

# ORIGINATION FORM

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

## Contact Information:

Date: June 17, 2019  
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## Standard Plans:

Index Number: **711-001**  
Sheet Number (s): 1, 2, 8, 11, and 12  
Index Title: Pavement Markings

## Summary of the changes:

Sheet 1: Clarified "Notes for Pavement Message".  
Sheet 2: Changed "Contrast Markings with Alternating Skip Pattern" to "10'-30' Skip Line with Shadow Markings".  
Added "Dotted Line with Alternating Shadow Markings" with detail.  
Sheet 8: Revised right turn lane details.  
Sheet 11: Revised all details and notes.  
Sheet 12: Change "A" dimension of 45-degree angle parking to 17'. Add note: "19'-1" if curb stops are used."

## Commentary / Background:

Sheets 1-11: Revisions made to better incorporate pavement message spacing. Corrected shadow marking details.  
Sheet 12: See attached support documentation. Change will allow greater flexibility to use angle parking, in support of speed management and context based design.

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

- | Yes                      | No                                  |                             |
|--------------------------|-------------------------------------|-----------------------------|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Other Standard Plans –      |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | FDOT Design Manual –        |
| <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 Standard Plan Instructions (SPI) |
| <input type="checkbox"/>            | <input type="checkbox"/> | Revised SPI                               |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | Other Support Documents                   |

## Implementation:

- Design Bulletin (Interim)    DCE Memo    Program Mgmt. Bulletin    FY-Standard Plans (Next Release)

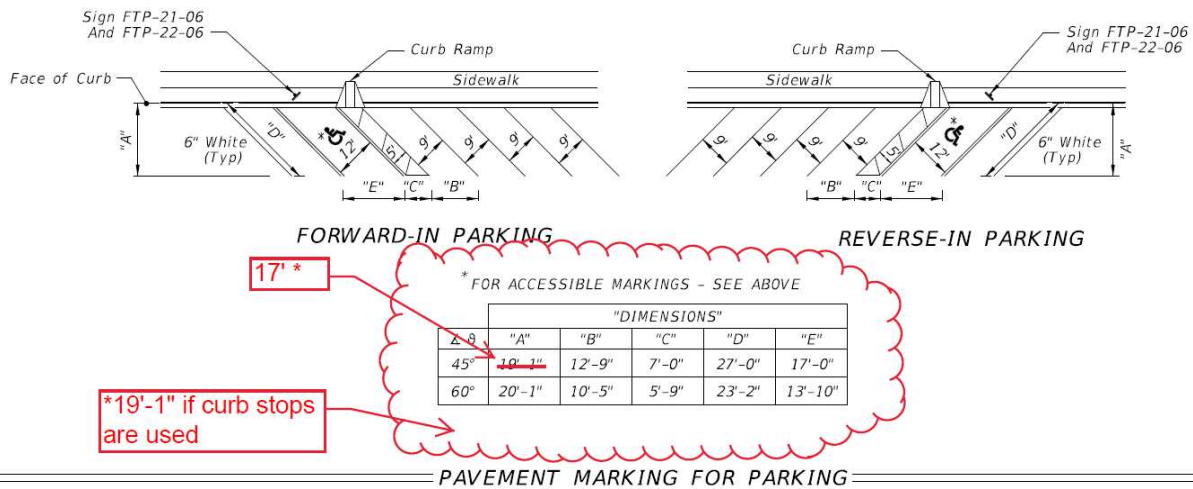
Contact the Roadway Design Office for assistance in completing this form

# Support Documentation

## Standard Plan 711-001 Modification: Change “A” dimension for 45-degree angle parking to 17 feet

### Proposed Change:

On Sheet 12 of 13 of Standard Plan 711-001 PAVEMENT MARKINGS, under the PAVEMENT MARKING FOR PARKING section, in the DIMENSIONS table, change the “A” dimension for 45-degree angle parking to 17’. Add an asterisk with the note “\* 19’-1” if curb stops are used”



### Commentary/Background:

Speed management is a critical tool to achieve FDOT’s “Vision Zero” goal of eliminating traffic fatalities. In addition, FDOT’s Complete Streets policy directs the use of a context based design approach to match roadways to their locations. Angle parking, and particularly reverse angle parking, can be an important tool to manage speeds and support context based design. The locations where the FDM encourages on-street parking (Context Classifications C2T, C4, C5, and C6) are also the locations where projects are most likely to occur on an existing roadway with limited roadway space. In these existing conditions, every foot of roadway width has value and is needed by designers to help shape the road to fit the context. The additional space that would be provided by reducing the “A” dimension by 2 feet could result in additional room for wider sidewalks, medians, or bike facilities. The pedestrian crossing distance would also be reduced accordingly, resulting in less exposure time for pedestrians crossing the roadway. Keeping the travel lane closer to parked vehicles provides engagement with drivers to help manage travel speeds.

### Research Supporting change to 17’

Changing a long-standing Standard Plan dimension should not be done lightly. To determine whether this change is reasonable, in-person and Google Earth measurements of existing angle-parking dimensions were made in several cities in Florida, Georgia, and Alabama. These included:

- Tallahassee (multiple locations)
- Gainesville

- Quincy
- Columbus, GA
- Woodstock, GA
- Eufala, AL

The most common “A” dimension was 16’ when measured using Google Earth, and a little more than 16’ when measured in person. Woodstock, GA, has a 20’ “A” dimension, resulting in significant unused parking space depth (see attached photo.) However, Woodstock also has a relatively narrow travel lane width of 11’ adjacent to the on-street parking lane, and it’s possible the parking spaces were made intentionally wider to reduce the travel lane width for traffic calming. This would still be an option under the proposed change to Standard Plan 711-001, but a lower “A” dimension also frees up space for other ways to improve roadway conditions as described above.

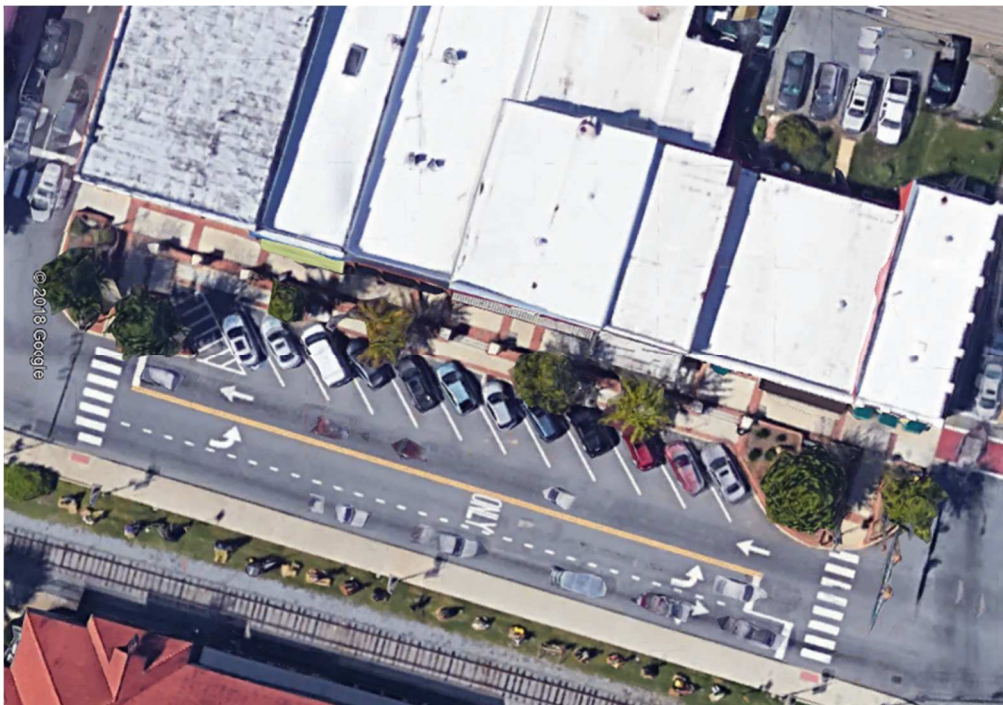


Figure 1: Woodstock, GA 20' angle parking stalls

Compared to the sample locations, the proposed reduction of the “A” dimension to 17’ will provide more parking stall depth while still providing more roadway width for other uses, compared to the existing 19’-1”. This dimension is compatible with other urban transportation design guidance as well, such as the SmartCode commonly used by New Urbanists to create walkable urban streets.

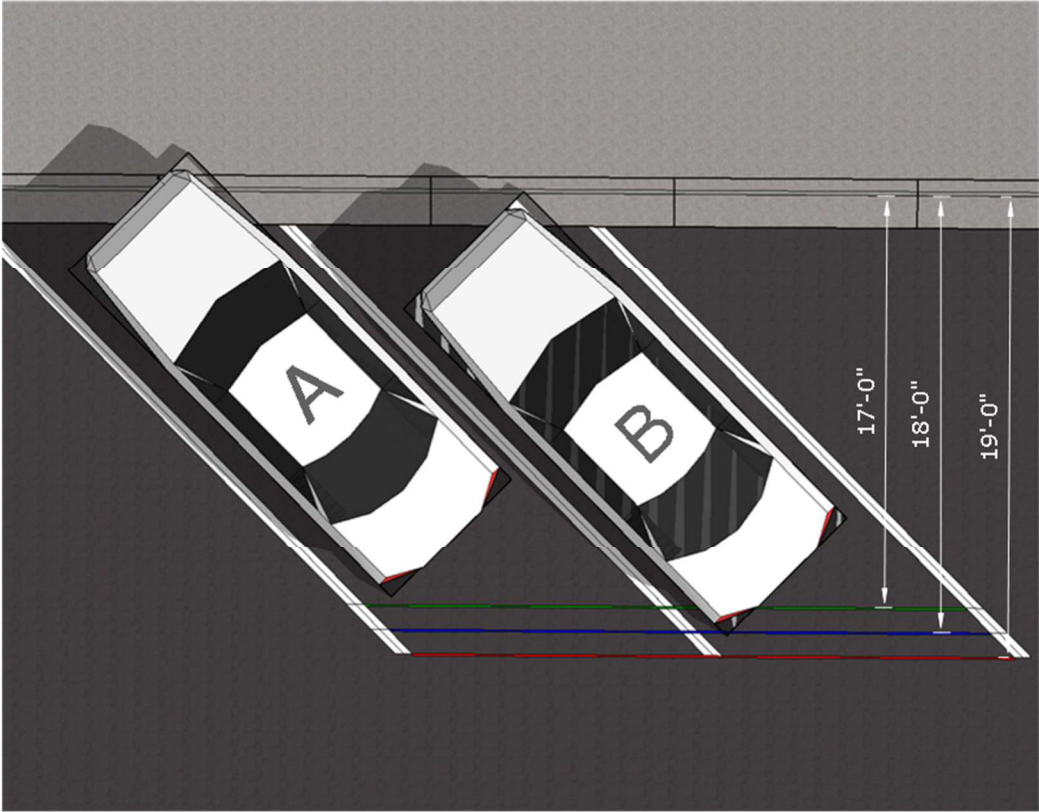
### Geometric Analysis Using AASHTO “P” vehicle

The 17’ deep angle parking space was diagrammed using the AASHTO “P” vehicle. The diagram shown in Figure 2 depicts two “P” vehicles, labeled “A” and “B”. The AASHTO P 7’x19’ envelope is indicated with a box around the vehicles. The vehicles are parked in 45-degree angle parking spaces per Standard Plan 711-001.

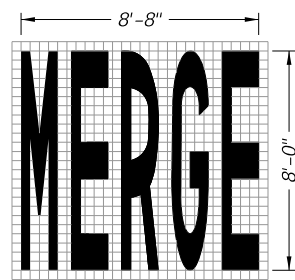
Vehicle A is parked with the front wheel in the gutter pan and the front end overhanging the sidewalk. In the absence of curb stops, one normally curbs a vehicle when parking, pulling forward until the wheels either touch the curb or the edge of the gutter pan is detected. A fully-curbed vehicle would be even deeper into the parking space.

Vehicle B is parked with its entire AASHTO 7'x19' envelope within the parking space, with no curb overhang. Curb stops would be required to consistently achieve this use of the parking space, as the vehicle's tires do not reach the gutter pan, and drivers would have no other indication of where to stop.

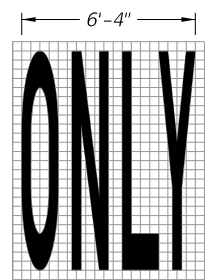
The diagram indicates a 17' deep parking lane (shown by the green line) is sufficient to contain the AASHTO "P" vehicle when parked as vehicles are conventionally parked in this configuration.



