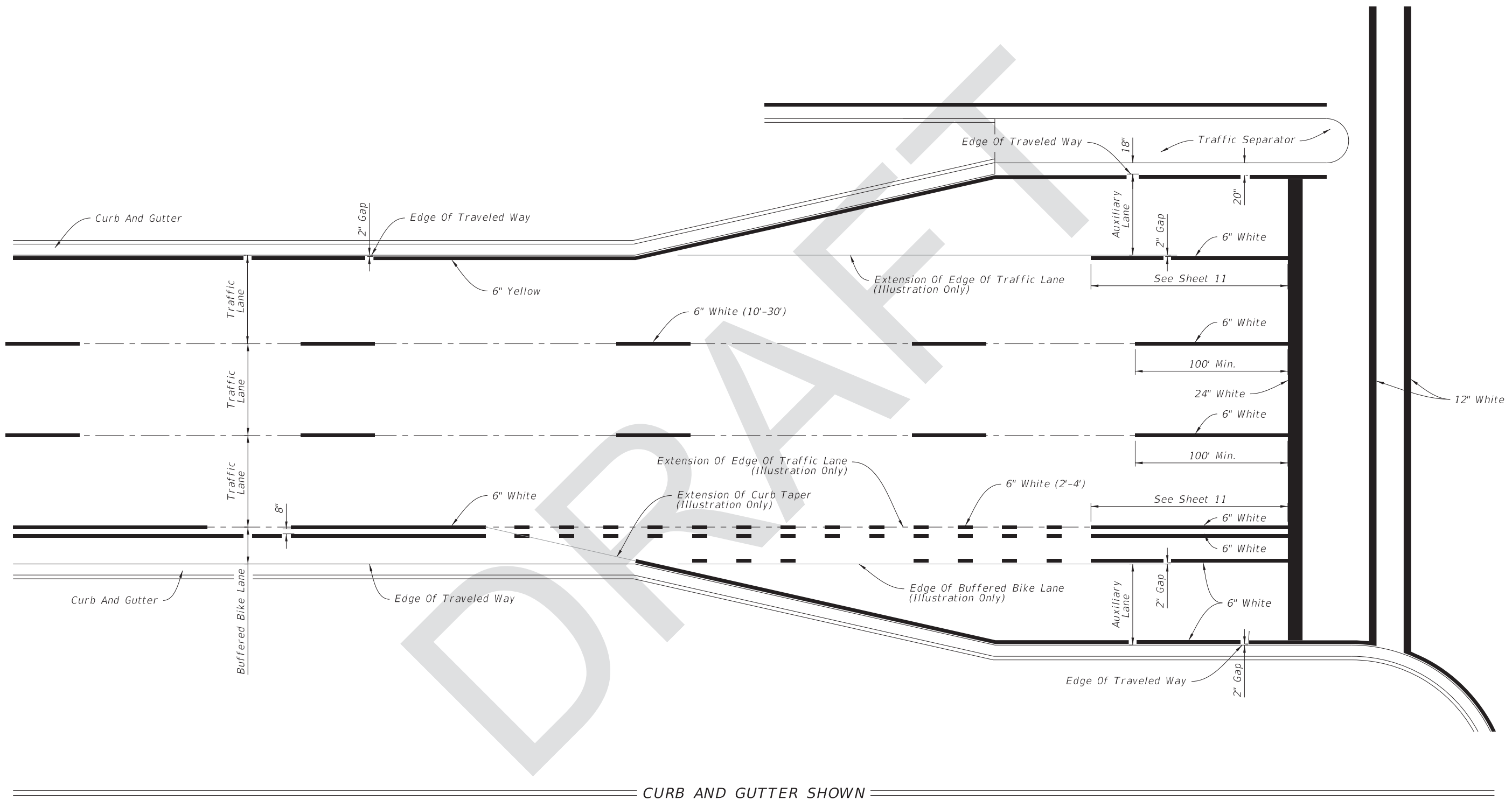


BUFFERED EXPRESS LANE STRIPING

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS


8/29/2017 3:52:56 PM

LAST REVISION 11/01/17	REVISION	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 4 of 14
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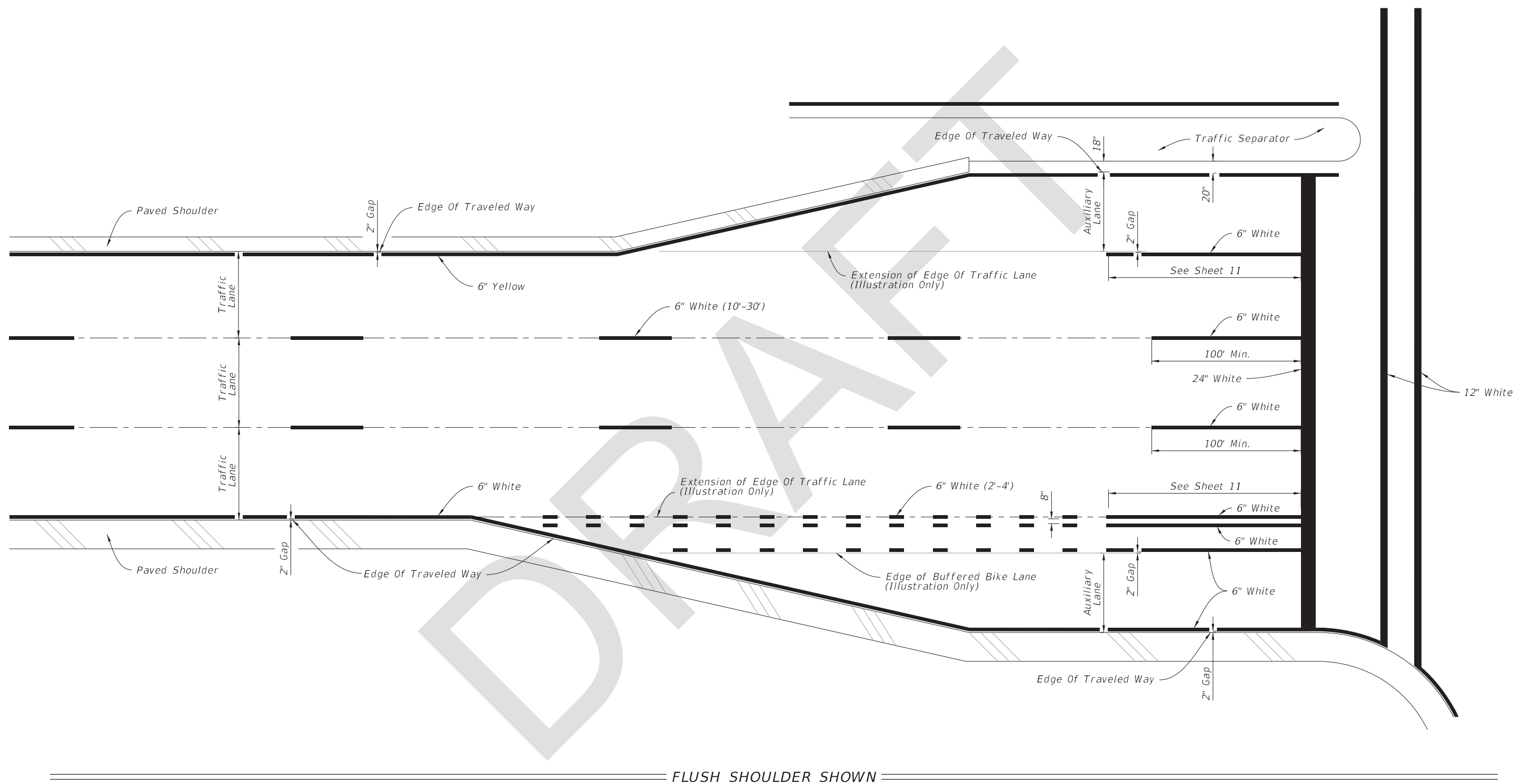


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PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS


