# Continuous Raised Medians

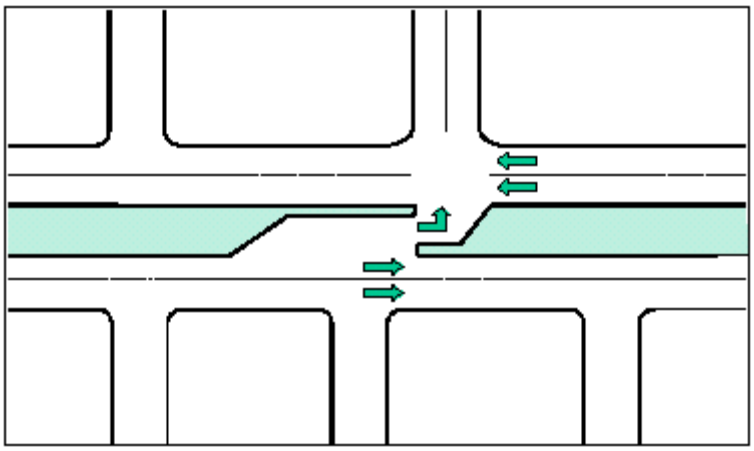
**What are the Advantages of Continuous Raised Medians?**
Physical medians prevent accidents caused by crossover traffic, reduce headlight glare distraction, and separate left-turning traffic from through lanes when combined with left-turn lanes. By removing left-turning vehicles from through traffic, continuous raised medians with left-turn lanes at intersections and major driveways help maintain roadway operating speed. This, in turn, reduces fuel consumption and tailpipe emissions.

Other advantages of continuous raised medians are:

- Discourage strip development,
- Allow better control of land uses by local government,
- Provide better pedestrian protection than undivided roadways, painted islands or two-way left turn lanes, and
- Provide space for landscaping and other aesthetic treatments.

**When are Continuous Raised Medians Most Effective?**
Continuous raised medians are most effective on roadways with high traffic volumes and high driveway densities. To ensure the greatest positive impact on safety and operations, this approach should be combined with a driveway consolidation program.

**What are the Disadvantages of Continuous Raised Medians?**
Continuous raised medians tend to limit property access and may concentrate left turns and increase the frequency of U-turns. Roadways with continuous raised medians also require a wider right-of-way than do undivided roadways. Because of such limitations, businesses and land owners may oppose a raised median project if they believe it will limit access to their property, especially if they perceive it will block customers trying to make left turns into their property. Therefore, it is important to involve all major stakeholders in key design and construction decisions—especially when retrofitting existing roadways. Note: raised medians do not typically hurt business vitality.



*The directional median break allows for left turns onto the side street. The median prevents vehicles from crossing the arterial and making left turns from side streets onto the arterial.*

## Comparison of Raised Medians and Two-Way Left-Turn Lanes

Because raised medians are the most restrictive access management treatment, building a raised median along an arterial is often very controversial among business and property owners. Two-way left-turn lanes (TWLTL) are much less controversial. Businesspersons and property owners feel that installation of raised medians will have a large, negative impact on their customers, sales, and property values. Therefore, TWLTLs are often suggested as a compromise solution. However, TWLTLs also represent a safety compromise when compared to raised medians. They should be used with care.

**When should raised medians be used and why?**
When the average annual daily traffic (AADT) volume on an arterial roadway is projected to exceed about 28,000 vehicles per day during the next 20 years, including a raised median is prudent. Arterial roadways with raised medians are safer and operate better than any other access management cross-section configuration. Research indicates that raised median roadways are 25 to 30 percent safer than undivided roadways in urban areas.

**When should two-way-left-turn lanes be considered?**
In general, two-way left turn lanes (TWLTL) function well when traffic levels are moderate, the percentage of turning volumes are high, and the density of commercial driveways is low. TWLTLs will function well on most arterials with low to moderate commercial driveway density and where the AADT is in the range of 10,000 to 28,000 vehicles per day. TWLTLs can also work very well in places where the number of driveways per block or mile is high but where the land use does not produce many turning movements per hour – for example, an arterial through a residential area.

**When should two-way-left-turn lanes be avoided?**
TWLTLs begin to lose their effectiveness when traffic volumes on a roadway are high. A Georgia Tech University study indicates operating degradation occurs between an AADT of 24,000 to 28,000 vehicles per day. This is a relatively high level of traffic level for many Iowa cities. TWLTLs are also much less effective in situations where commercial driveway densities are high and these driveways are closely spaced. In such a situation, the number of conflict points is high, which often results in higher crash rates. Research from many states indicates that raised median roadways are *always* safer than TWLTL roadways (see table). If TWLTLs are considered, driveway density and driveway spacing *must* be managed aggressively.

| Access Points Per Mile | Undivided Roadway | Two-Way Left Turn Lane (TWLTL) | Raised Median | Accident Rate Reduction for Raised Median vs. TWLTL |
|---|---|---|---|---|
| Fewer than 20 | 3.8 | 3.4 | 2.9 | -0.5 |
| 20 to 40 | 7.3 | 5.9 | 5.1 | -0.8 |
| 40 to 60 | 9.4 | 7.4 | 6.5 | -0.9 |
| Over 60 | 10.6 | 9.2 | 8.2 | -1.0 |

Source: National Cooperative Highway Research Program Report 3-52
Note: Representative accident rates are per hundred million vehicle miles traveled

**Where are raised medians preferable to TWLTLs?**
The use of a median is also a more prudent road design in situations where it is difficult to predict future traffic volumes. For example, a rapidly growing suburb with a large potential for new retail development should probably design or retrofit its arterial streets with raised medians in anticipation of high future traffic volumes.

TWLTLs are also not recommended in situations where there are more than four through traffic lanes (e.g. two through lanes in each direction). Several states in the southeastern United States have constructed seven-lane urban arterials where one lane is a TWLTL. These roadways have accident rates as high as 11 accidents per hundred million vehicle miles. These are similar to the rates of an undivided roadway with a high number of access points per mile. Many of the accidents on these roads occur because drivers may have to cross as many six or seven lanes (with traffic moving in several directions) to enter or exit a business. This represents too complex a situation for many drivers to manage. When there are six or more through traffic lanes, a raised median is essential.

## Corridor Aesthetics

The application of Access Management principles and techniques may also provide opportunities to enhance a corridor's aesthetics. Access management projects often involve widening existing roadways to add an additional two-way-left-turn lane (TWLTL) or a raised median. Such projects could lead to a wide expanse of concrete and asphalt. Unique aesthetic treatments can and should be incorporated into access management project plans in an effort to enhance the attractiveness as well as the safety and efficiency of a corridor.

Moreover, access management projects are much more likely to be accepted by the public and by business owners of adjacent properties if they look good as well as improve safety and traffic flow. Some possible aesthetic treatments include:

- Landscaping raised medians, including the addition of gateway treatments
- Adding pavement textures and designs to medians and parking areas
- Adding well designed retaining walls where needed to prevent erosion
- Planting street trees and other vegetation (while maintaining good sight distance)
- Removing signs from the clear zone and otherwise modifying commercial signs to make them less obtrusive
- Adding uniform, well designed street lights and other hardware, including pedestrian amenities like benches, transit shelters, and pedestrian-scale lighting

Burying utility lines underground to eliminate them from view

Source: Center for Transportation Research and Education's "Access Management Toolkit"
http://www.ctre.iastate.edu/research/access/toolkit/index.htm