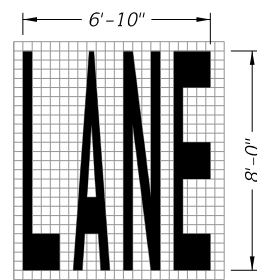
*Figure 2: Angle Parking with AASHTO P Vehicle*



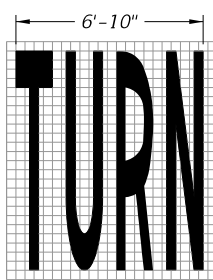
34 S.F.



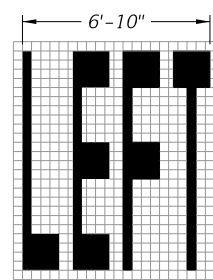
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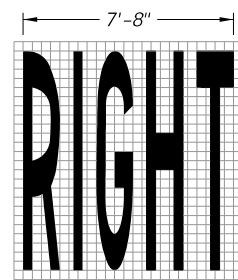
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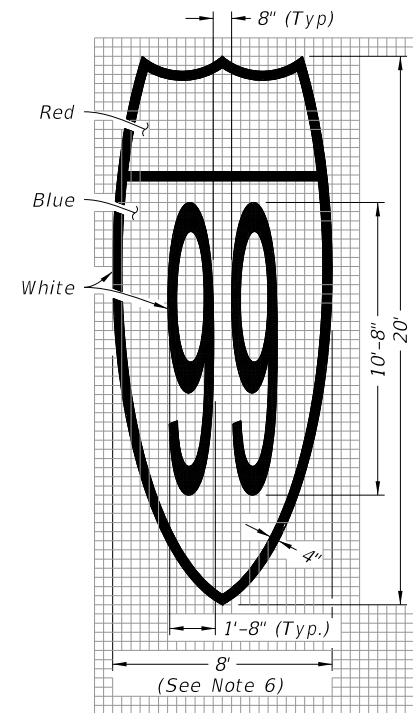
24 S.F.



20 S.F.

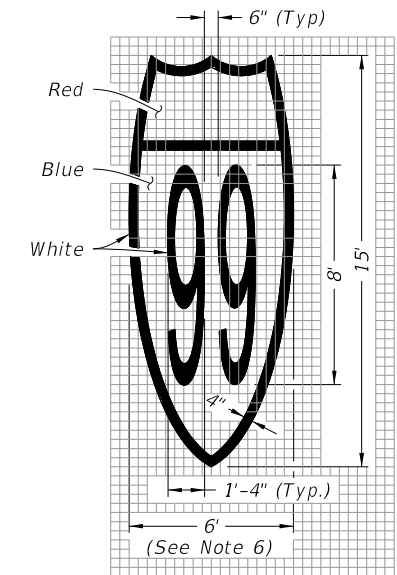


26 S.F.



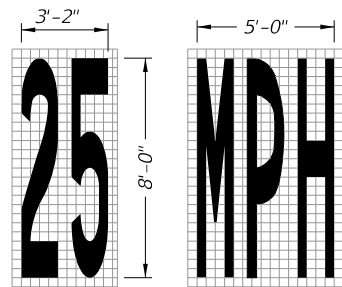
Route Shield for Limited Access Roadways (Interstate Route Shield Shown; U.S. and State Route Shield Similar)

128 S.F.

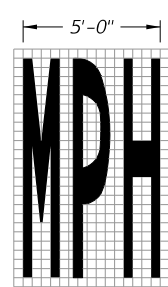


Route Shield for Arterials and Collectors (Interstate Route Shield Shown; U.S. and State Route Shield Similar)

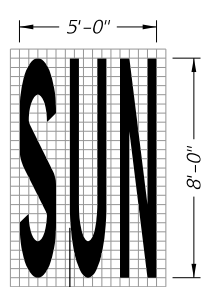
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13 S.F.



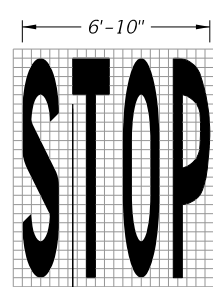
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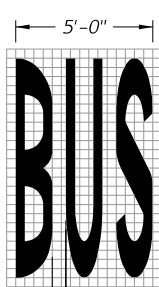
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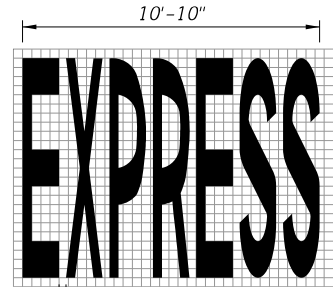
23 S.F.



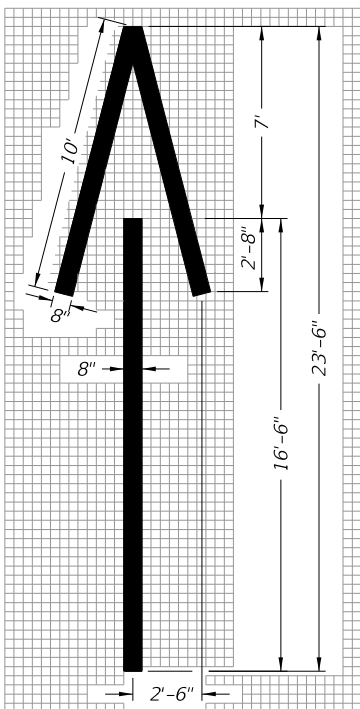
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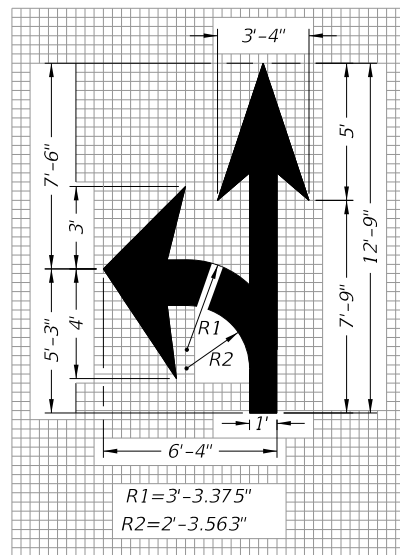
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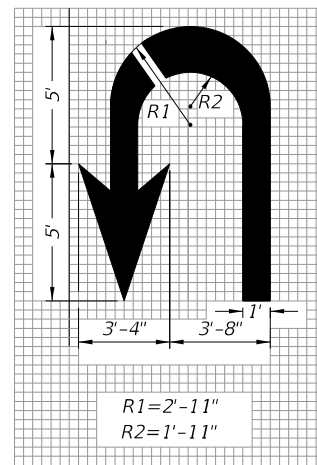
43 S.F.



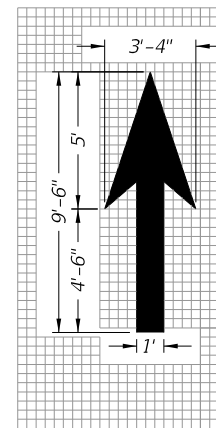
Wrong-Way Arrow  
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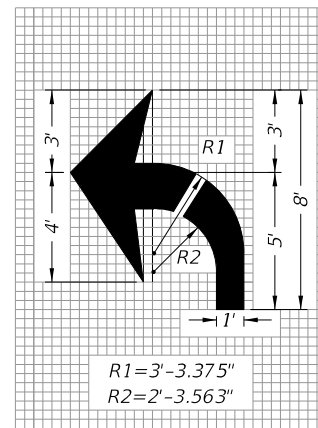
Turn and Through Lane-Use Arrow  
29 S.F.



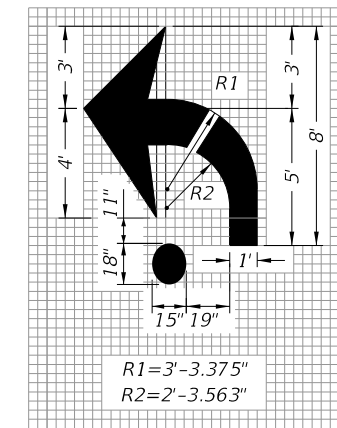
U Turn Lane-Use Arrow  
27 S.F.



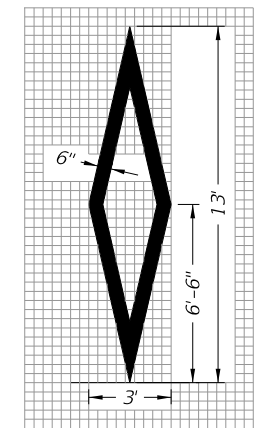
Through Lane-Use Arrow  
12 S.F.



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



Roundabout Approach Arrow  
19 S.F.



Preferential Lane Symbol  
11 S.F.

Clarified Note 1

**NOTES FOR PAVEMENT MESSAGES:**

- When an arrow and a pavement message are used together, locate the arrow a distance of "S" downstream from the pavement message. Measure the distance from the base of the arrow to the base of the pavement message. See the Pavement Message Spacing Table for "S" value.
- Place all pavement messages 25' back from the stop line.
- Dimensions are within 1" ±.
- All grids are 4" x 4".
- All pavement messages must be white except route shields.
- Increase width of route shield for routes with three digits.

PAVEMENT MESSAGE SPACING TABLE	
Posted Speed (mph)	Distance "S" (feet)
≤ 25	40
30 - 35	56
40 - 45	72
≥ 50	88

PAVEMENT MESSAGE AND ARROW DETAILS

GENERAL NOTE:

- See Index 509-070 for pavement markings at railroad crossings.

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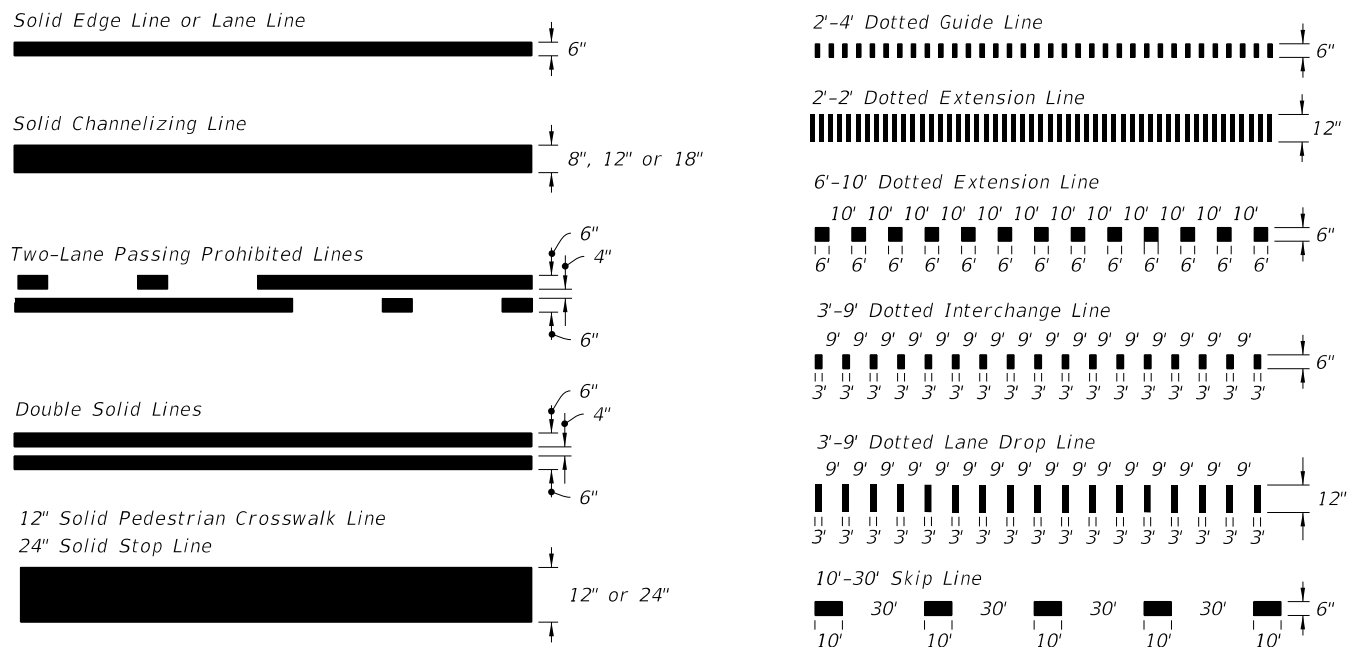
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FDOT  
FY 2019-20  
STANDARD PLANS