LAST REVISION 11/01/17	REVISION	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 5 of 14
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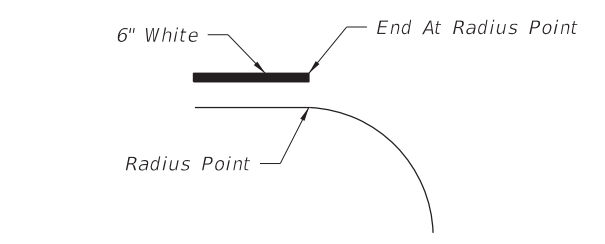
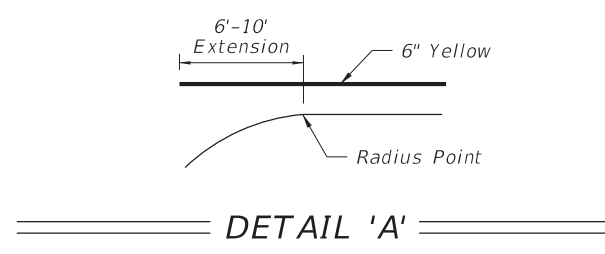
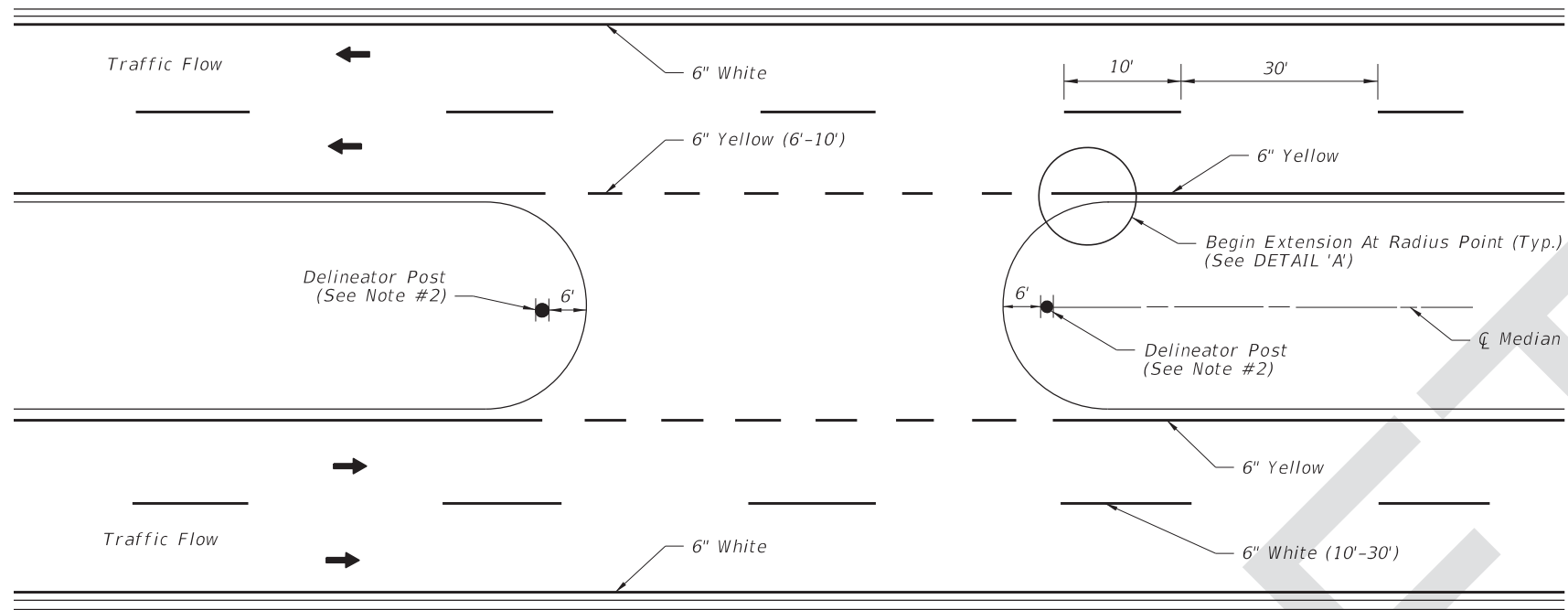
8/29/2017 3:52:56 PM



FLUSH SHOULDER SHOWN

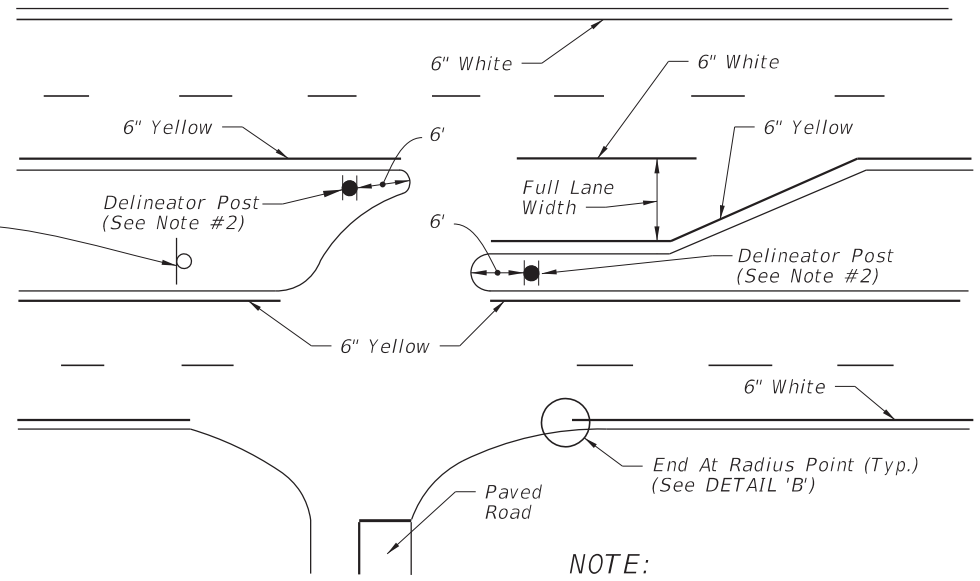
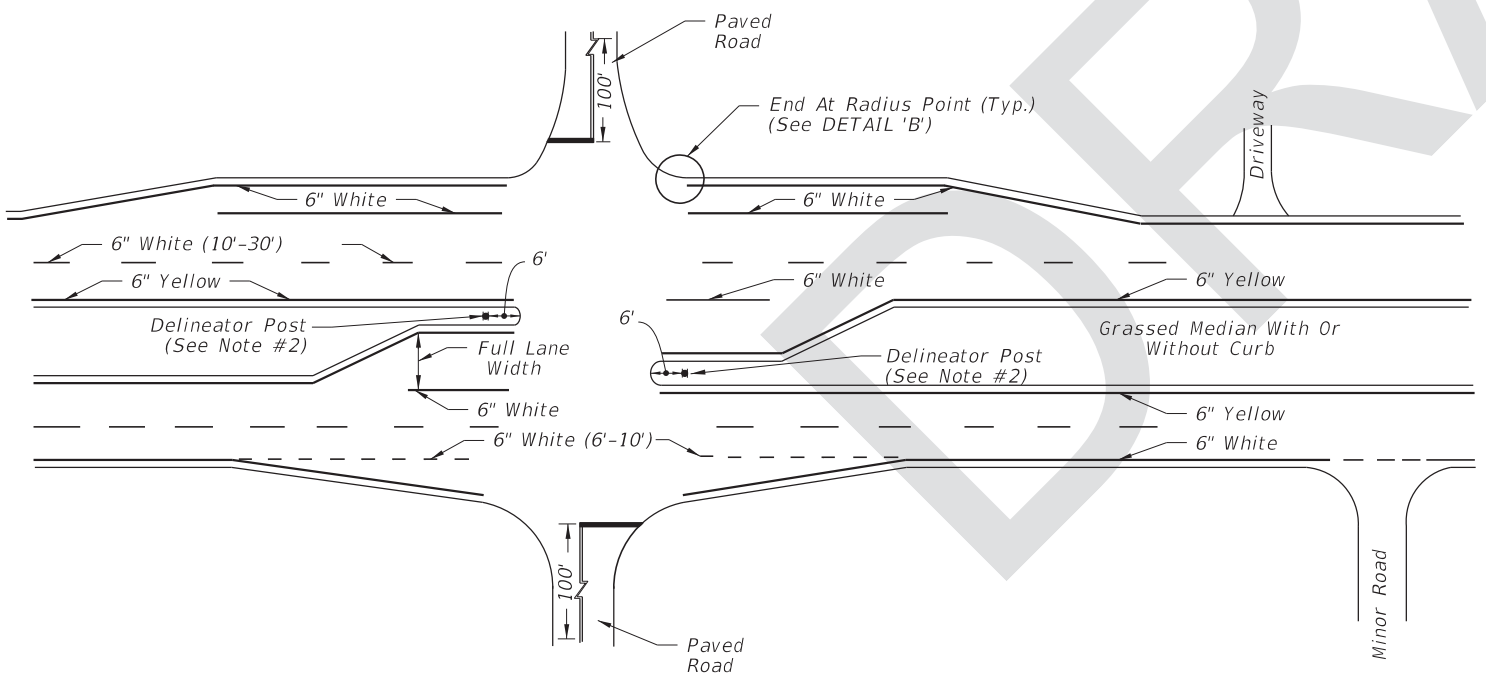
PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION 11/01/17	REVISION DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 6 of 14
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PAVEMENT MARKINGS AND DELINEATORS FOR MEDIAN CROSS-OVER

