



The Institute of Transportation Engineers
Traffic Engineering Council
presents TIPS on



Median Treatments

Why are two-way left-turn lanes and raised medians used?

The two most commonly used median treatments on urban and suburban arterials are two-way left-turn lanes (TWLTLs) and median islands. TWLTLs are typically employed in areas of moderate to intense roadside development where the demand for mid-block left turns is currently (or expected to be) high. With a TWLTL, left-turn access can be provided at any point along the roadway. For this reason, they are typically used on arterials where there are frequent and randomly organized access points. On the other hand, raised medians present a physical barrier to drivers and, as such, cannot be easily traversed. For this reason, raised medians are often used where it is desirable to prevent mid-block left turns. On roadways with raised medians, left-turn maneuvers are concentrated at established openings in the median or at signalized intersections.

Both of these types of median treatments have advantages and disadvantages in

terms of operations and safety. The primary advantage of a raised median is that left-turning traffic can be concentrated at established median openings. Raised medians have been found to reduce crashes 25 to 40 percent, depending on traffic volumes. This makes it easier to regulate crossing traffic. In addition, raised medians can be used to provide a refuge area for pedestrians crossing the roadway.

The primary disadvantage of a raised median, however, is that it often increases the amount of travel time and delay experienced by some left-turning traffic. Because a raised median forces left-turns to occur at established openings only, some left-turning motorists must travel circuitous routes to reach their destination. This can lead to undesirable turning movements (e.g., u-turns on roadways with insufficient width) and unwanted travel patterns (e.g., traffic entering neighborhood areas). In addition, the raised median island can pose a potential safety hazard on streets serving high-speed traffic. If accidently struck, a raised

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median could cause the driver to lose control of the vehicle. Furthermore, a raised median (particularly a narrow island) may be difficult to see at night unless a fixed lighting source is provided. The main advantage of a TWLTL is that it provides a storage area for left-turning vehicles as they wait for gaps in the opposing traffic stream. This not only improves the operations of through traffic by removing the left-turning vehicle from the traffic stream, but also reduces the potential for read-end accidents. When

TWLTLs are installed on two-lane, undivided facilities, they have been found to reduce accidents by approximately 35 percent in suburban areas and from 70 to 85 percent in rural areas. Since turning traffic is not physically restricted in any way with TWLTLs, drivers can take more direct routes when entering and exiting adjacent properties. For this reason, drivers and adjacent property owners generally prefer TWLTLs over raised medians.