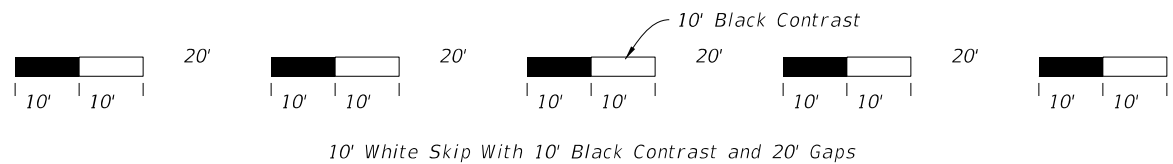
PAVEMENT MARKINGS

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PAVEMENT MARKING LINES

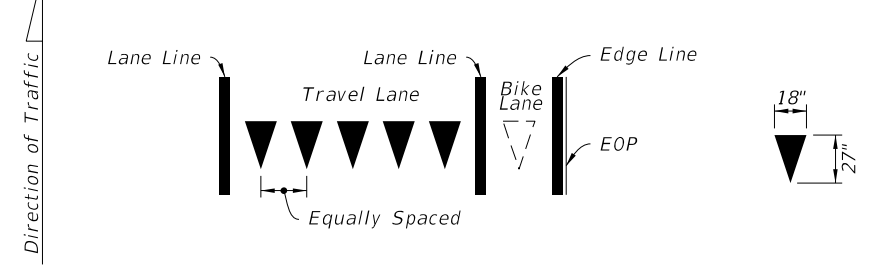


CHANGED TO: 10'-30' Skip Line With Shadow Markings

~~CONTRAST MARKINGS WITH ALTERNATING SKIP PATTERN~~

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

**ADDED: Dotted Line With Alternating Shadow Marking Detail**



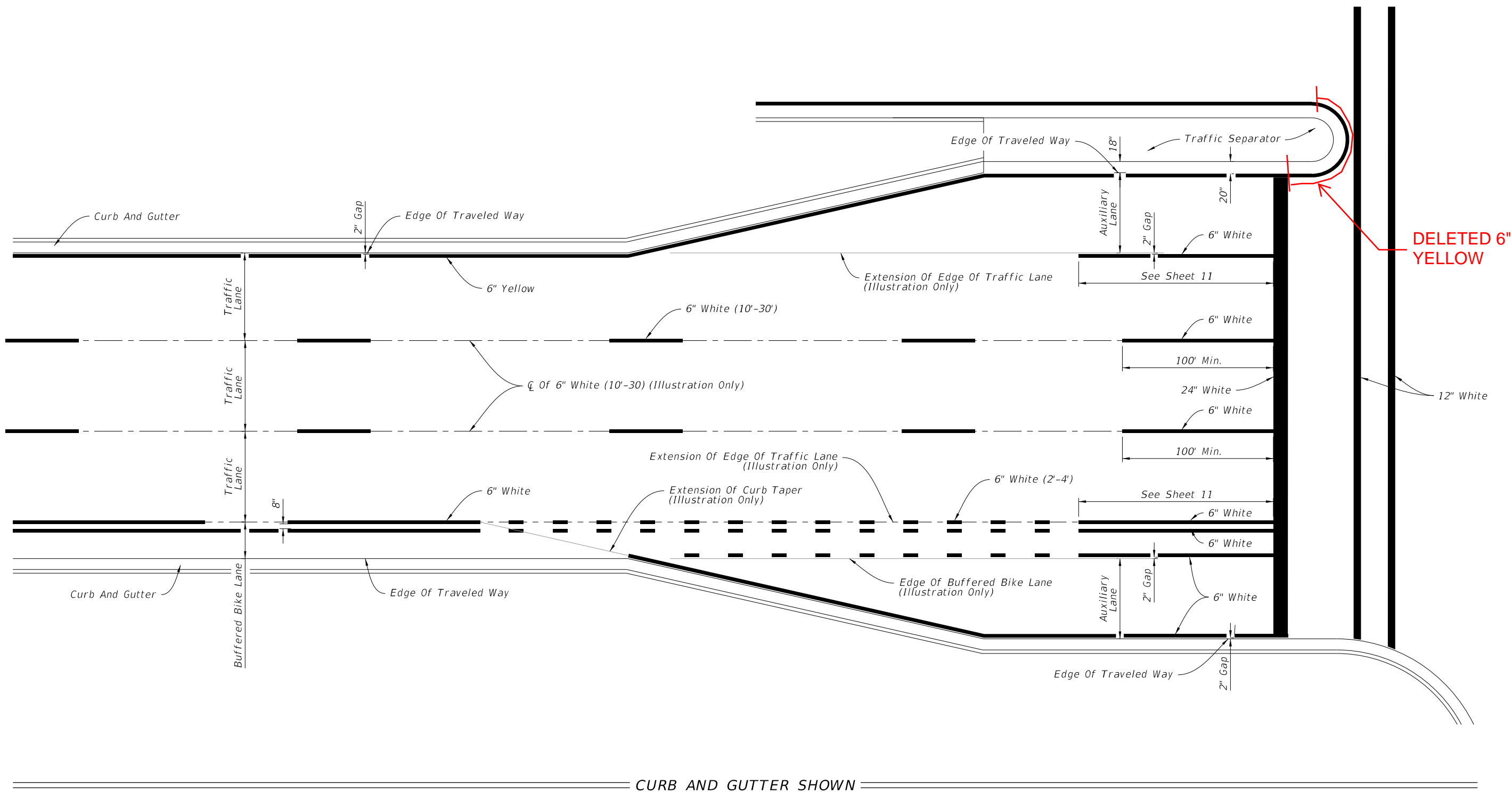
Yield Lines consist of five - 18" X 27" white triangles which face traffic. Equally space triangles within traffic lane. When a bike lane is present, add one additional triangle in the center of the bike lane.

YIELD LINES

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LAST REVISION	REVISION	DESCRIPTION:
11/01/18	←	11/01/19

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PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

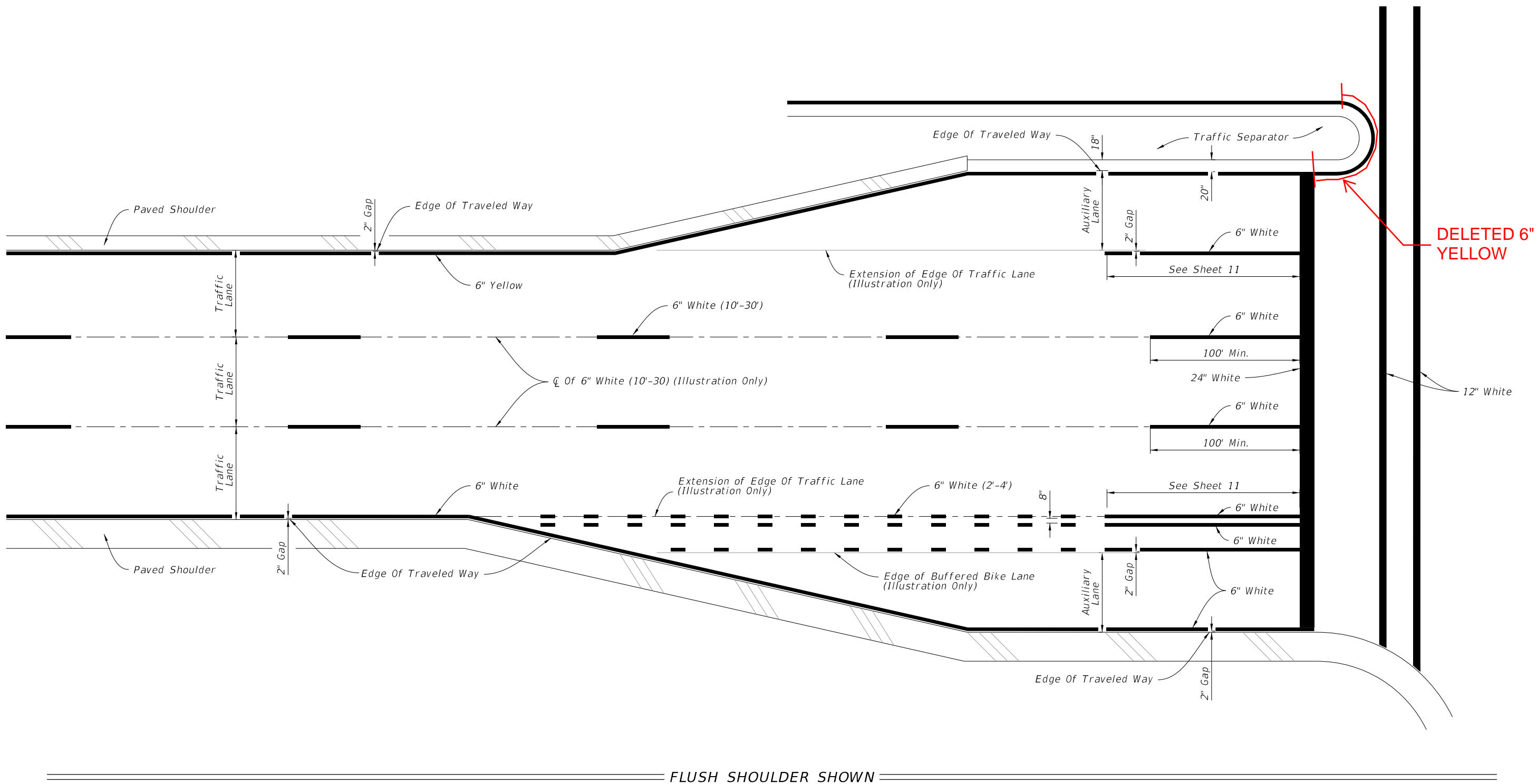
LAST REVISION <del>11/01/18</del>	DESCRIPTION: ← 11/01/19
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 FY 2019-20  
 STANDARD PLANS

PAVEMENT MARKINGS

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FLUSH SHOULDER SHOWN

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION	DESCRIPTION:
<del>11/01/18</del>	← 11/01/19