DETAIL 'B'

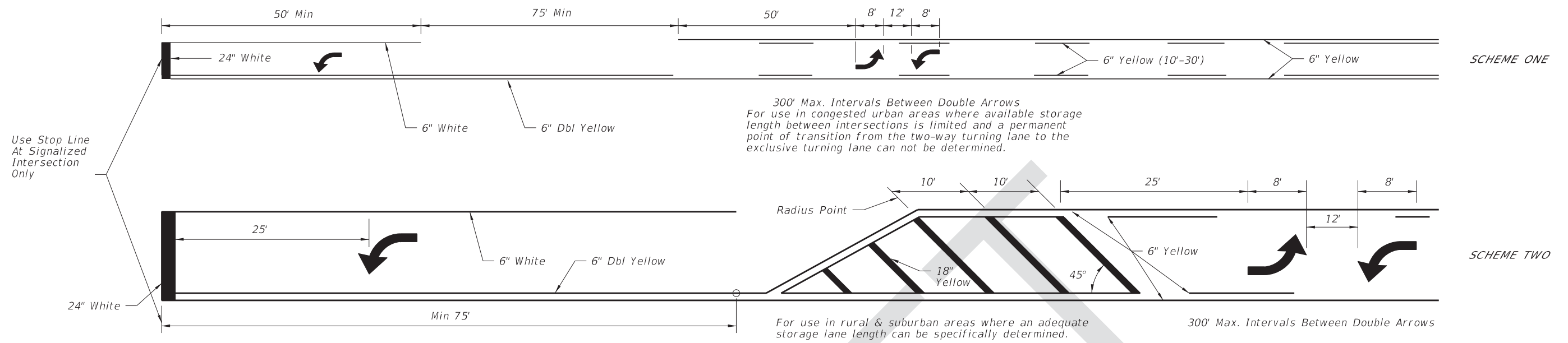


- NOTE:
1. See Index 706-001 for additional treatments on median noses.
 2. Use yellow retro-reflective sheeting on both sides of the delineator. Install the post so that the top is 4' above the grade at the edge of the pavement.

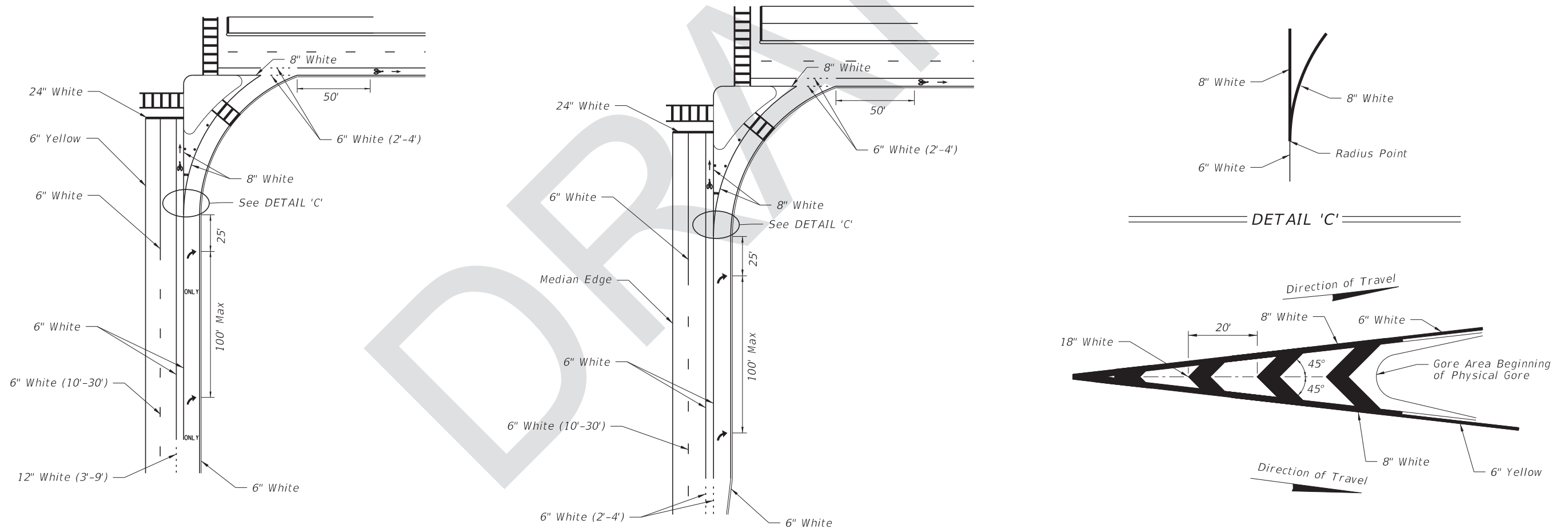
PAVEMENT MARKINGS FOR INTERSECTIONS WITH MAJOR AND MINOR ROADS

8/29/2017 3:52:57 PM


LAST REVISION 11/01/17	REVISION	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 7 of 14
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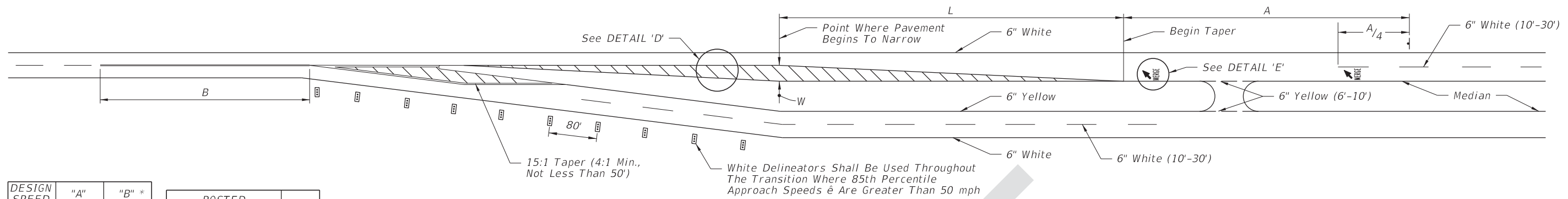


TWO WAY LEFT TURN LANE
 (With Single Lane Left Turn Channelization)



8/29/2017 3:52:57 PM

LAST REVISION 11/01/17	DESCRIPTION:	 FY 2018-19 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 8 of 14
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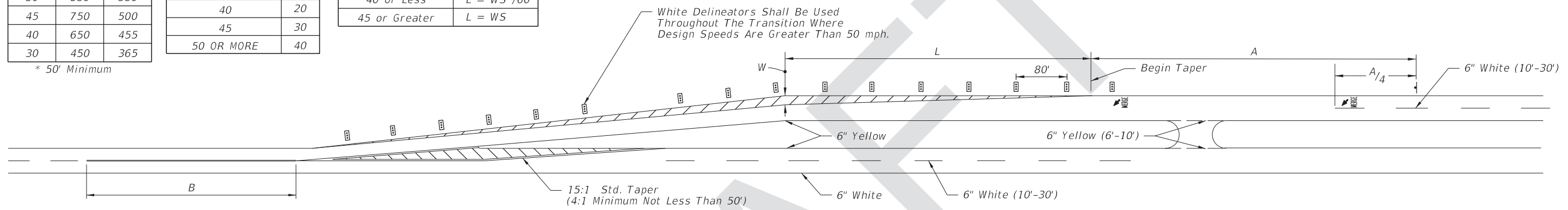
DESIGN SPEED (MPH)	"A" (FT.)	"B" * (FT.)
60	---	640
55	950	595
50	850	550
45	750	500
40	650	455
30	450	365

