

A COST-EFFECTIVE WAY TO MEET COMMUNITY NEEDS

The DLT design is flexible and can be tailored to meet the needs of a particular intersection and all of its users. Because DLT implementation can be full or partial, agencies and communities can adjust the design to balance benefits, costs, and impacts. When DLTs are implemented at multiple intersections along corridors, travel times and throughput are improved along the entire route.

A DLT also can support community goals for pedestrians and bicycles. Provisions for walking and biking must be considered throughout the project development process, with the needs of pedestrians and bicycles shaping the overall design of the DLT accordingly. This includes pedestrian crossings that are accessible to all users, and traffic signal phases that accommodate both pedestrians and bicycles.



Salt Lake City, UT DLT Intersection
Source: DLT Video FHWA-SA-14-021



Fenton, MO DLT Intersection
Source: DLT Video FHWA-SA-14-021

SOURCES

¹ FHWA *Techbrief: Displaced Left-Turn Intersection*, FHWA-HRT-09-055 (Washington, DC: October 2009). Available at: <http://www.fhwa.dot.gov/publications/research/safety/09055/index.cfm>

¹ Ibid.

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DISPLACED LEFT TURN INTERSECTION



AN INNOVATIVE, PROVEN
SOLUTION FOR IMPROVING
SAFETY AND MOBILITY AT
SIGNALIZED INTERSECTIONS



U.S. Department of Transportation
Federal Highway Administration

Safe Roads for a Safer Future
Investment in roadway safety saves lives
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Motorists, pedestrians, and bicyclists face greater mobility challenges and safety risks at intersections as traffic volumes grow and congestion worsens. Agencies need safer, more balanced designs that keep people moving. Innovative intersection designs represent a solution, and are being built more often because they can deliver more for less.

WHAT IS A DISPLACED LEFT TURN INTERSECTION?

A DLT is sometimes referred to as a **Continuous Flow Intersection (CFI)**

The Displaced Left Turn (DLT) intersection implements unopposed left turns at intersections by moving traffic over to the other side of the road in advance, as illustrated in Figure 1. Traffic crosses opposing through lanes at a separate signalized intersection before the main intersection, entering a parallel left turn lane separated from opposing lanes. At the main intersection, left turning and through traffic move simultaneously, increasing efficiency and safety by reducing conflict. Traffic signals at the advance crossovers are coordinated with the main intersection to minimize stops.

The DLT is best-suited to intersections with moderate to high overall traffic volumes, and especially to those with very high or unbalanced left turn volumes. It can be a competitive alternative to a full, grade-separated interchange.

SAFETY AND OPERATIONAL BENEFITS

Improving safety and mobility are important goals of every road agency. The DLT advances both of these goals through unopposed left turns and simpler traffic signal phases. A traffic signal at a DLT can use as few as two phases, meaning shorter and more efficient cycles.

The DLT design reduces the total number and overall severity of vehicle-to-vehicle conflict points. Conflict points decrease from 32 to 28 when a conventional intersection is converted to a full DLT.¹ The unopposed left turns at the main intersection eliminate the need for drivers to judge the speed and gaps of oncoming traffic, greatly simplifying the maneuver.

A study by FHWA using traffic models to compare performance between DLT intersections and equivalent conventional signalized intersections showed the following:

- A full DLT with crossovers on all intersection approaches increased throughput by about 30 percent.

- A partial DLT with crossovers on only select intersection approaches increased throughput by about 20 percent.
- DLTs significantly reduced delay – by 30-40 percent for the partial DLT and 50-80 percent for the full DLT.²

DLT intersections have been constructed in several states, including Louisiana, Maryland, Missouri, New York, and Utah. More DLTs are being considered in these and other states.

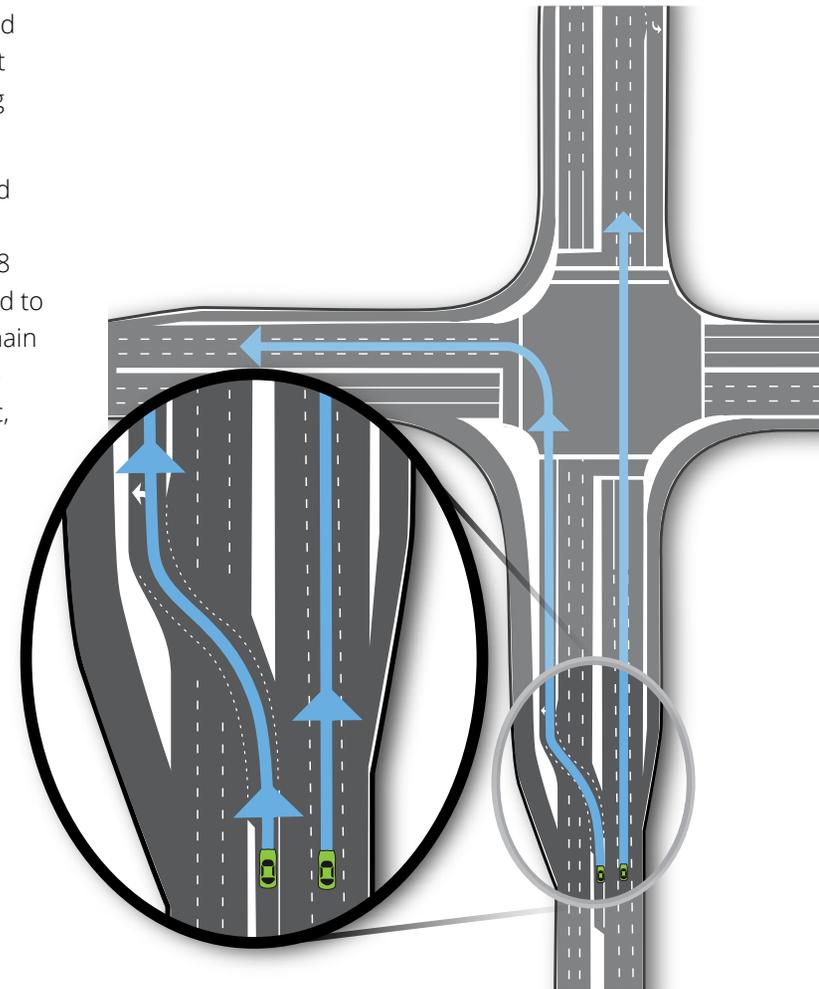


Figure 1. Depiction of separated left turns and through traffic in a DLT intersection.