**4-LANE WITH TWO-WAY LEFT-TURN LANES**

**GENERAL NOTE**
1. For pavement markings refer to Index No. 17346.

**4-LANE UNDIVIDED FLARED - SYMMETRICAL**

**INTERSECTION TurnerS AND STORAGE**
LEFT SIDE WIDENING

CENTERED WIDENING

RIGHT SIDE WIDENING

FLARED & PAINTED LEFT TURNS FOR 2-LANE 2-WAY ROADWAYS

<table>
<thead>
<tr>
<th>Design Speed (mph)</th>
<th>$L_a$ (ft)</th>
<th>Minimum Under Restraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>160</td>
<td>120</td>
</tr>
<tr>
<td>40</td>
<td>220</td>
<td>150</td>
</tr>
<tr>
<td>50</td>
<td>280</td>
<td>180</td>
</tr>
<tr>
<td>60</td>
<td>320</td>
<td>240</td>
</tr>
</tbody>
</table>

For Deceleration Length ($L_d$)

See Index No. 301

Queue Length

Varies

For Vectors (Length $L_a$)

Varies

For Deceleration Length ($L_d$)
4-LANE DIVIDED TO 4-LANE UNDIVIDED

\[ L = \frac{WS}{2} \geq 45 \text{ mph} \]
\[ L = \frac{WS^2}{120} < 45 \text{ mph} \]

4-LANE DIVIDED TO 2-LANE UNDIVIDED

\[ L = 125 \geq 45 \text{ mph} \]
\[ L = \frac{S^2}{5} < 45 \text{ mph} \]

4-LANE UNDIVIDED TO 2-LANE UNDIVIDED

LANE DIVERGENCE AND CONVERGENCE FOR CENTERED ROADWAYS

\[ L = \frac{WS}{2} \geq 45 \text{ mph} \]
\[ L = \frac{WS^2}{120} < 45 \text{ mph} \]
ROADWAY TRANSITIONS

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

CONNECTING SIMILAR WIDTH PAVEMENTS

CONNECTING DIFFERENT WIDTH PAVEMENTS

FLARED - PAVED SHOULDERS

PAVED SHOULDER TREATMENT AT TRANSITIONS AND CONNECTIONS

L = WS

S = Design speed (mph)
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.

Approach lane departures (Δ = 5°) are suitable for design speeds up to 50 mph. Interior curves (Δ = 5°) are suitable for normal crown for design speeds up to 50 mph. Merging curves (Δ = 5°) will require superelevation.

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, multi-lane and/or divided side roads, oblique side roads, crossover widths, storage and speed change lane requirements, and, other related features.

LEFT ROADWAY CENTERED ON APPROACH ROADWAY

TWO LANE TO FOUR LANE TRANSITION
LEFT ROADWAY CENTERED ON THRU ROADWAY

FOUR LANE TO TWO LANE TRANSITION

L = WS for speeds = 45 mph
L = WS/2 for speeds = 40 mph

Where: W = Width of lateral transition in feet.
S = Design speed.
TWO LANE TO FOUR LANE TRANSITION

RIGHT ROADWAY CENTERED ON APPROACH ROADWAY

L = WS for speeds = 45 mph
L = 65' for speeds = 40 mph

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

\[ W = \frac{WS^2}{60} \]
S = Design speed.
W = Width of lateral transition in feet.

Where:
WS²
60
L = WS for speeds = 45 mph
L =      for speeds = 40 mph

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

L = W5 for speeds = 45 mph
L = W40 for speeds = 40 mph