* 50' Minimum

POSTED SPEED LIMIT MPH	"Y" (FT.)
30 OR LESS	10
35	20
40	20
45	30
50 OR MORE	40

DESIGN SPEED 'S' (MPH)	Length 'L' (FT.)
40 or Less	$L = WS^2/60$
45 or Greater	$L = WS$

LEFT ROADWAY CENTERED ON EXISTING ROADWAY

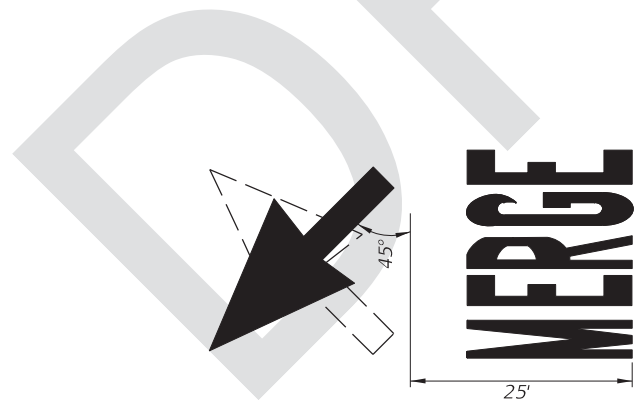


RIGHT ROADWAY CENTERED ON EXISTING ROADWAY

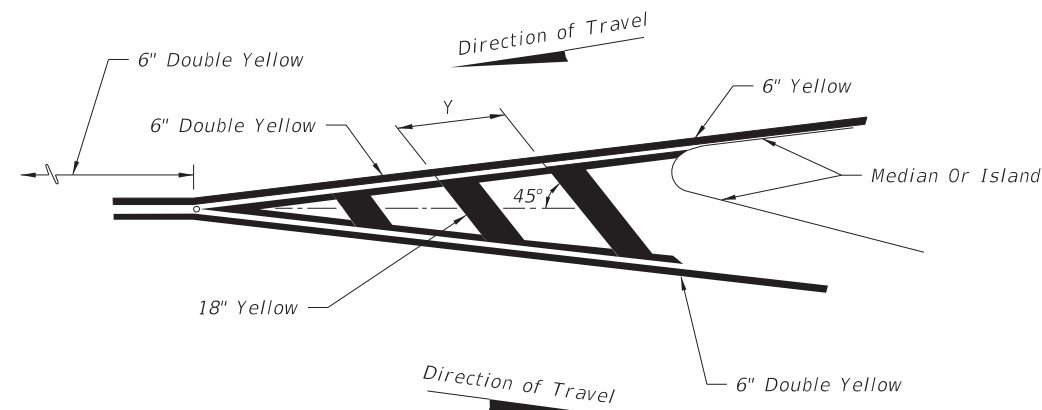
SCHEMES FOR TRANSITION - 2 LANE / 4 LANE ROADWAY



DETAIL 'D'

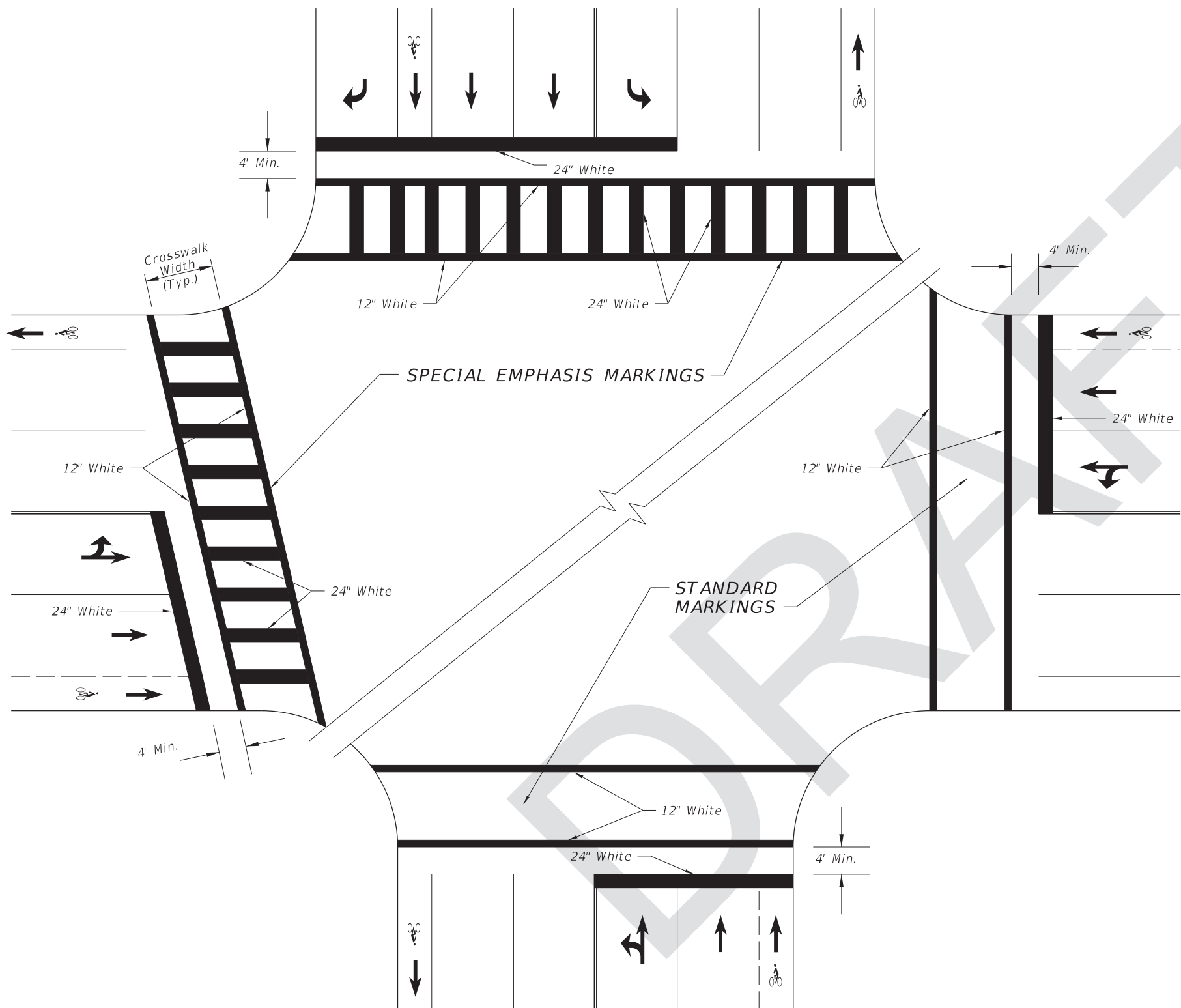


DETAIL 'E'

