



Traffic Signal Design Manual

ORIGINATOR Director, Bureau of Highway Operations		3-3-5
CHAPTER 3	Project Scoping Process & Geometric Design Considerations	
SECTION 3	Intersection Geometrics	
SUBJECT 5	Left Turn Lanes	

THIS SECTION OFFERS INTERIM GUIDANCE ONLY

Refer to FDM Procedure 11-25-5, *Intersections At Grade – Left Turn Lanes*

The width of a left turn lane *should* desirably be the same as the width of the through lane. A left turn lane width of 12 feet *should* be used on rural and suburban arterial highways.

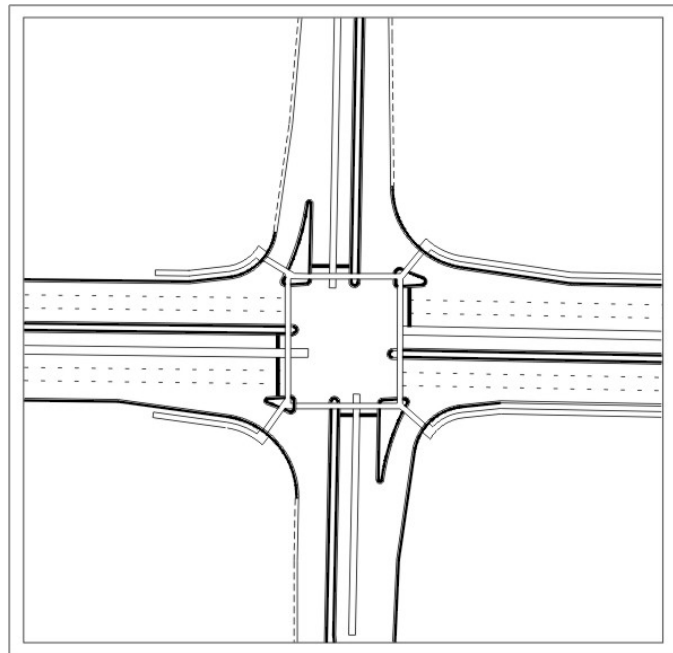
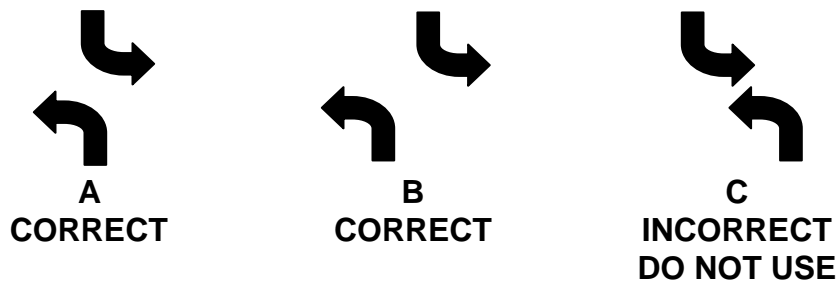
With the exception of interchange ramp terminals, both single left turn lanes and dual left turn lanes on the STH system require separation from adjacent through movements. Separation *may* be accomplished by the following different ways:

- Raised median including slotted left turn lanes
- Pavement Marking
- Corrugated median (generally not desirable)

The Regional Traffic Engineer **shall** be consulted when selecting proper channelization methods.

The ideal alignment of left turn lanes is to have opposing left turns directly opposite (head to head) of each other (A) or to positively offset them as shown in (B). For visibility and safety reasons, the alignment shown in (C) *should not* be used

- Alignment of left turn lanes is critical to enable turning vehicles to see past opposing left turners and view opposing through vehicles to allow them to pick an adequate gap to complete their maneuver.
- If there is poor alignment, Traffic Operations *may* be faced with prematurely adding protected left turn arrows for low volume left turn movements due to crashes that occur due to poor visibility. This will increase the delay at the intersection. See the Incorrect and Correct left turn design figures.
- It is sometimes advantageous to “hook” the ends of the left turn lane, which enables better sight around left turners in a “tight” intersection.



CORRECT
Left Turn Lanes Are Opposing

When designing dual left turn lanes it is extremely important that opposing left turns complete their movements simultaneously. Dual left turn lanes do not need to be designed to accommodate two WB-62's or larger turning side by side since the chance of this occurring is quite remote, but rather a single unit vehicle in the inside turn lane and a truck (WB-62) in the outside turn lane. (See TSDM Subject 3-3-4, Turning Templates)

1. Left turn lanes *should* be provided at signalized intersections wherever the turns are permitted.
2. Shared left turn lanes are not desirable and *should* only be allowed along minor low-speed streets or where it is physically impossible to develop protected lanes. If allowed, their crash history *should* be monitored, especially along principal roads.

3. Dual left turn lanes are desirable and *should* be considered where left turn volumes exceed 300 vph (depends on opposing volumes). These lanes require sufficient width on the receiving roadway to accommodate design vehicles running side-by-side. The receiving roadway **shall** carry two through lanes a sufficient distance to allow both lanes to be utilized effectively (typically 1000 feet minimum).