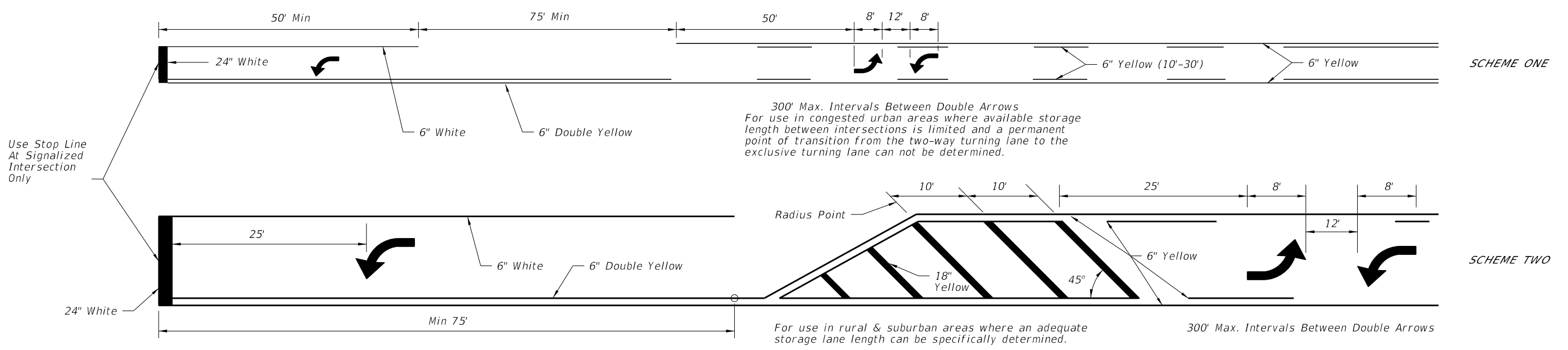
FY 2019-20  
STANDARD PLANS

PAVEMENT MARKINGS

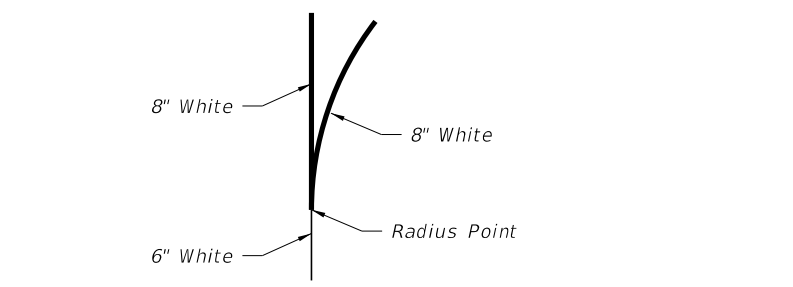
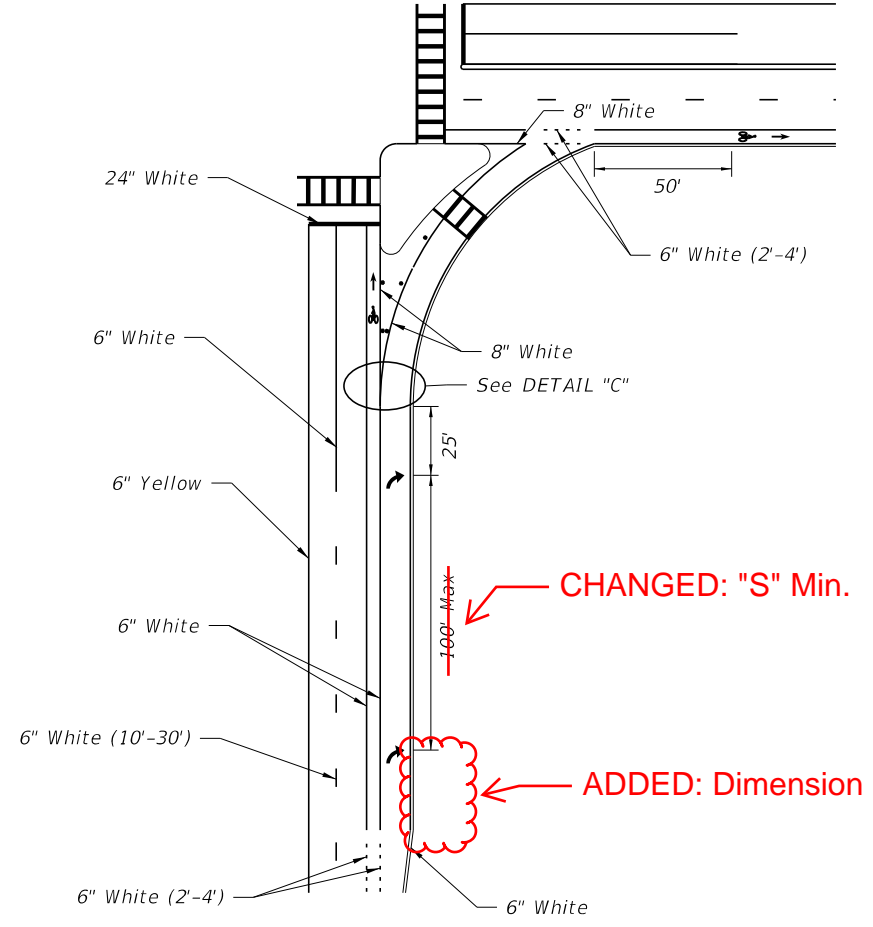
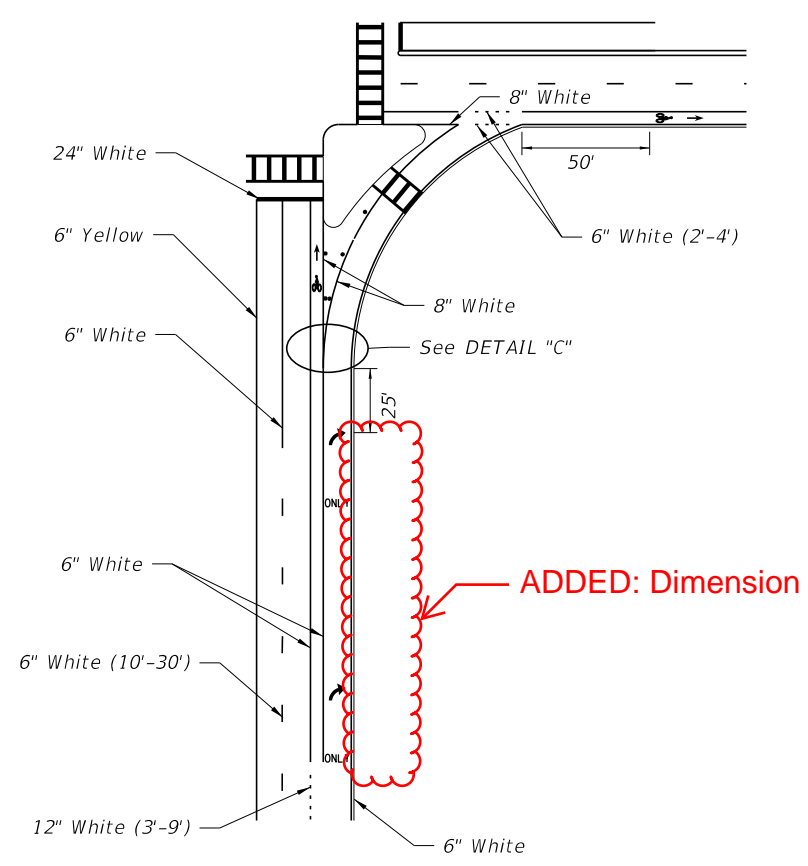
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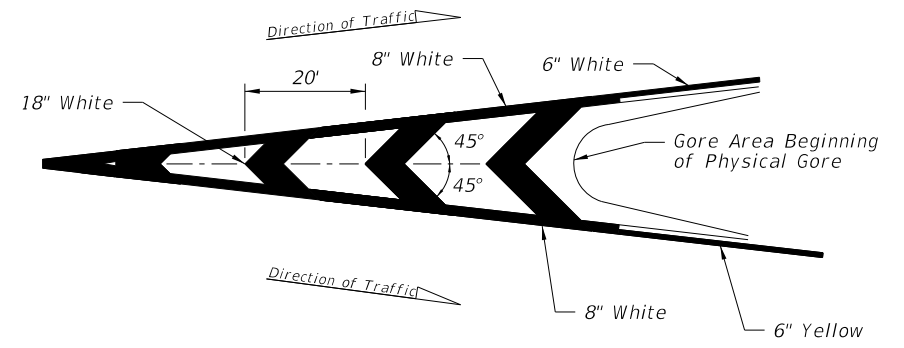




**TWO WAY LEFT TURN LANE**  
 (With Single Lane Left Turn Channelization)



**DETAIL "C"**



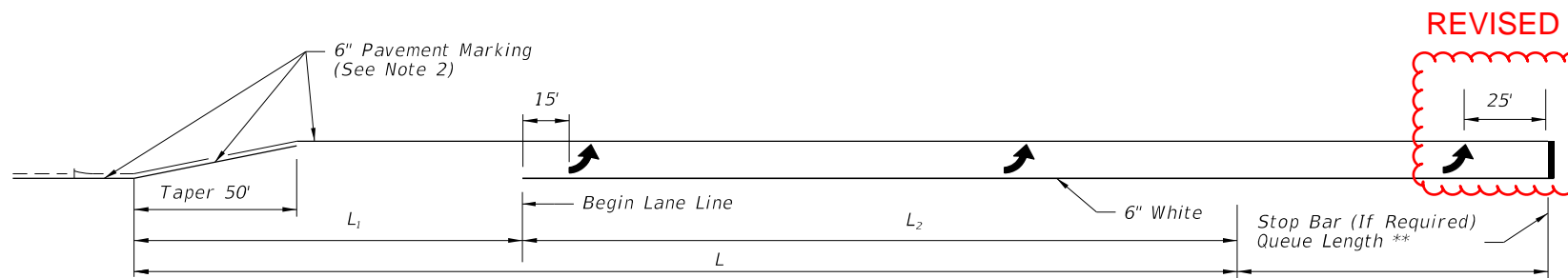
**TRAFFIC CHANNELIZATION AT GORE**

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

**RIGHT TURN LANE AND ISLAND DETAILS**

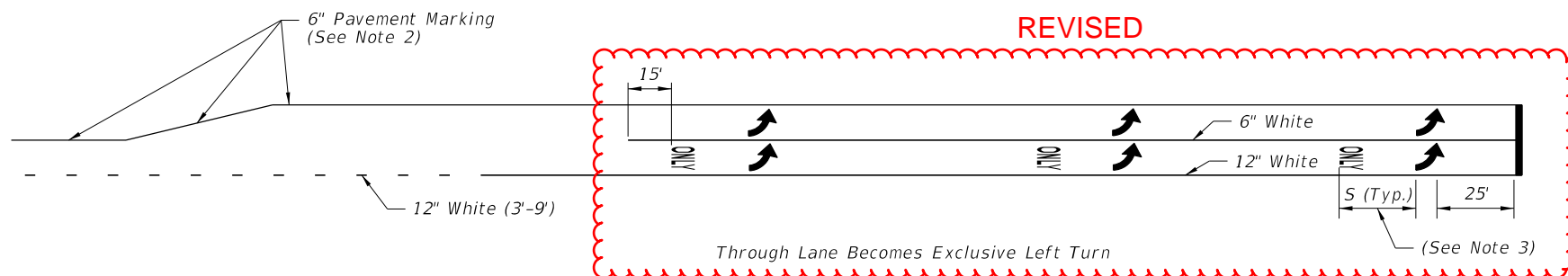
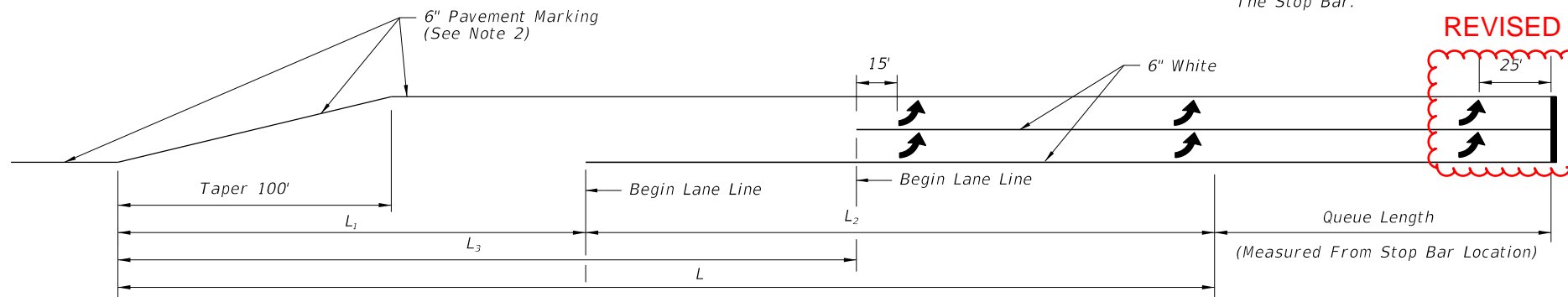
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LAST REVISION <del>11/01/18</del>	DESCRIPTION: ← 11/01/19	FDOT FY 2019-20 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 8 of 13
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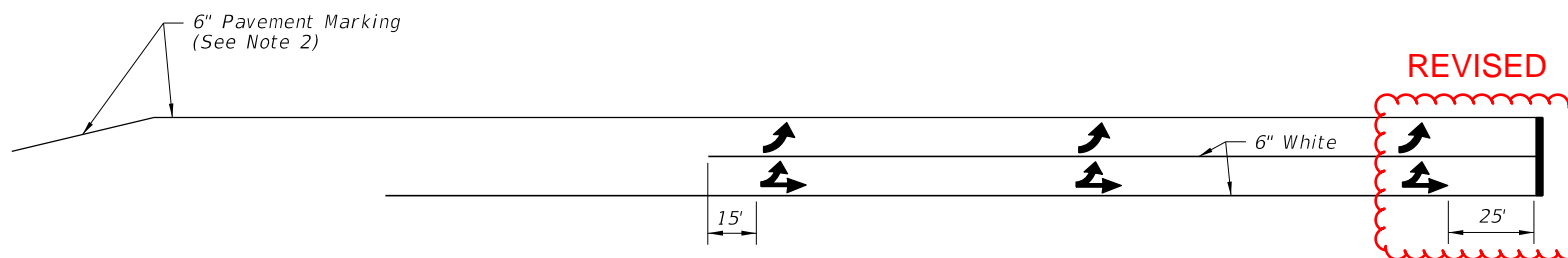


SINGLE LEFT TURNS

\*\* 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

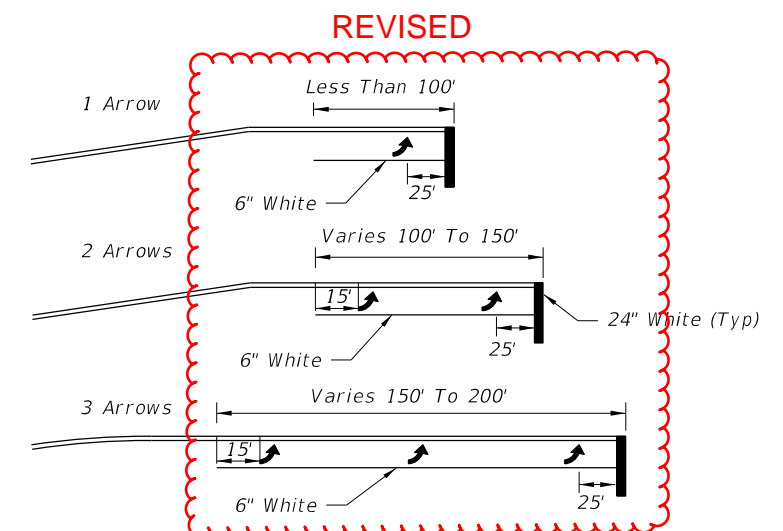


Through Lane Becomes Optional Left Turn

DOUBLE LEFT TURNS

TURN LANE MARKINGS

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 <sub>1</sub>	L <sub>2</sub>	L	L <sub>3</sub>	L <sub>2</sub>	L	L <sub>3</sub>
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