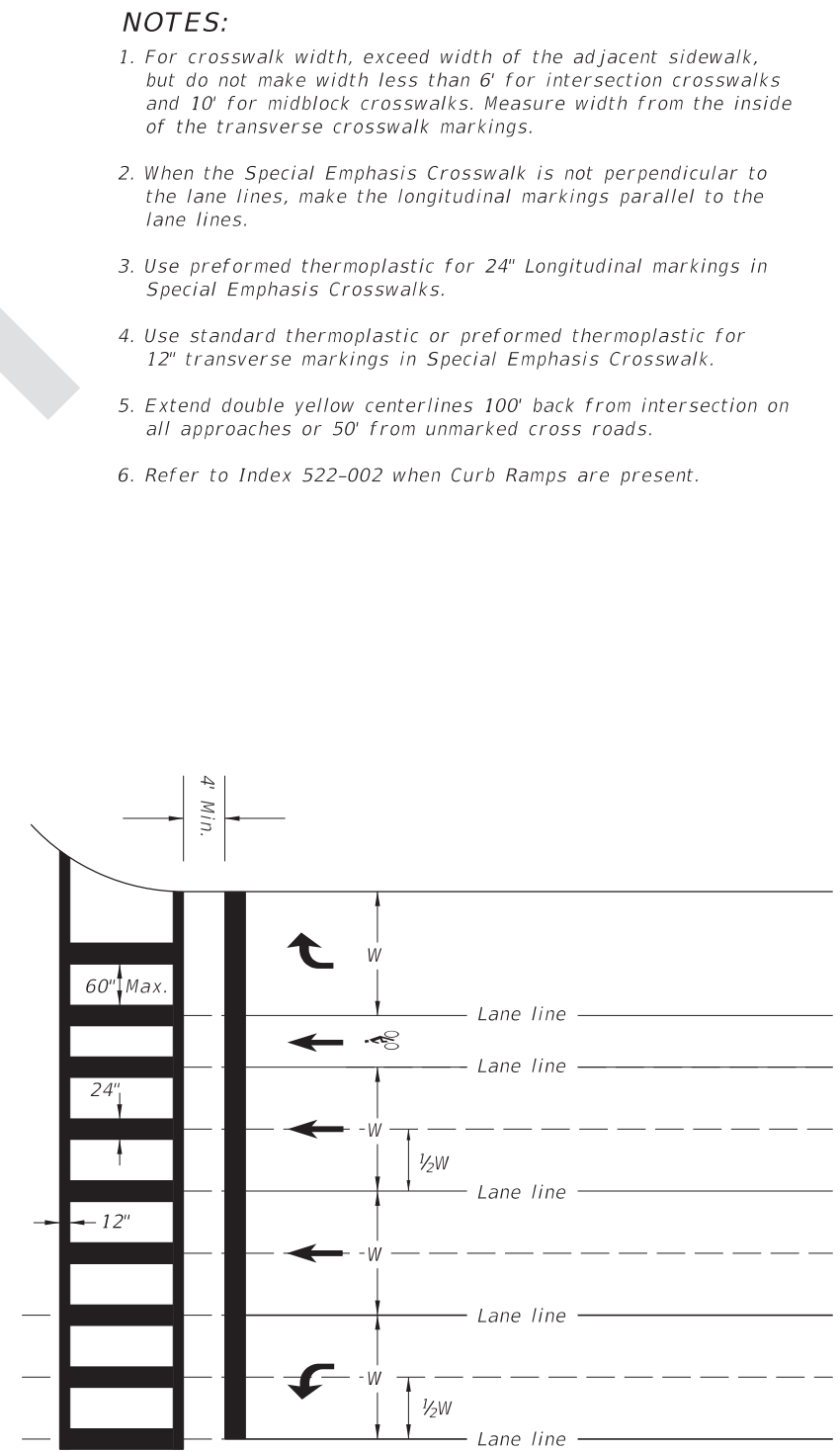


MARKINGS FOR TRAFFIC SEPARATION

8/29/2017 3:52:58 PM



INTERSECTION DETAILS



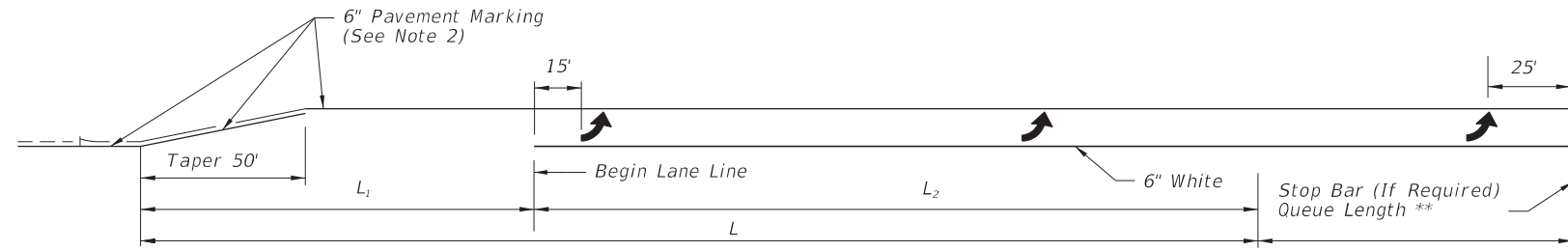
SPECIAL EMPHASIS CROSSWALK DETAILS

NOTES:

1. For crosswalk width, exceed width of the adjacent sidewalk, but do not make width less than 6' for intersection crosswalks and 10' for midblock crosswalks. Measure width from the inside of the transverse crosswalk markings.
2. When the Special Emphasis Crosswalk is not perpendicular to the lane lines, make the longitudinal markings parallel to the lane lines.
3. Use preformed thermoplastic for 24" Longitudinal markings in Special Emphasis Crosswalks.
4. Use standard thermoplastic or preformed thermoplastic for 12" transverse markings in Special Emphasis Crosswalk.
5. Extend double yellow centerlines 100' back from intersection on all approaches or 50' from unmarked cross roads.
6. Refer to Index 522-002 when Curb Ramps are present.

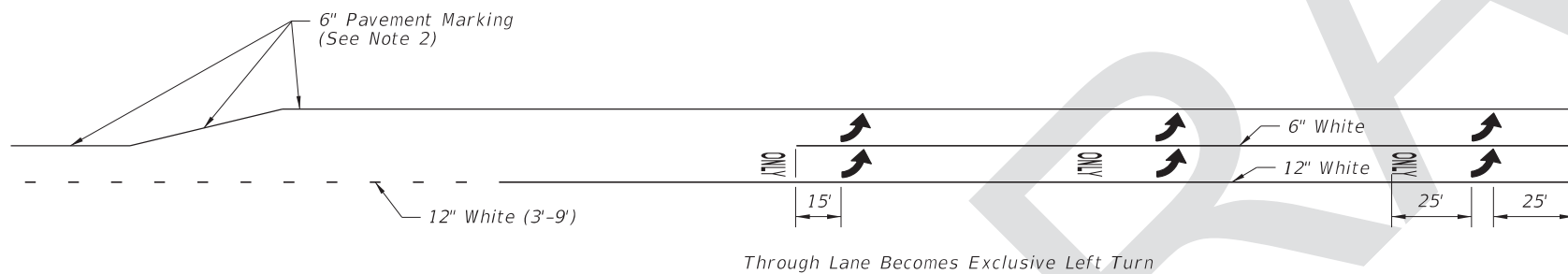
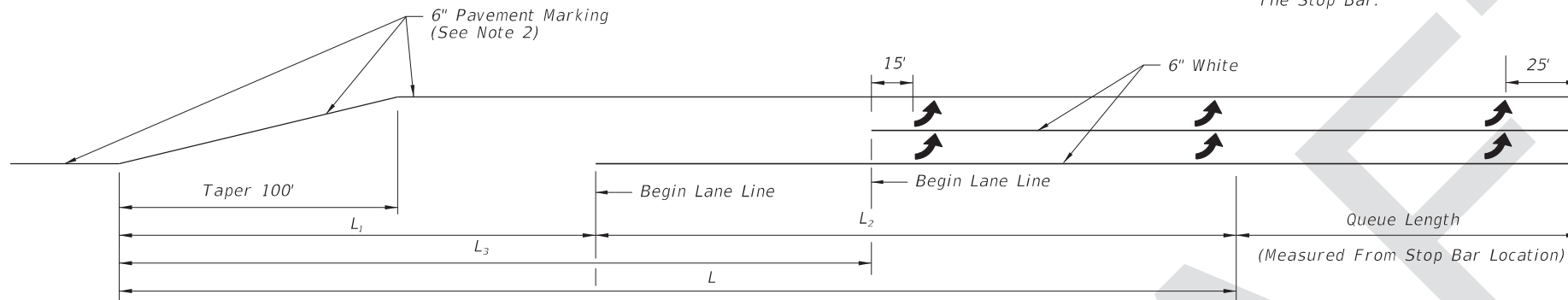
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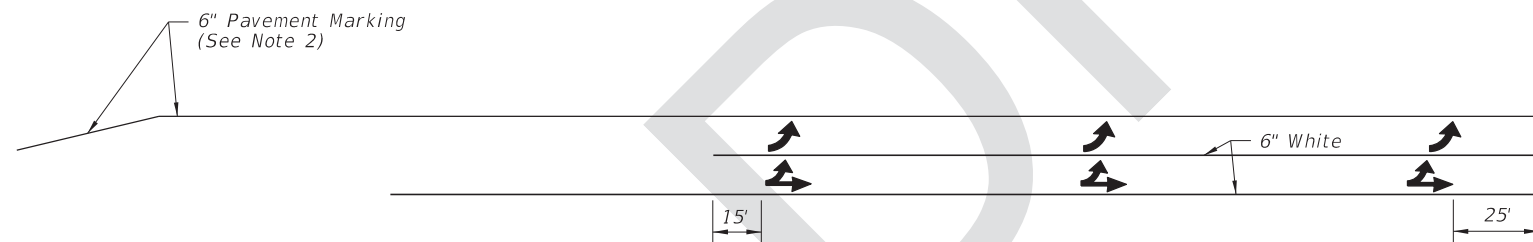


