

9.14M Tapers and Auxiliary Lanes

9.14.4M Design Elements for Right-Turn Tapers with Auxiliary Lanes

The TAC Subsection 9.14.4 is not applicable to the Department's highways as written.

A right-turn lane at an unsignalized intersection will be warranted if one of the following conditions is met:

- If the minor road is a PTH or PR.
- If the right-turn volume exceeds 200 vehicle/day.
- If the right-turn is an access to a community with a population exceeding 500.

The turn lane width is to be 3.7 m with a fully paved 1.5 m shoulder. All other geometry of the turning lane will follow Table 9.17.5M and Figure 9.17.M below.

Table 9.14.2M Design Lengths

Design Speed (km/h)	Assumed Running Speed (km/h)	Taper Length (m)	Minimum Parallel Lane Length (m)	Storage Length Required	Length of Deceleration Provided* (m)	Deceleration Length Required to Stop Condition** (m)
60	60	50	80	None if Right Turn Movement is Under a Free-flow Condition	105	56.6
70	70	50	100		125	77.1
80	80	50	110		135	100.7
90	90	50	120		145	127.4
100	97.5	100	130		180	149.5
110	102.8	100	140		190	166.2
120	107.4	100	140		190	181.5
130	110.8	100	150		200	193.1

* Length of deceleration provided assumes deceleration begins halfway through the taper.

** Formulae used:
 $s = \frac{1}{2}(v+u)t$ Where $a = -1/4g = -1/4(9.81) \text{ m/sec}^2$
 $u = a(t)$ s is the deceleration distance (m)
 v is the final speed (m/sec) $\leftarrow 0 \text{ m/sec}$
 u is the initial speed (m/sec) \leftarrow Assumed Running Speed (1986 TAC Manual Calculations)
 t is the deceleration time (sec)

Figure 9.14.3M Right-Turn Lane Geometry