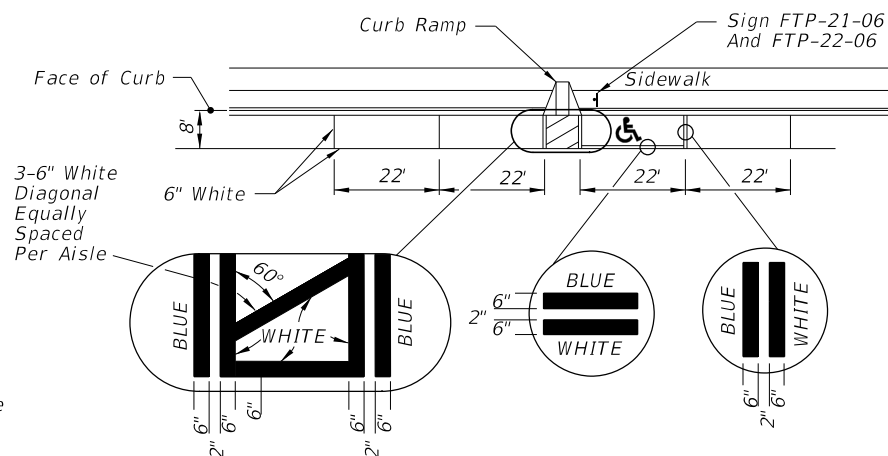
**REVISED**

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.
3. See Sheet 1 for "S" value.

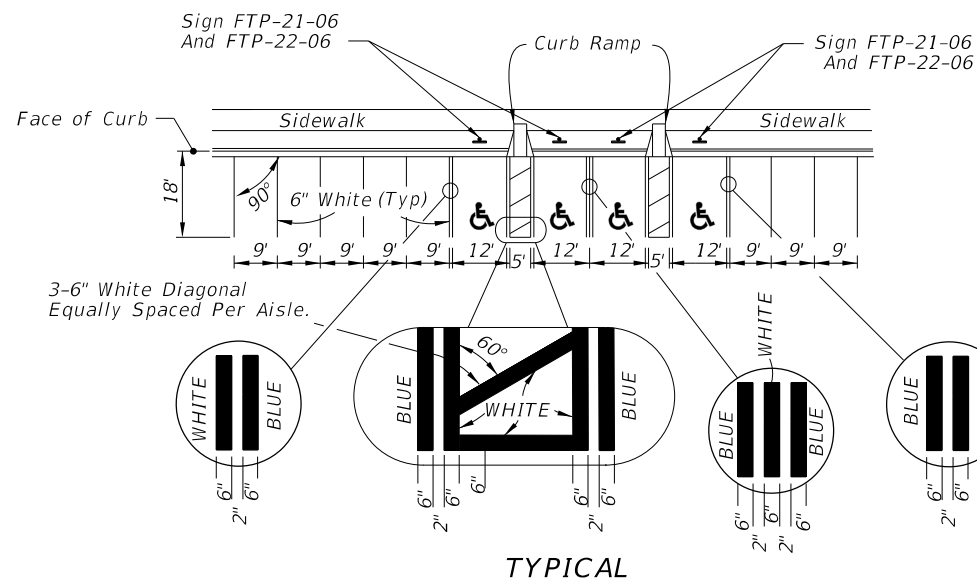
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LAST REVISION	DESCRIPTION:
<del>11/01/18</del>	← 11/01/19

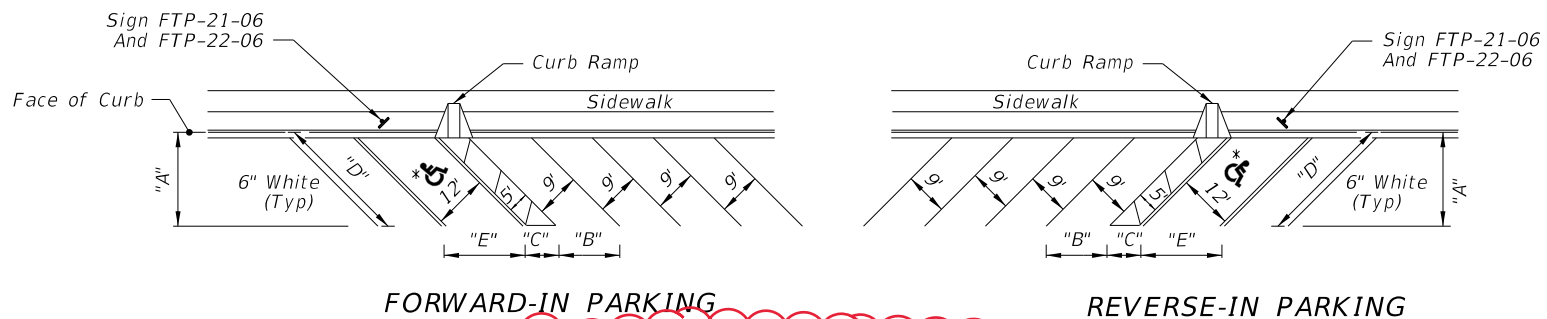


**NOTES:**

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.



TYPICAL



FORWARD-IN PARKING

REVERSE-IN PARKING

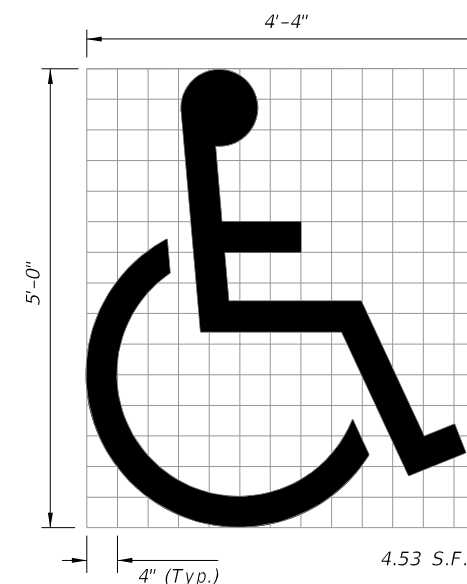
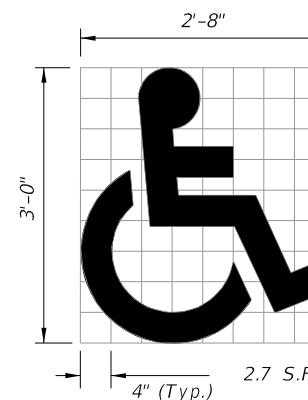
17'

\* FOR ACCESSIBLE MARKINGS - SEE ABOVE

"DIMENSIONS"					
Δ	"A"	"B"	"C"	"D"	"E"
45°	19'-1"	12'-9"	7'-0"	27'-6"	17'-0"
60°	20'-1"	10'-5"	5'-9"	23'-2"	13'-10"

24'

PAVEMENT MARKING FOR PARKING



**ADDED TO THE NOTES**

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

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LAST REVISION	DESCRIPTION:
<del>11/01/18</del>	11/01/19

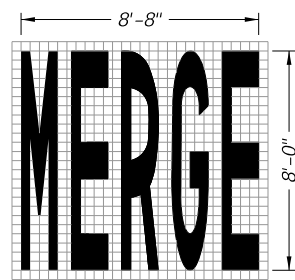


FY 2019-20  
STANDARD PLANS

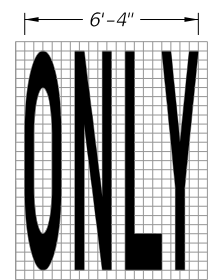
PAVEMENT MARKINGS

INDEX  
711-001

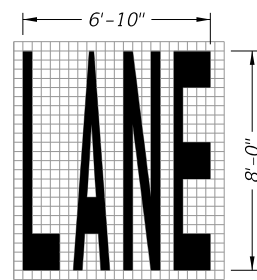
SHEET  
12 of 13



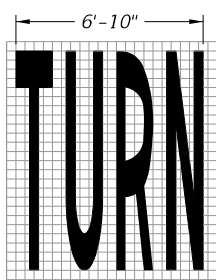
34 S.F.



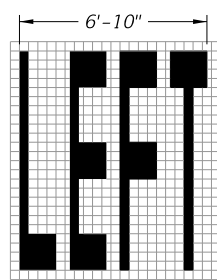
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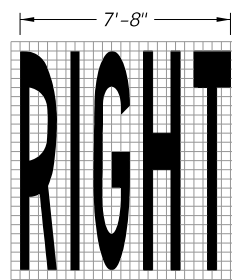
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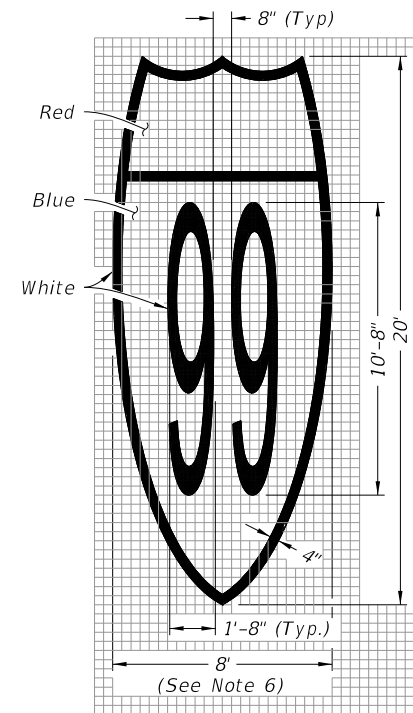
24 S.F.



20 S.F.

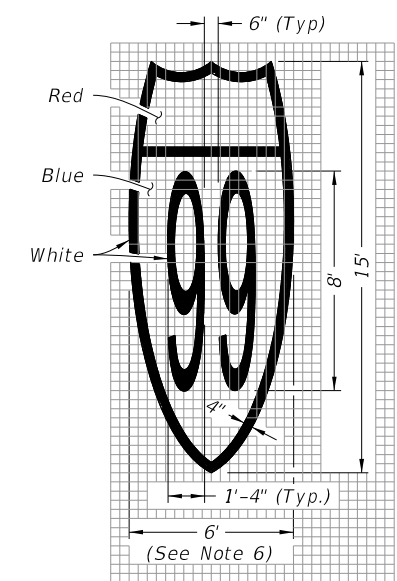


26 S.F.



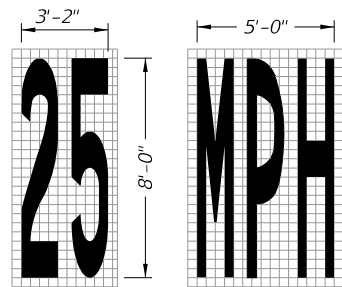
Route Shield for Limited Access Roadways (Interstate Route Shield Shown; U.S. and State Route Shield Similar)

128 S.F.

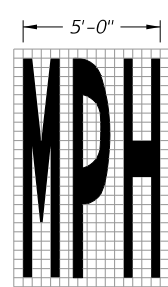


Route Shield for Arterials and Collectors (Interstate Route Shield Shown; U.S. and State Route Shield Similar)

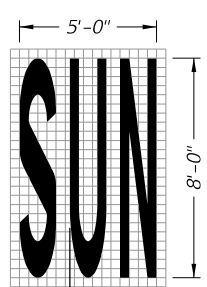
72 S.F.



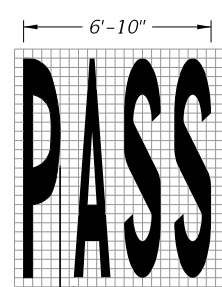
13 S.F.



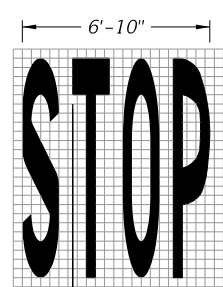
20 S.F.



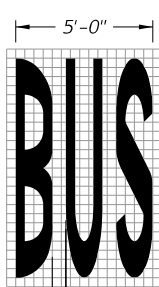
20 S.F.



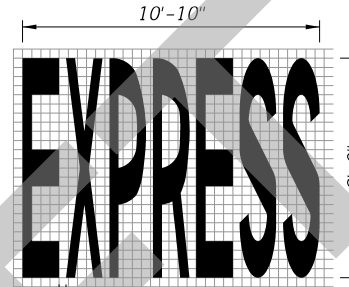
23 S.F.