SINGLE LEFT TURNS

** Queue Length Is Measured From The Median Nose Radial Point Or, When A Stop Bar Is Required, From The Stop Bar.



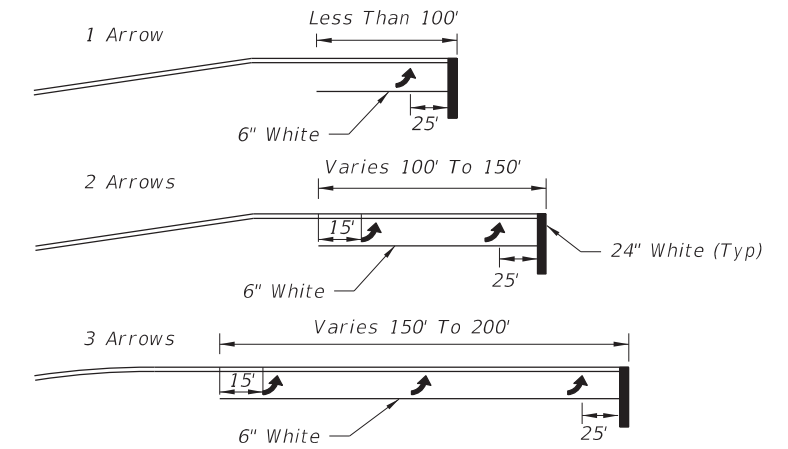
Through Lane Becomes Exclusive Left Turn



Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURNS

TURN LANES - CURBED AND UNCURBED MEDIANS							
Design Speed (mph)	Clearance Distance	URBAN CONDITIONS			RURAL CONDITIONS		
		Brake To Stop Distance	Total Decel. Distance	Clearance Distance	Brake To Stop Distance	Total Decel. Distance	Clearance Distance
	L ₁	L ₂	L	L ₃	L ₂	L	L ₃
35	70'	75'	145'	110'	—	—	—
40	80'	75'	155'	120'	—	—	—
45	85'	100'	185'	135'	—	—	—
50	105'	135'	240'	160'	185'	290'	160'
55	125'	—	—	—	225'	350'	195'
60	145'	—	—	—	260'	405'	230'
65	170'	—	—	—	290'	460'	270'



Arrow should be evenly spaced between first and last arrow. Turn lanes longer than 200' add one arrow for each 100' additional length.

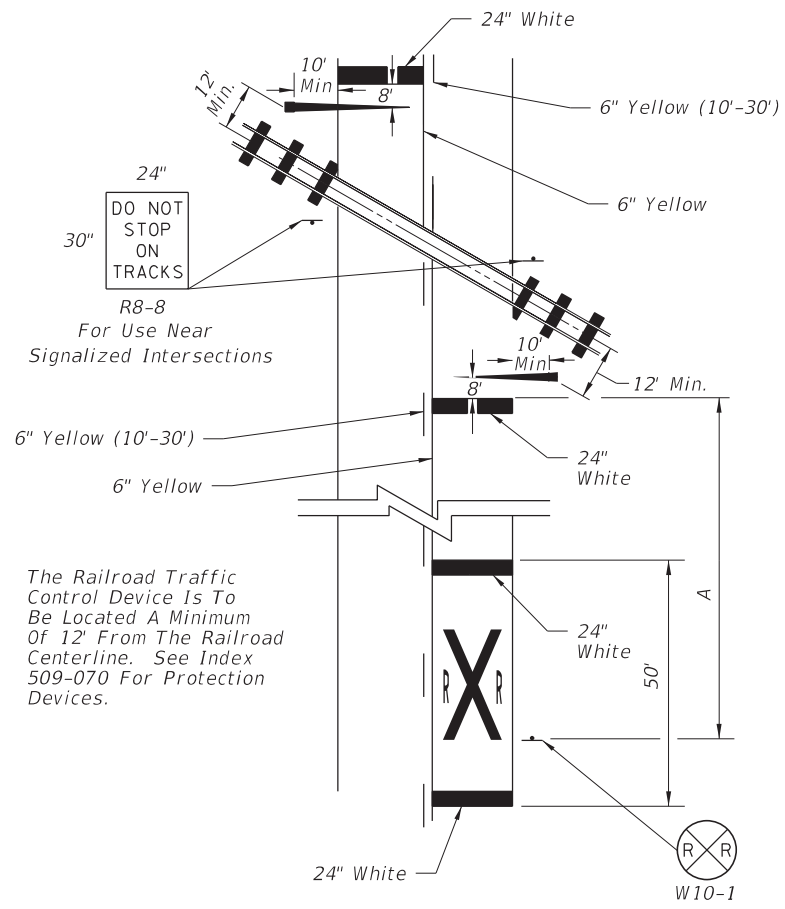
ARROW SPACING

NOTES:

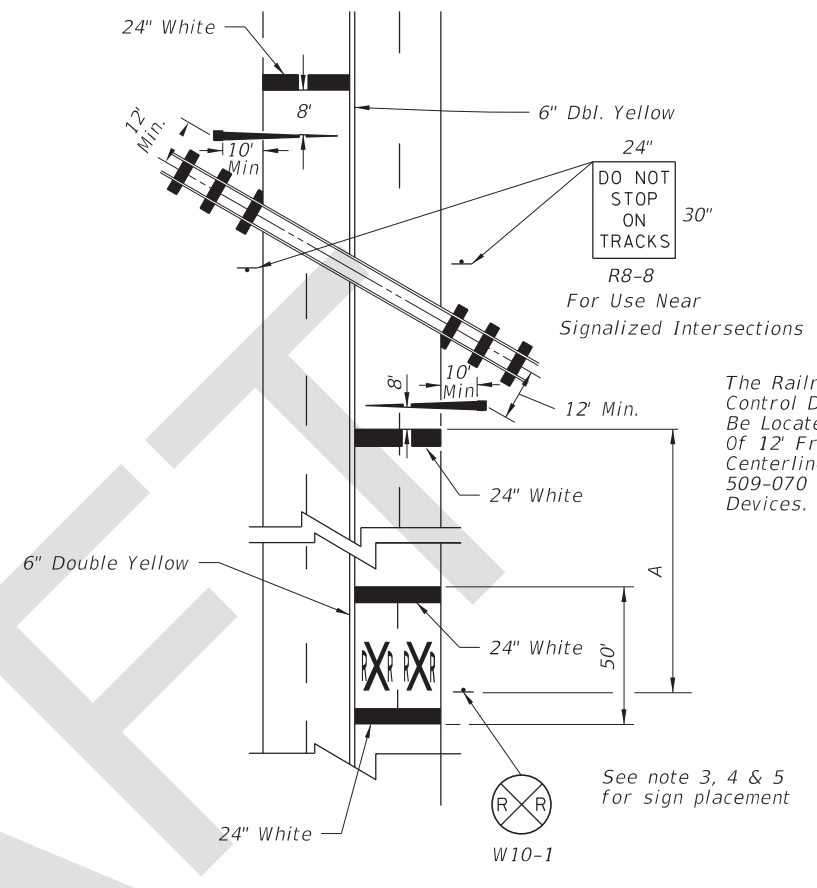
1. This Index also applies to right turn lanes.
2. Make pavement marking yellow for left-turn lanes and white for right-turn lanes.

