4-LANE WITH TWO-WAY LEFT-TURN LANES

GENERAL NOTE

1. For pavement markings refer to Index No. 3346.

4-LANE UNDIVIDED FLARED - SYMMETRICAL

INTERSECTION TURNS AND STORAGE

<table>
<thead>
<tr>
<th>DESIGN SPEED (MPH)</th>
<th>$T_a$ (FEET)</th>
<th>$T_d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30</td>
<td>1:25</td>
<td>1:25</td>
</tr>
<tr>
<td>30-45</td>
<td>1:30</td>
<td>1:30</td>
</tr>
<tr>
<td>&gt;45</td>
<td>1:40</td>
<td>1:40</td>
</tr>
</tbody>
</table>

Note: For locations with unrelocatable control points, minimum taper rates for lane drop ($T_d$) will be 1:20.
FLARED & PAINTED LEFT TURNS FOR 2-LANE 2-WAY ROADWAYS

<table>
<thead>
<tr>
<th>Design Speed (mph)</th>
<th>L_d (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>180</td>
</tr>
<tr>
<td>30</td>
<td>300</td>
</tr>
<tr>
<td>40</td>
<td>500</td>
</tr>
<tr>
<td>60</td>
<td>700</td>
</tr>
</tbody>
</table>

For Deceleration Length (L_d):
See Index No. 301

Queue Length

300' (Desirable) (1:25)
LANE DIVERGENCE AND CONVERGENCE FOR CENTERED ROADWAYS

**4-LANE DIVIDED TO 4-LANE UNDIVIDED**

\[ L = \frac{WS}{7} \]  
\[ L = \frac{WS-120}{3} \leq 45 \text{ mph} \]

\[ L = \frac{WS}{120} \]  
\[ L = \frac{WS}{7} \geq 45 \text{ mph} \]

**4-LANE DIVIDED TO 2-LANE UNDIVIDED**

\[ L = 125 \times 45 \text{ mph} \]

\[ L = \frac{WS}{5} \leq 45 \text{ mph} \]

\[ L = 125 \times 45 \text{ mph} \]

\[ L = \frac{WS}{3} \geq 45 \text{ mph} \]

**4-LANE UNDIVIDED TO 2-LANE UNDIVIDED**

\[ S = \text{Design speed (mph)} \]
CONNECTING FLARE WITH PAVED SHOULDERS TO EXISTING ROADWAY WITHOUT PAVED SHOULDERS

CONNECTING ROADWAY WITH PAVED SHOULDERS TO EXISTING SYMMETRICAL FLARE WITHOUT PAVED SHOULDERS

CONNECTING ROADWAY WITH PAVED SHOULDERS TO EXISTING ASYMMETRICAL FLARE WITHOUT PAVED SHOULDERS

PAVED SHOULDER TREATMENT AT TRANSITIONS AND CONNECTIONS

S=Design speed (mph)
LEFT ROADWAY CENTERED ON APPROACH ROADWAY

TWO LANE TO FOUR LANE TRANSITION

NOTES FOR SHEETS 5 THRU 8

1. The transition details as represented on sheets 5 thru 8 are intended as guidelines only. The transition lengths, curve data, nose radii and offsets are valid only for tangent alignment, design speeds ≤ 45 mph, the median widths and lane widths shown.

2. Approach lane departures (D = 9°) are suitable for design speeds up to 60 mph. Interior curves (D = 1°) are suitable for normal crown for design speeds up to 50 mph. Merging curves (D ≥ 5°) will require superelevation.

3. The geometrics of these schemes are associated with the standard subsectional spacing for side roads, but in any case will require modification to accommodate side road location, multilane and/or divided side roads, oblique side roads, crossover widths, storage and speed change lane requirements, and, other related features.
L = W S for speeds = 45 mph
L = W S 0.65 for speeds = 40 mph
Where:
W = Width of lateral transition in feet.
S = Design speed.

LEFT ROADWAY CENTERED ON THRU ROADWAY

FOUR LANE TO TWO LANE TRANSITION
RIGHT ROADWAY CENTERED ON APPROACH ROADWAY

TWO LANE TO FOUR LANE TRANSITION

\[ L = WS \text{ for speeds } = 45 \text{ mph} \]
\[ L = \frac{WS^2}{60} \text{ for speeds } ≤ 40 \text{ mph} \]

Where:
\[ W = \text{Width of lateral transition in feet.} \]
\[ S = \text{Design speed.} \]
RIGHT ROADWAY CENTERED ON THRU ROADWAY

FOUR LANE TO TWO LANE TRANSITION

L = WS for speeds ≥ 45 mph
L = WS²/60 for speeds ≤ 40 mph

Where:
W = Width of lateral transition in feet
S = Design speed.