Access Management

WHAT IS ACCESS MANAGEMENT?

Access management is a set of techniques that state and local governments can use to control access to highways, major arterials, and other roadways. Access management includes several techniques designed to increase the capacity of these roads, manage congestion, and reduce crashes:

- Increasing spacing between signals and interchanges;
- Driveway location, spacing, and design; Use of exclusive turning lanes;
- Median treatments, including two-way left turn lanes (TWLTL) that allow turn movements in multiple directions from a center lane and raised medians that prevent movements across a roadway;
- Use of service and frontage roads;
- Land use policies that limit right-of-way access to highways.

Public agencies use access management policies to preserve the functionality of their roadway systems. This is often done by designating an appropriate level of access control for each of a variety of facilities. Local residential roads are allowed full access, while major highways and freeways allow very little.

PURPOSE OF THE BROCHURE

This brochure serves as a guide to the major benefits of several access management techniques. The benefits usually identified with access management include improved movement of through traffic, reduced crashes, and fewer vehicle conflicts. Most major concerns about access management relate to potential reductions in revenue to local businesses that depend on pass-by traffic. This brochure describes the relevant benefits and issues with three key sets of access management techniques:

1. Access spacing, including spacing between signalized intersections and distance between driveways;
2. Turning lanes, including dedicated left- and right-turn lanes, as well as indirect left turns and U-turns, and roundabouts;
3. Median treatments, including two-way left-turn lanes and raised medians.

ACCESS SPACING

Signal Spacing

Increasing the distance between traffic signals improves the flow of traffic on major arterials, reduces congestion, and improves air quality for heavily traveled corridors. The appropriate spacing between signals for a particular corridor depends greatly upon the speed and flow of traffic, but anything greater than two signals per mile has a significant impact on congestion and safety.

Signals Per Mile	*Increase in Travel Time (%)*	*Signal Per Mile*	*Crashes Per Million VMT**
2	*-*	*Under 2*	*3.53*
3	*9*	*2 to 4*	*6.89*
4	*16*	*4 to 6*	*7.49*
5	*23*	*6 +*	*9.11*
6	*29*		
7	*34*		
8	*39*		

* VMT = Vehicle Miles Traveled

A major synthesis of research on access management found that each additional signal over two per mile (i.e., a one-half mile signal spacing) increased travel time by over six percent. Studies of intersections in other states produced the following results:

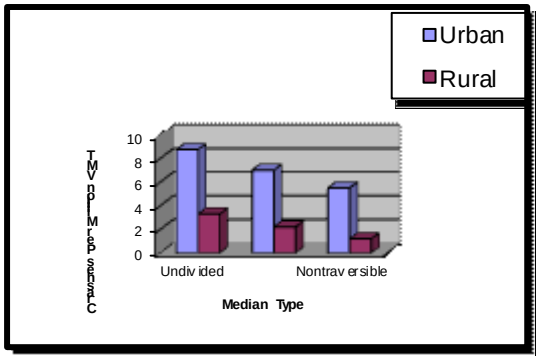
✓ Adding a signal increases peak travel times by 20%;

✓ Maintaining half-mile signal spacing and installing raised medians on a five-mile roadway segment reduced total hours of vehicle travel by 42 percent and total hours of delay by 59 percent, compared to quarter mile signal spacing;

✓ A review of crash data from seven states demonstrated that the crash rate increased substantially with additional signals per mile.

Driveway Spacing

Appropriate driveway spacing presents another major access issue. Large numbers of driveways increase the potential conflicts on the road. Fewer driveways spaced further apart allow for more orderly merging of traffic and present fewer challenges to drivers. The congestion impacts of reduced driveways are fairly clear. It is impossible for a major arterial or highway to maintain free flow speeds with numerous access points that add slow moving vehicles.



A research synthesis found that roadway speeds were reduced an average of 2.5 miles per hour for every 10 access points per mile, up to a maximum of a 10 miles per hour reduction (at 40 access points per mile). With higher numbers of access points, congestion will increase significantly. An overabundance of driveways also increases the rate of car crashes. An examination of crash data in seven states found a strong linear relationship between the number of crashes and the number of driveways. Rural areas had a similar, but less strong relationship.

Business Concerns

Installing raised medians often raises serious concerns by the business community that local businesses that depend upon pass-by traffic (especially gas stations and fast-food restaurants will be adversely affected by medians. Though there are few studies of the actual impacts of medians on business sales, there are several surveys of business owner opinions. Surveys conducted in multiple corridors in three states demonstrated that the vast majority of business owners believe there have been no declines in sales, with some believing there are actually improvements in business sales. One study in Texas indicated that corridors with access control improvements experienced an 18 percent increase in property values after construction.

TURNING LANES

Left-Turns

Exclusive turning lanes for vehicles remove stopped vehicles from through traffic. Left-turn lanes at intersections substantially reduce rear-end crashes. A major synthesis of research on left-turn lanes demonstrated that exclusive turn lanes reduce crashes between 18 to 77 percent (50 percent average) and reduce rear-end collisions between 60 and 88 percent. Left-turn lanes also substantially increase the capacity of many roadways. A shared left-turn and through lane has about 40 to 60 percent the capacity of a standard through lane. A synthesis of research on this topic found a 25 percent increase in capacity, on average, for roadways that added a left-turn lane.

Right-Turns

Right-turn lanes typically have a less substantial impact on crashes and roadway capacity than other types of turn strategies, because there are fewer limitations on right turns. Though there are fewer studies of these impacts, there is a clear relationship between the number of vehicles attempting a right turn in a through traffic lane and its delay to through traffic. This relationship is exponential – each additional car that must wait for a right turn will increase the delay more than the previous car. At intersections with substantial right-turn movements, a dedicated right-turn lane segregates these cars from through traffic and increases the capacity of the road.

MEDIAN TREATMENTS

Medians

Median treatments for roadways represent one of the most effective means to regulate access, but are also the most controversial. The two major median treatments include striped two-way left turn lanes (TWLTL) and raised medians. The safety benefits of median improvements have been the subject of numerous studies and syntheses. Studies of both particular corridors and comparative research on different types of median treatments indicate the significant safety benefits from access management techniques.

According to an analysis of crash data in seven states, raised medians reduce crashes by over 40 percent in urban areas and over 60 percent in rural areas. A study of corridors in several cities in one state found that TWLTL reduced crashes by as much as 70 percent, improved level of service by one full grade in some areas, and increased lane capacity by as much as 36 percent. Raised medians also provide extra protection for pedestrians. A study of median treatments in the southeast found that raised medians reduced pedestrian-involved collisions by 45 percent and fatalities by 78 percent, compared to two-way left-turn lanes.

REQUESTS AND INQUIRIES

If you have questions, requests or suggestions concerning access issues, please call the Public Works Department at **(760) 777-7075**, visit our website at www.la-quinta.org or submit a request using our GORequest system via the web or free downloadable app:

http://www.la-quinta.org/your-government/public-works/report-an-issue

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