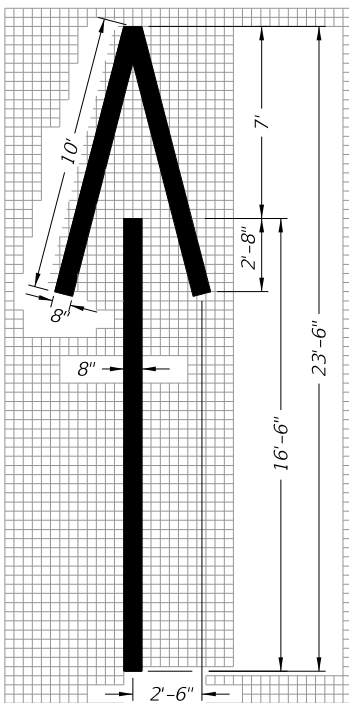
22 S.F.



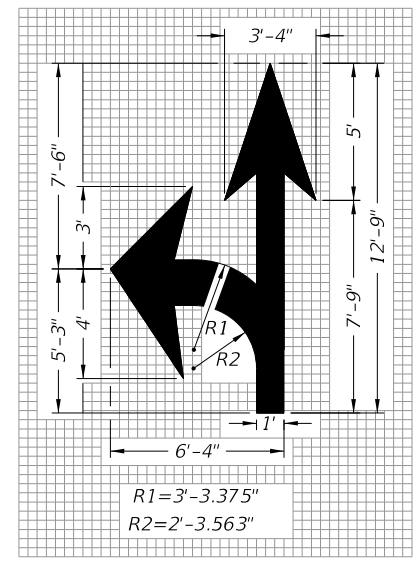
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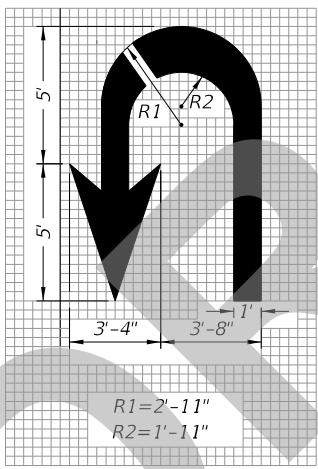
43 S.F.



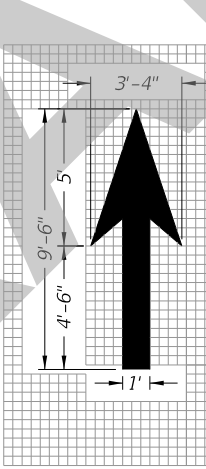
Wrong-Way Arrow  
24 S.F.



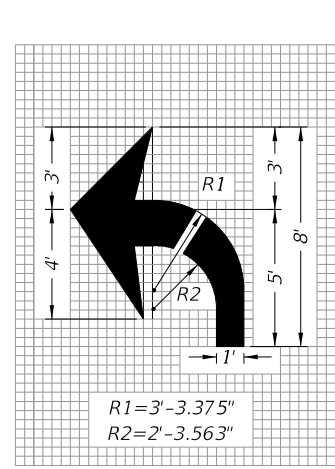
Turn and Through Lane-Use Arrow  
29 S.F.



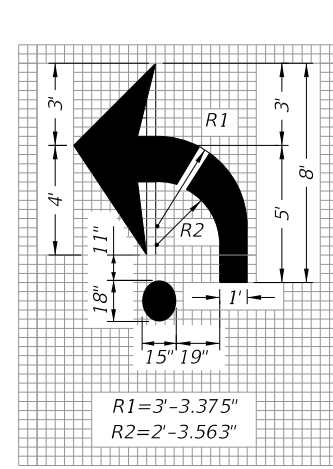
U Turn Lane-Use Arrow  
27 S.F.



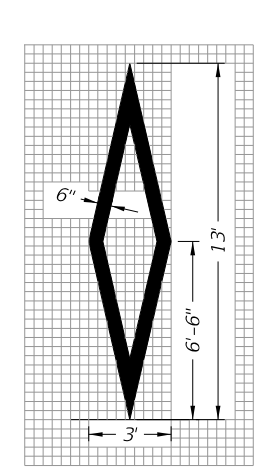
Through Lane-Use Arrow  
12 S.F.



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



Roundabout Approach Arrow  
19 S.F.



Preferential Lane Symbol  
11 S.F.

**NOTES FOR PAVEMENT MESSAGES:**

1. When an arrow or another pavement message is used with a pavement message, maintain a minimum distance of "S" between items, measured from the base of each item. See the Pavement Message Spacing Table for "S" value.
2. Place all pavement messages 25' back from the stop line.
3. Dimensions are within 1" ±.
4. All grids are 4" x 4".
5. All pavement messages must be white except route shields.
6. Increase width of route shield for routes with three digits.

PAVEMENT MESSAGE SPACING TABLE	
Posted Speed (mph)	Distance "S" (feet)
≤ 25	40
30 - 35	56
40 - 45	72
≥ 50	88

**PAVEMENT MESSAGE AND ARROW DETAILS**

**GENERAL NOTE:**

1. See Index 509-070 for pavement markings at railroad crossings.

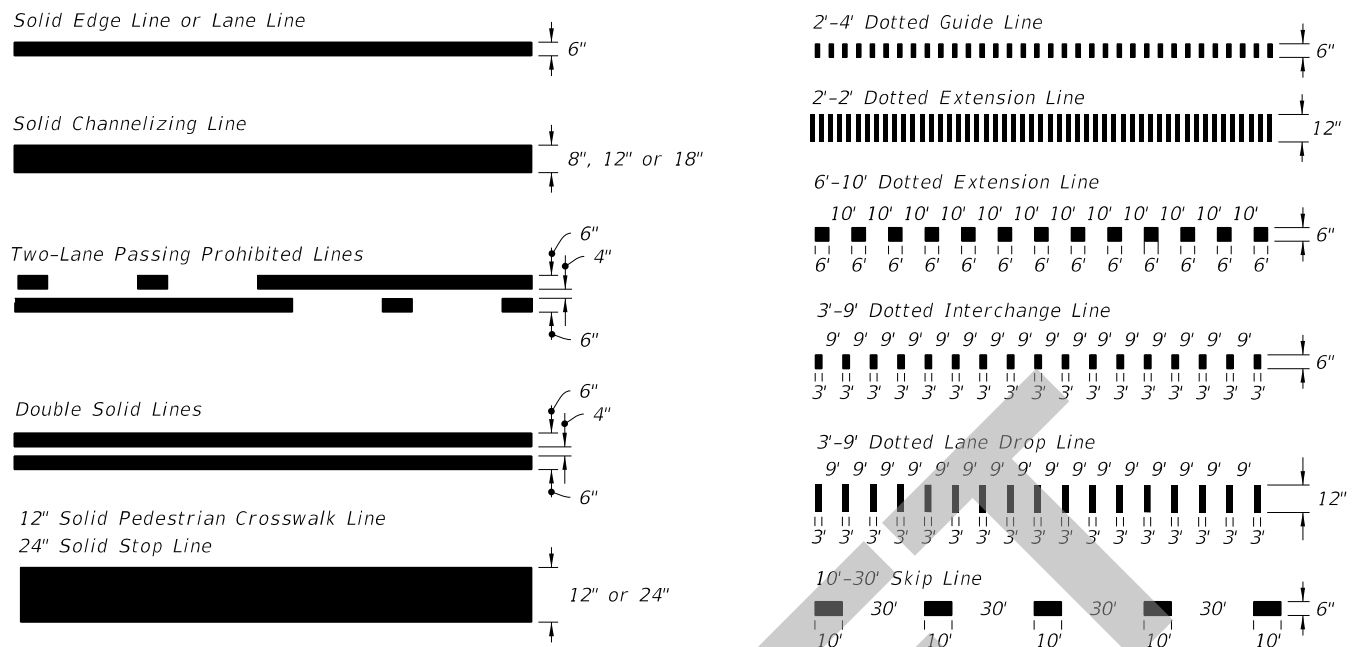
8/27/2019 10:26:35 AM

LAST REVISION 11/01/19	DESCRIPTION:
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**FY 2020-21  
STANDARD PLANS**

**PAVEMENT MARKINGS**

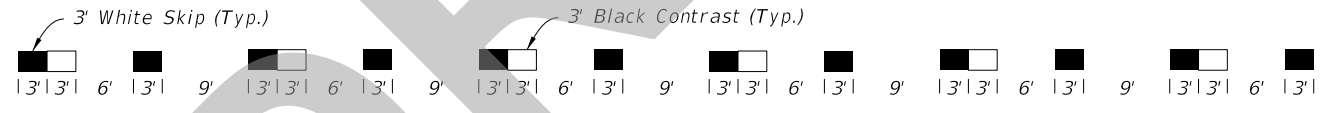
INDEX 711-001	SHEET 1 of 13
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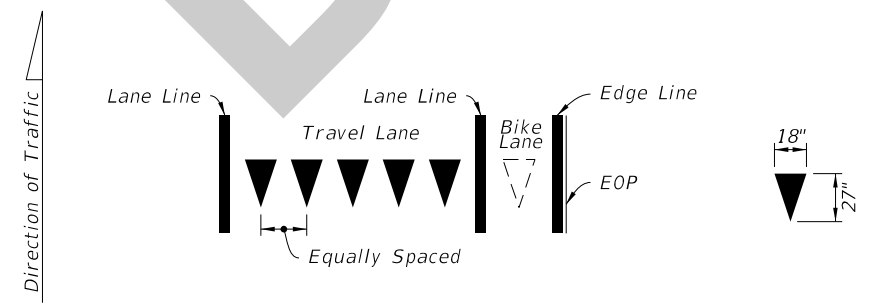
PAVEMENT MARKING LINES



10'-30' SKIP LINE WITH SHADOW MARKINGS



DOTTED LINE WITH ALTERNATING SHADOW MARKINGS  
(3'-9' Dotted Line Shown, Other Dotted Lines Similar)



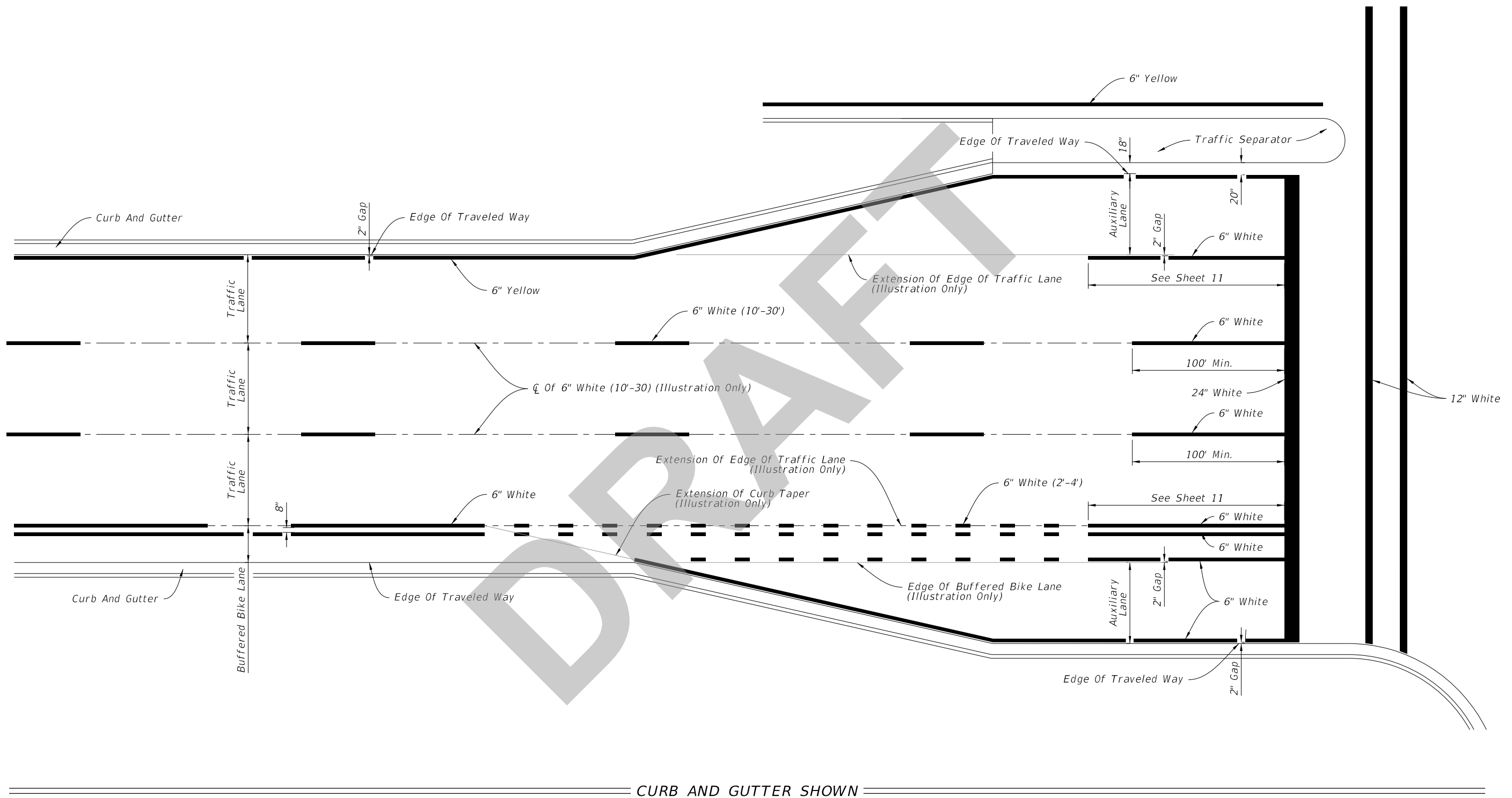
Yield Lines consist of five - 18" X 27" white triangles which face traffic. Equally space triangles within traffic lane. When a bike lane is present, add one additional triangle in the center of the bike lane.