TURN LANE MARKINGS

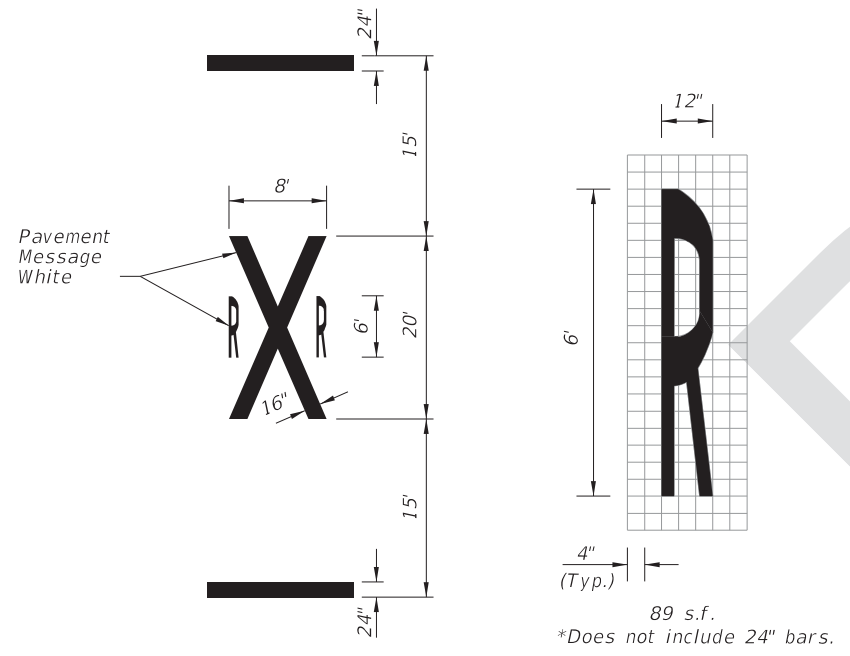
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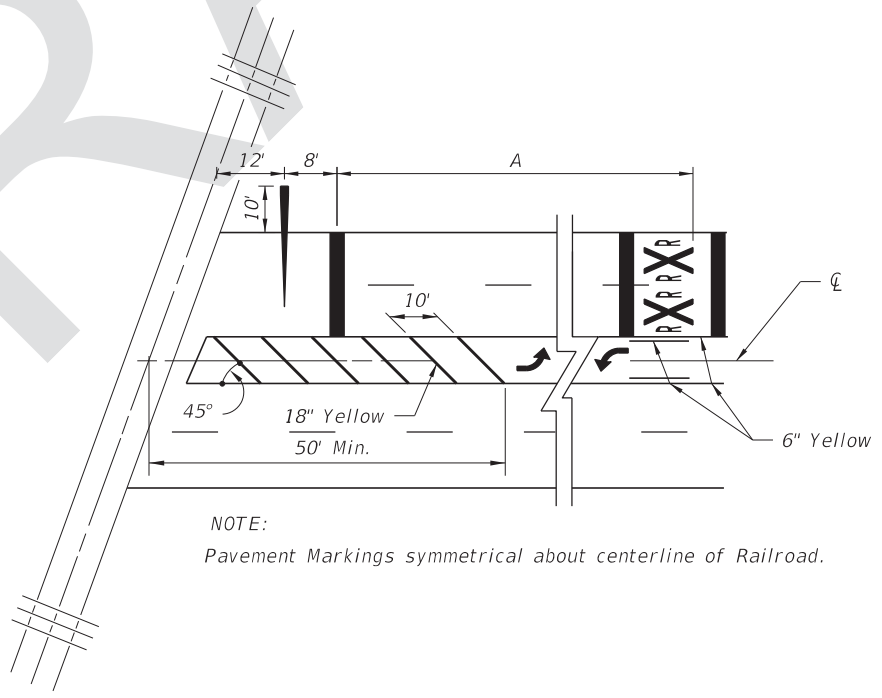
RAILROAD CROSSING AT 2-LANE ROADWAY



RAILROAD CROSSING AT 4-LANE ROADWAY



TYPICAL MARKINGS FOR R/R CROSSING



TERMINATION OF TWO WAY LEFT TURN AT R/R CROSSINGS

NOTES:

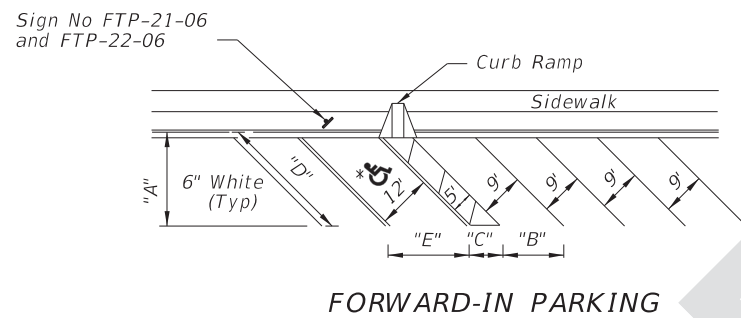
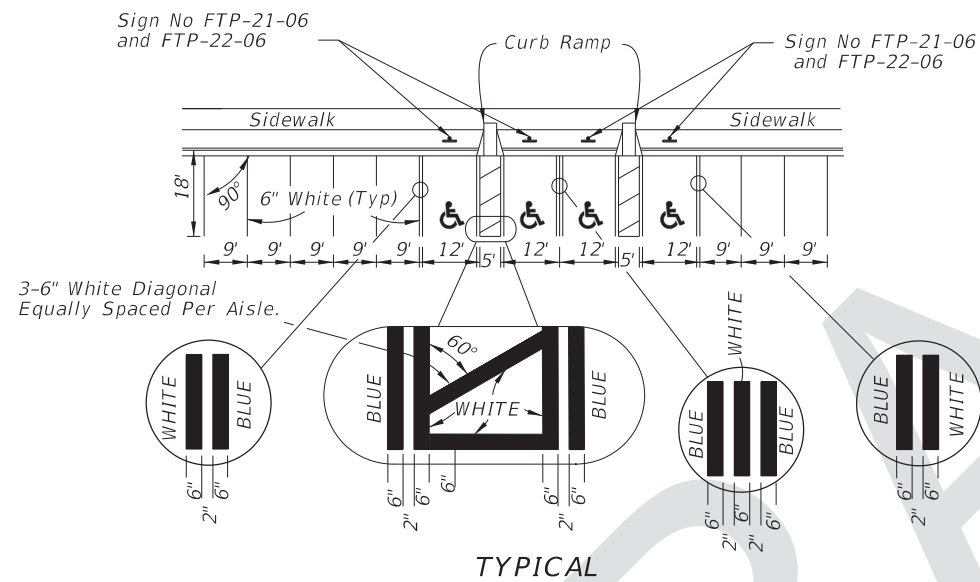
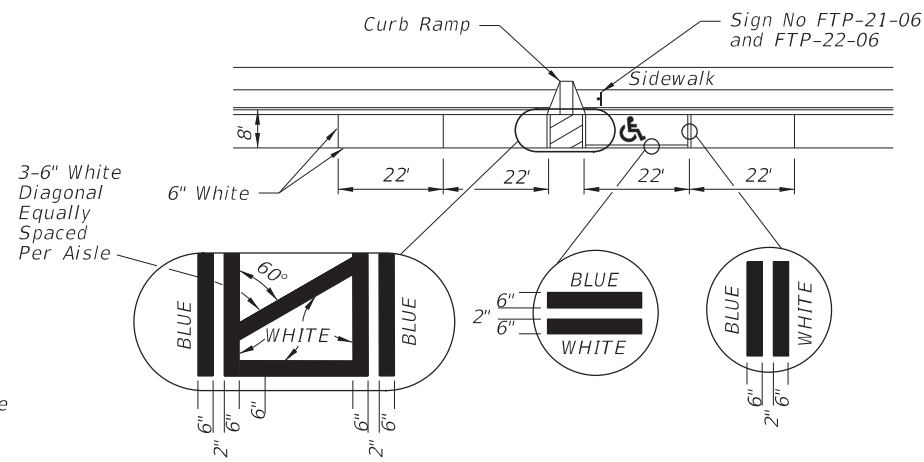
1. Do not include transverse markings in pavement message quantities.
2. When dynamic devices are not present or are to be installed, place the crossbuck at the future location of the RR gate or signal and gate in accordance with Index 509-070.
3. Place an additional W10-1 sign where street intersections occur between the R/R pavement message and the tracks.
4. Place FTP-61-06 sign or FTP-62-06 sign 100' in advance of the crossing for urban locations and 300' in advance of the crossing for rural locations.

