

Access Management Frequently Asked Questions (FAQ):

Speed Differential Between Turning Vehicles and Through Traffic

Speed differential is a simple yet important concept that forms the basis for many access management measures.

What is speed differential?

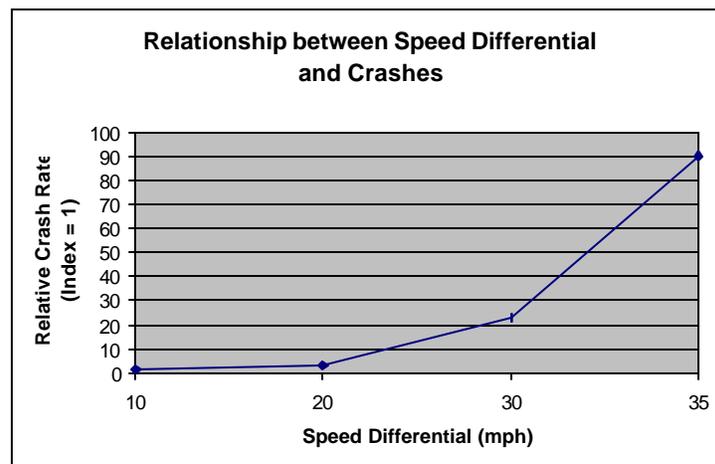
Speed differential is the difference between the speed of vehicles that are continuing along the main roadway versus those that are entering and exiting the driveway. For instance, if through traffic generally moves at 35 miles per hour and cars have to slow to 10 miles per hour to enter a driveway, the speed differential at and near that driveway is 25 miles per hour.

Why is speed differential important?

A speed differential above 20 miles per hour begins to present safety concerns. When the speed differential approaches 30 to 35 miles per hour, the likelihood of a collision between fast-moving through vehicles and turning vehicles increases very quickly. Rear-end collisions are very common on roads and streets with large driveway speed differentials and a high density of commercial driveways. When the speed differential is high, it is also more likely that crashes will be more severe, cause greater property damage, and result in more injuries and fatalities. Keeping the speed differential as low as possible is very important for safety reasons, as indicated by the table below. Many access management plans and standards strive to keep the differential at or below 20 miles per hour.

| Speed Differential Between Turning and Through Traffic | Likelihood of Crashes |
|---|---------------------------------|
| 10 miles per hour | Minimal |
| 20 mph | 3 times greater than at 10 mph |
| 30 mph | 23 times greater than at 10 mph |
| 35 mph | 90 times greater than at 10 mph |

Source: Oregon State University, 1998



What influences speeds at driveway entrances?

Speeds at driveway entrances can be influenced by a number of factors, including

- Driveway turn radius
- Driveway width
- Driveway throat length
- Driveway slope
- Existence of dedicated turn lanes
- Length of sight distance, especially for drivers exiting driveways
- Internal circulation patterns of adjoining parking lots

How can speed differentials be decreased?

In general, the following features will help decrease the speed differential between through and turning traffic:

- Larger turn radii
- Wider driveway throat widths
- Longer driveway throat lengths
- Smaller driveway slopes
- Dedicated turn lanes for both left and right turns
- Adequate sight distance at driveways
- Improved circulation within land developments

Many of these features can be easily provided if there are fewer, higher quality driveways along a roadway.