# Case Studies – Case 9

## Case 9

### Background

The next case study is located at the intersection of a U.S. highway and a local major arterial roadway in one of the state’s smaller metropolitan areas. The two roadways meet at an at-grade signalized intersection, although the southern leg of the intersection is an access into development along the south side of the highway. In recent years, since the local major arterial was first built, this location has attracted significant new commercial development.

### Roadway and Land Use Characteristics

The intersection at the center of this case study is signalized. Traffic volumes on the U.S. highway vary between nearly 13,000 vehicles per day (VPD) west of the intersection to about 13,700 VPD to the east. Volumes on the local arterial are approximately 12,700 VPD. Both roadways are four-lane divided facilities. The speed limit along the U.S. highway is 50 mph through the study area, while the major arterial speed limit is posted at 45 mph. As shown in Figure 9, there are a variety of land uses located within the study area. These uses are primarily commercial and include big box retail, auto dealerships and service businesses, hotels, and several other retail businesses.

### Access Characteristics

Both good and poor access management practice can be noted at this location. The north leg of this case study, the local arterial, is completely access-controlled throughout the study area. The east leg is also completely access-controlled through the next signalized intersection approximately 1,900 feet farther east. To the west, access is not as highly managed. Along the north side of the west leg, accesses can be found at distances of approximately 300, 550, 1,000, and 1,500 feet from the intersection. Along the south side of this leg, there are access points approximately 1,000 and 1,500 feet from the intersection. As shown in Figure 9, median breaks are found along this leg at all but the first access point on the north side, allowing left turns into and out of development to the north and south.

### Observations

This case study demonstrates both good and poor management of access. Positive applications of access management here include:

- Use of medians to delineate travel lanes and remove most left turns from the through traffic stream;
- Restriction of all direct driveway accesses along the north and east legs;
- Use of protected left turns and turn lanes at signalized intersections; and
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Figure 9. Case Study 9

Access point
Unsignalized Intersection
Signalized Intersection
Median
Alignment of some driveways across from each other at full-access (median break) locations.

There are also potential areas of improvement at this location. Negatives for this case study, as well as possible remedies, include

- Relatively high driveway density on the west leg—driveways on the north side of the road could be eliminated or consolidated farther from the intersection;

- Short distance from the intersection to the first driveways on the west leg—the easternmost driveway on the north side could be relocated farther west or consolidated to provide for better operations of the left turn bay;

- Lack of internal circulation and connectivity between developments in the northwest quadrant—cross access could be provided, eliminating the need for traffic using the U.S. highway to access between adjacent, similar developments;

- Close proximity of the frontage road along the south side of the U.S. highway could cause backups at the signal and along the frontage road—an improved supporting roadway system could help this problem; and

- Overall, the unplanned strip-type development could have been developed as a planned node development.

An analysis of crashes at this case study location shows a clear difference between safety along the U.S. highway and the local major arterial. While the local arterial traditionally shows few access-related crashes, analysis of the highway indicates access-related safety issues, especially along the west leg. In summary, this case study demonstrates both good and poor access management practice. Access management improvements could still be made, especially as traffic volumes increase as development grows.