YIELD LINES

8/27/2019 10:26:37 AM

LAST REVISION 11/01/18	REVISION	DESCRIPTION:	 FY 2020-21 STANDARD PLANS	PAVEMENT MARKINGS	INDEX 711-001	SHEET 2 of 13
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CURB AND GUTTER SHOWN

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION	DESCRIPTION:
11/01/19	



FY 2020-21  
STANDARD PLANS

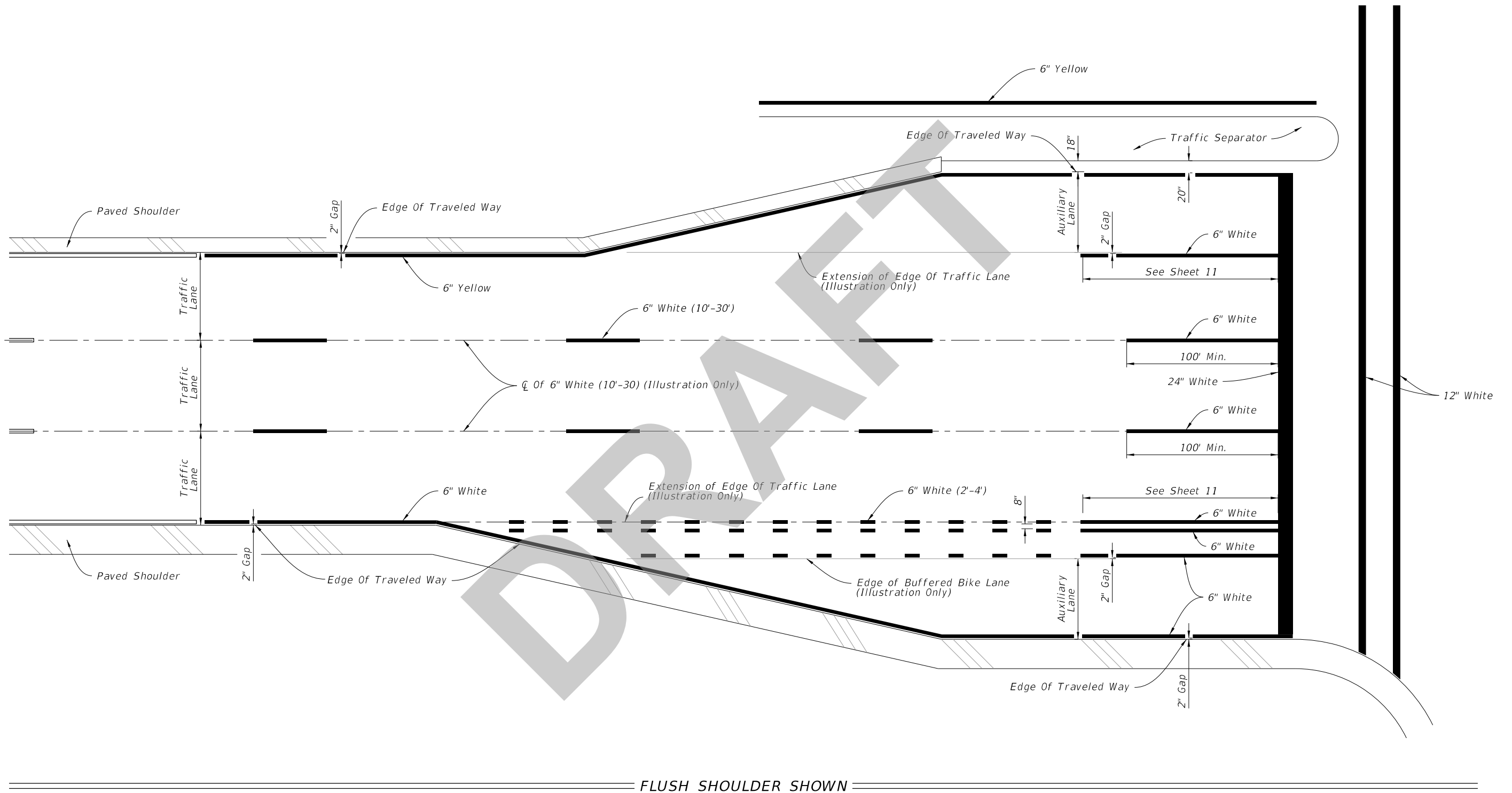
PAVEMENT MARKINGS

INDEX  
711-001

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FLUSH SHOULDER SHOWN

PLACEMENT OF LONGITUDINAL PAVEMENT MARKINGS

LAST REVISION 11/01/19	DESCRIPTION:
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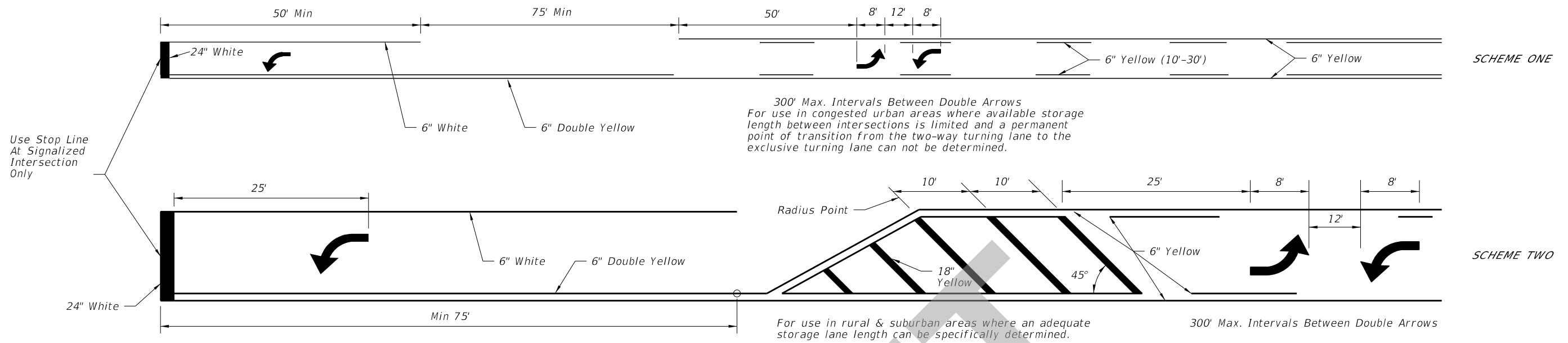


