Intersection Spacing and Traffic Signal Spacing

Although most discussions about access management focus on the management of private driveways, proper spacing of roadway intersections is an equally important access management issue.

Why is intersection spacing important?
The importance of intersection spacing is similar to that of driveway spacing. As the number of intersections per mile increase, the opportunity for crashes increases. The existence of too many intersections per mile also increases delay and congestion. On the other hand, not providing an adequately dense street network forces motorists, bicyclists, and pedestrians to travel farther to their destinations.

What is a reasonable distance between public road intersections?
Street systems in urban and suburban areas consist of streets with different functional classifications, roles, and traffic characteristics (see below).

Roadway Type	Primary Purpose of Roadway	Average Annual Daily Traffic Volume (AADT)	Percentage of Total Traffic Carried
Freeways	Serves high-speed through traffic	50,000 +	More than 40%
Arterials	Serves through traffic	15,000–50,000	30%
Collectors	Feeds through traffic from local streets to arterials; provides limited property access	2,000–15,000	20%
Local streets	Provides property access	100–2,000	Less than 10%

Intersection spacing along major (arterial) urban and suburban streets should follow the pattern given below. A traditional grid street system provides the ideal method to create this spacing.

Main Roadway	Intersecting Minor Roadway	Recommended Intersection Spacing
Freeway	Arterial	1 to 2 miles minimum
Arterial	Arterial	1 mile or greater
Arterial	Collector	0.5 mile or greater

Freeway intersections should be spaced no less than one mile apart in urban areas. Arterials should intersect with other arterials at no less than one-mile spacing. Collectors should intersect with arterials at not less than one-half mile spacing. The intersection of local roads with arterials is not recommended, but if required should not be less than 500 to 660 feet apart.

What sort of spacing should be maintained in rural areas?
Spacing between intersections is especially critical in rural areas because vehicle speeds are high. In rural areas, it is advisable to keep intersections between public roads at least one-half mile apart. A one-mile spacing between public road intersections is preferred.

How far apart should traffic signals be placed on an arterial?
Traffic signals are used to regulate traffic flow and preserve capacity along arterial routes. The ideal spacing for traffic signals is at least one half-mile apart (2,640 feet), which also corresponds to the preferred spacing of intersections between arterials and collectors. This represents about four to six blocks, depending on the block length. A minimum spacing of one-quarter mile (two to three blocks) should always be maintained.

When the spacing between signals falls below one-quarter mile (1,320 feet), the traffic flow along the route may be disrupted. T he ability of the route to carry through traffic will decrease, travel speeds may decrease, and traffic delays and queues may develop at intersections. There is also some evidence from research that placing more than three traffic signals per mile on an arterial increases the traffic accident rate.