

Driveway Density and Driveway Consolidation

Driveway density (the number of driveways per block or per mile) and driveway consolidation are very important considerations in access management. These roadway characteristics are basic issues in any access management plan or program.

Why is driveway density important?

Driveway density is important because accident rates increase dramatically as the number of driveways per mile increases along urban arterial roadways (see table below).

Driveways per Mile	Approx. Number of Driveways per 500-foot City Block	Representative Accident Rate for a Multilane, Undivided Roadway	Increase in Accidents Associated with Higher Driveway Density
Under 20	Under 2	3.4	—
20 to 40	2 to 4	5.9	+74%
40 to 60	4 to 6	7.4	+118%
Over 60	Over 6	9.2	+171%

Source: National Cooperative Highway Research Program Report 3-52.

Note that, although 500 feet might be a typical city block length, block lengths vary from place to place. Some older neighborhoods have 400- to 500-foot blocks. Some newer communities use much longer blocks. A common block face in suburban areas is 660 feet (which provides eight city blocks per mile).

What is a reasonable driveway density for urban/suburban areas?

Different states and localities have adopted various driveway density standards for urban and suburban arterial streets. However, many of them recommend 20 to 30 driveways per mile as a maximum driveway density standard. Above this level, accident rates become unacceptably high. This standard applies to commercial driveways on urban, multilane arterials with a posted speed limit of 35 miles per hour. This translates into a desired standard of only two or three driveways per 500-foot city block face.

The Institute of Transportation Engineers (ITE) recommends a maximum number of driveways per commercial property that yields a driveway density similar to those described above. Exceptions to these standards may be required if property ownership is very fragmented and property lot frontages are very short. A potential solution in such cases is shared driveways. ITE's recommendations are presented in the following table.

Property Frontage (feet)	Number of Driveways
0 to 50	1
50 to 165	2
165 to 500	3
Over 500	4

Source: ITE Guidelines for Driveway Location and Design, 1987.

Some states, Kansas for instance, have set minimum property frontage standards for a commercial driveway permit. Along urban arterials, Kansas only allows driveway access on properties with at least 60 feet of frontage.

Driveway densities should be even lower if the posted speed limit is higher or if the roadway is functionally important to through traffic, such as highways designated as part of the National Highway System (NHS) or the Iowa Commercial and Industrial Network (CIN). Driveway densities can safely be higher if they serve residential properties. This is because residences generate far fewer trips per hour than commercial or industrial properties. However, driveways should *never* be located on or close to corners of intersections. They should also never be located within the functional area of an intersection (e.g., along right-turn lanes provided at intersections).

What about in rural areas?

Spacing between driveways and/or farm-field entrances is especially critical in rural areas because travel speeds are high. Higher vehicle speeds mean that driver reaction and stopping distances are longer. In rural areas, a maximum driveway density standard of about four access points per mile per roadway side is appropriate on many arterial roads. (This assumes that driveways on opposite sites of the road are lined up.) However, where stopping sight distances are restricted by curves or hilly terrain, this figure should be lower. It should also be lower on routes of high functional importance, such as NHS or CIN routes.

What is driveway consolidation and why is it important?

Driveway consolidation is the process of reducing the density of driveways along a major roadway by closing driveways, creating alternative access ways, creating shared driveways, relocating entrances to side streets, or promoting cross access. Such projects are generally done to improve highway safety but can also improve traffic flow. Driveway consolidation can be applied as an individual access management strategy, but it is most often done in conjunction with the installation of medians, two-way-left-turn lanes, and/or frontage or backage roads.

A 1992 access management project completed along US 34 in Fairfield, Iowa, showed that simple driveway consolidation can have a dramatic effect on traffic safety. The project closed, relocated, or consolidated eight driveways along a half-mile segment of US 34. After the project, the accident rate fell approximately 38 percent. Rear-end and right-angle crashes declined greatly.