FY 2020-21  
STANDARD PLANS

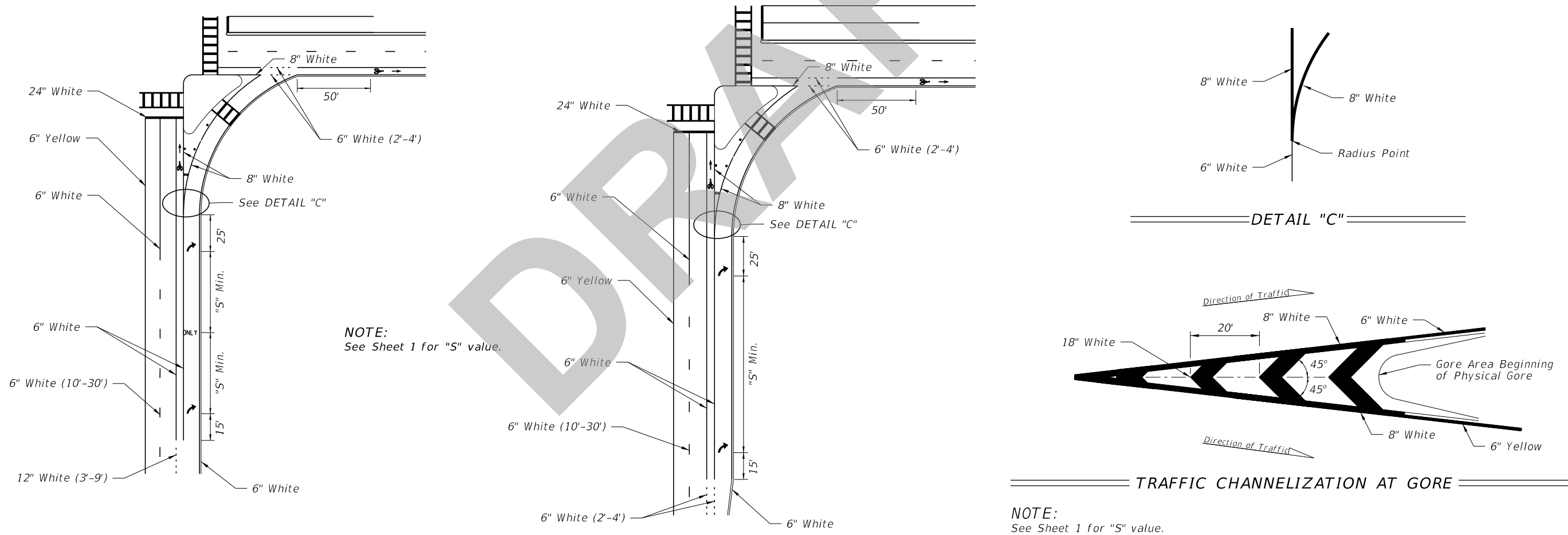
PAVEMENT MARKINGS

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

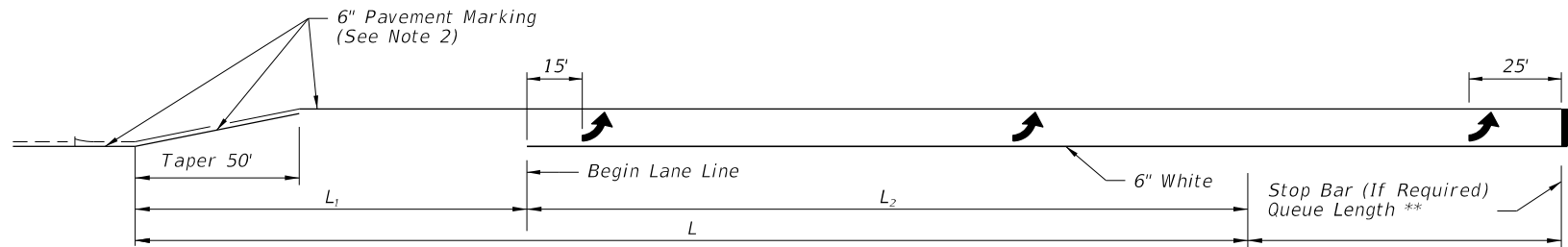


**RIGHT TURN LANE DROP AND ISLAND DETAILS**  
 LEFT TURN LANE DROP IS MIRROR IMAGE

**RIGHT TURN LANE AND ISLAND DETAILS**

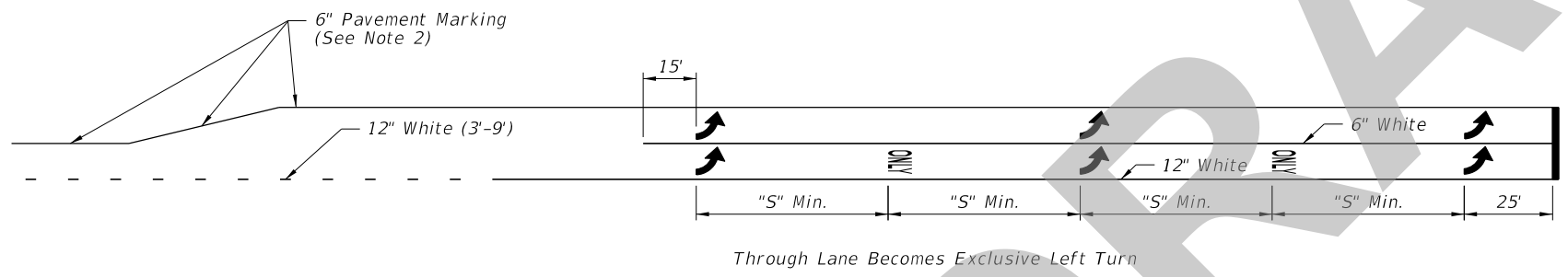
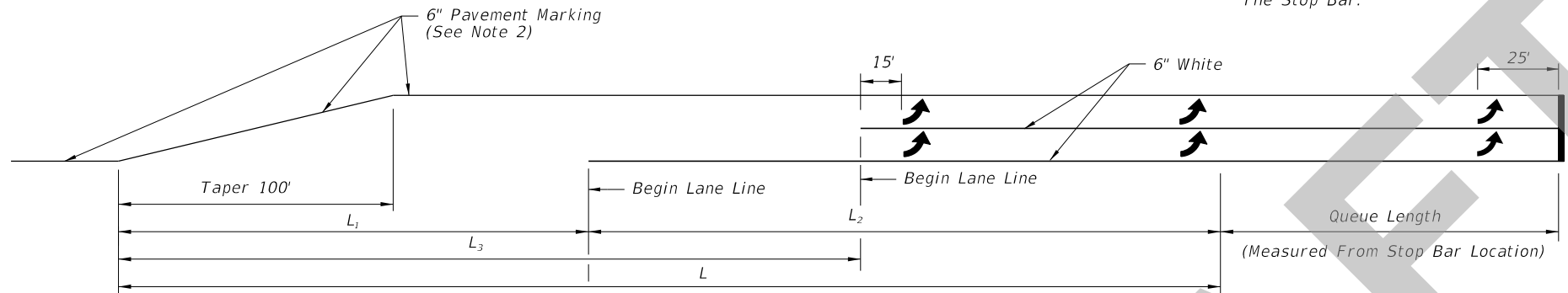
8/27/2019 10:26:39 AM

LAST REVISION 11/01/19	DESCRIPTION:		FY 2020-21 STANDARD PLANS	PAVEMENT MARKINGS	INDEX	SHEET
					711-001	8 of 13

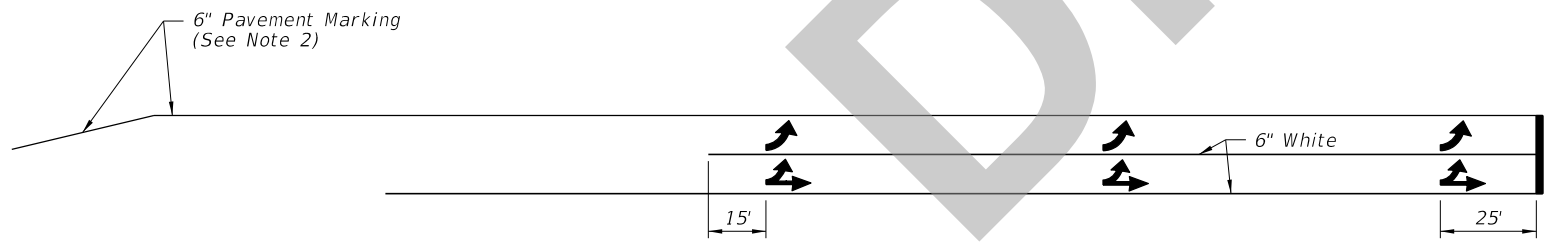


**SINGLE LEFT TURNS**

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



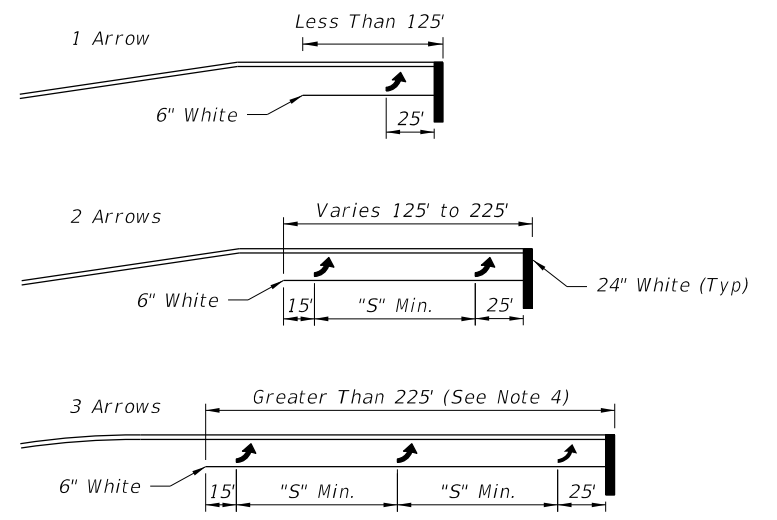
Through Lane Becomes Exclusive Left Turn



Through Lane Becomes Optional Left Turn

**DOUBLE LEFT TURNS**

TURN LANES - CURBED AND UNCURBED MEDIANS							
Posted 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 <sub>1</sub>	L <sub>2</sub>	L	L <sub>3</sub>	L <sub>2</sub>	L	L <sub>3</sub>
≤30	70'	75'	145'	110'	---	---	---
35	80'	75'	155'	120'	---	---	---
40	85'	100'	185'	135'	---	---	---
45	105'	135'	240'	160'	185'	290'	160'
50	125'	---	---	---	225'	350'	195'
55	145'	---	---	---	260'	405'	230'
≥60	170'	---	---	---	290'	460'	270'



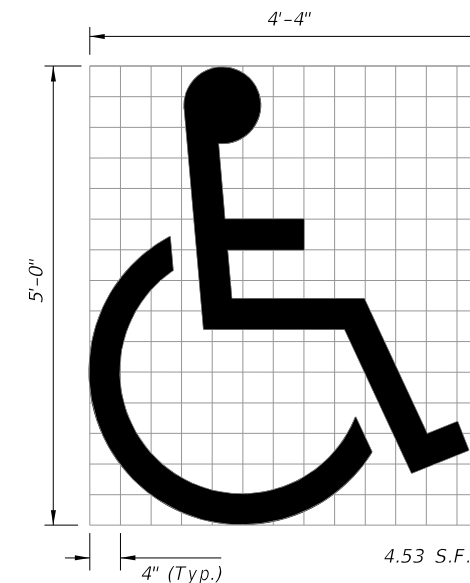
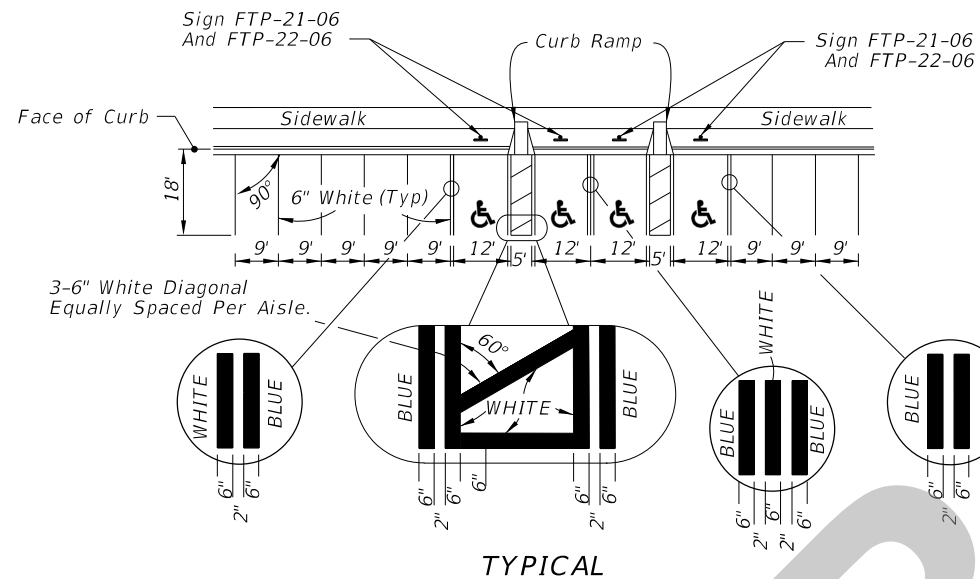
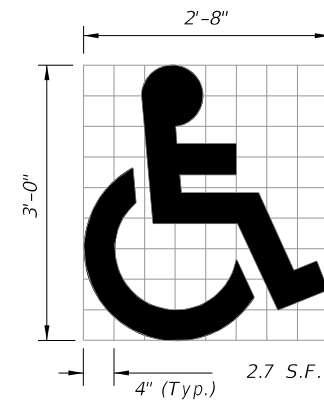
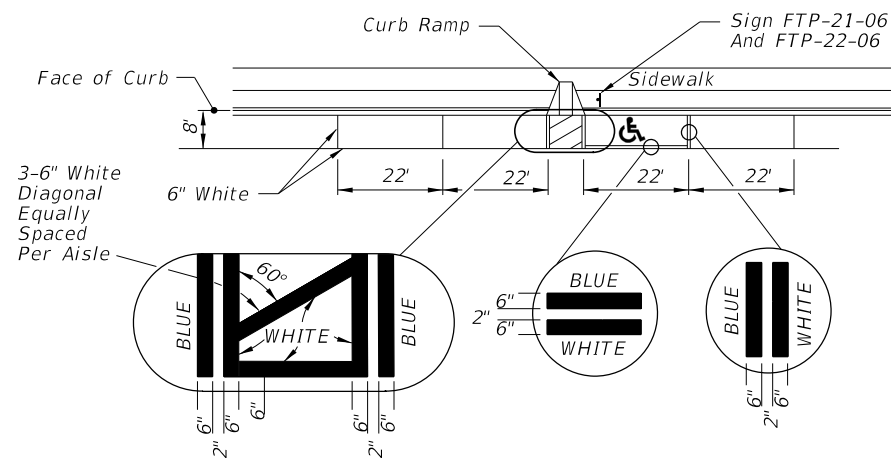
**ARROW SPACING**

**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.
3. See Sheet 1 for "S" value.
4. Space arrows evenly between the first and last arrow with a minimum spacing of "S" between arrows.
5. For turn lanes greater than 225' in length, use a minimum of three arrows. Use additional arrows in accordance with the Plans or as directed by the Engineer. Space arrows evenly throughout the available length with a minimum spacing of "S" between arrows.

**TURN LANE MARKINGS**

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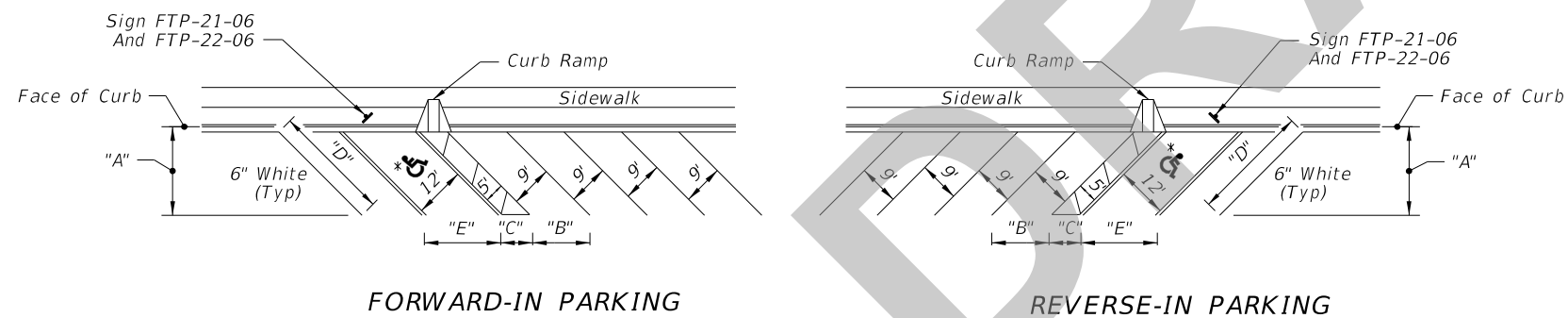


(See Note 6)

UNIVERSAL SYMBOL OF ACCESSIBILITY

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.
6. Use of the pavement symbol in accessible parking spaces is optional. When pavement symbol is used, the symbol is either 3'-0" or 5'-0" high and white in color.



\* FOR ACCESSIBLE MARKINGS - SEE ABOVE

DIMENSIONS					
∠ θ	"A"	"B"	"C"	"D"	"E"
45°	17'-0"	12'-9"	7'-0"	24'-0"	17'-0"

PAVEMENT MARKING FOR PARKING

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