SPEED MPH	" A " IN FT.
60	400
55	325
50	250
45	175
40	125
35	100
URBAN	85 MIN.

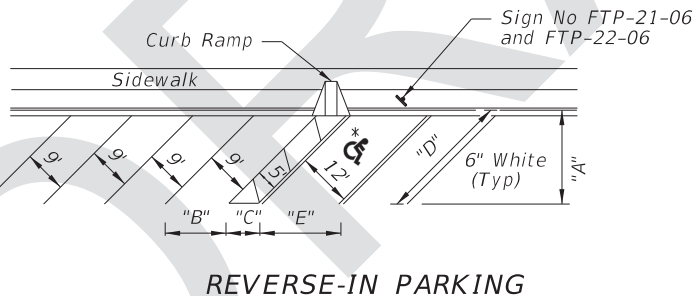
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NOTES:

1. Dimensions are to the centerline of markings.
2. An Access Aisle is required for each accessible space when angle parking is used.
3. Criteria for pavement markings only, not public sidewalk curb ramp locations. For ramp locations refer to plans.
4. Tint blue pavement markings to match color 15180 of Federal Standards 595a.
5. Mount FTP-22-06 sign below the FTP-21-06 sign.



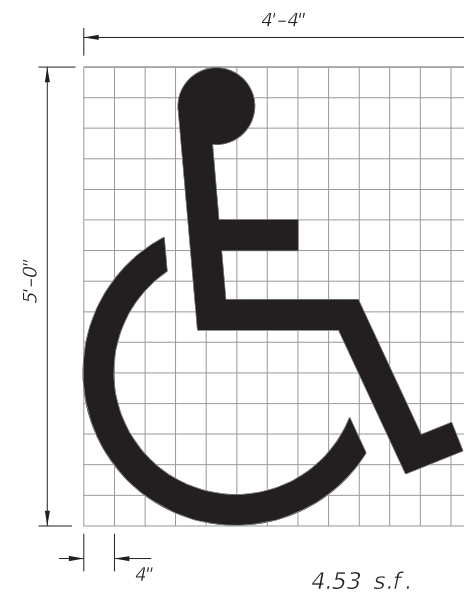
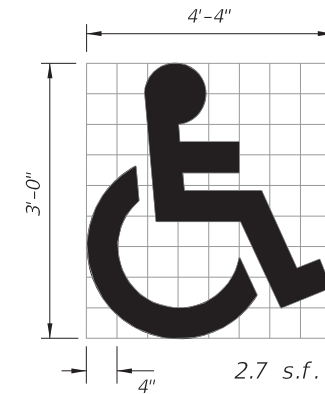
FORWARD-IN PARKING



REVERSE-IN PARKING

* FOR ACCESSIBLE MARKINGS - SEE ABOVE

"DIMENSIONS"					
∠ θ	"A"	"B"	"C"	"D"	"E"
45°	19'-1"	12'-9"	7'-0"	27'-0"	17'-0"
60°	20'-1"	10'-5"	5'-9"	23'-2"	13'-10"



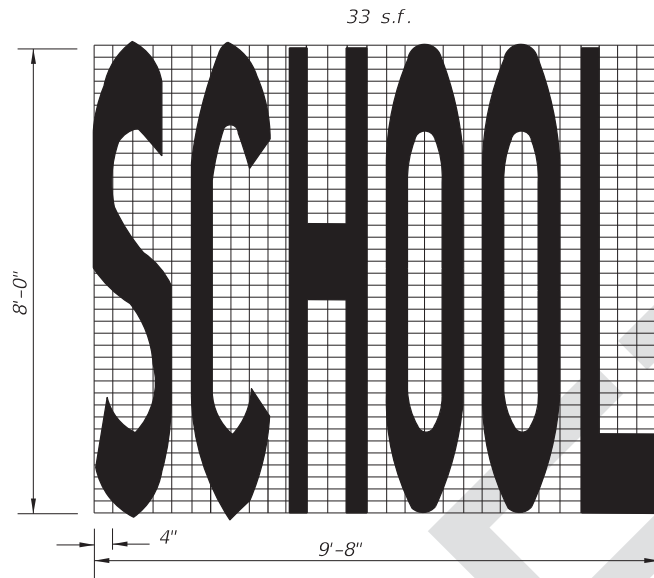
Use of pavement symbol in accessible parking spaces is optional, when used the symbol shall be 3' or 5' high and white in color.

PAVEMENT MARKING FOR PARKING

UNIVERSAL SYMBOL OF ACCESSIBILITY

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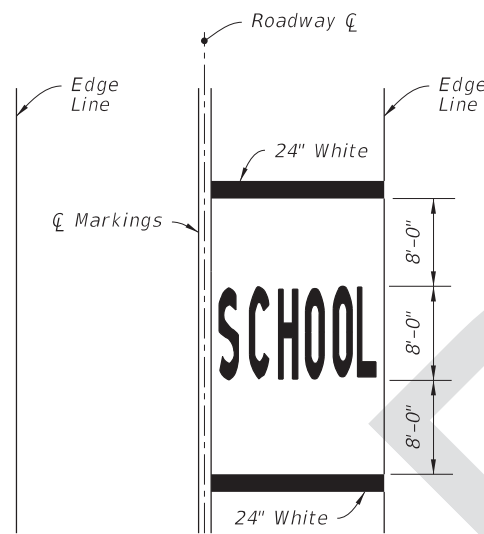
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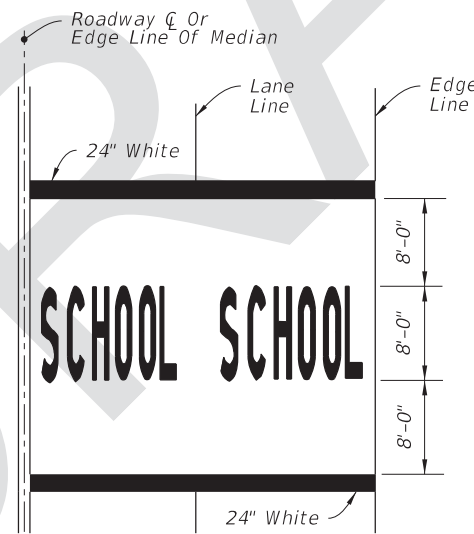
SCHOOL PAVEMENT MARKING

NOTES:

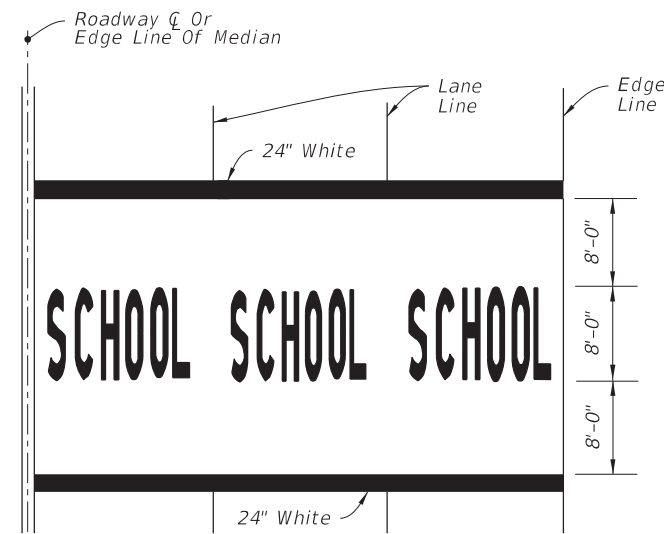
1. All grids are 4" x 4".
2. Pavement Marking Should Not Extend Into Opposing Lane.
3. Center School Pavement Marking in lane.



SINGLE-LANE APPROACH




TWO-LANE APPROACH



MULTI-LANE APPROACH
(Three or More)

MARKINGS FOR SCHOOL ZONES

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