## Case Studies – Case 7

### Case 7

**Background**

The seventh case study is located around the intersection of an Interstate and a state highway at the edge of a large metropolitan area. The two roadways meet at a grade-separated partial cloverleaf interchange, as shown in Figure 7. This location is also in an area of significant new development. As a result, in recent years, the state highway has become a major commuting route to and from area suburbs.

**Roadway and Land Use Characteristics**

At this interchange, both ramp terminals that handle traffic exiting the Interstate are signalized. Other intersections along the state highway are signalized as well. South of the interchange, traffic signals can be found approximately 850 feet to the south at the entrance to a retail development and another 1,700 feet farther south at an intersection with a local major arterial. To the north, in addition to the ramp terminal, there is another signalized intersection with a local minor arterial approximately ½ mile north of the interchange. Traffic volumes on the Interstate are around 85,800 vehicles per day (VPD) in the study area, while volumes on the state highway vary between nearly 27,000 VPD on the north end of the study area to more than 31,000 VPD just north of the interchange. Traffic volumes on the east-west local minor arterial north of the interchange are approximately 5,000 VPD. While the Interstate is a grade-separated freeway design, the state highway is a four-lane divided facility with median breaks at major intersections. The minor arterial is a two-lane cross-section. The freeway has a posted speed limit of 65 mph, while the speed limit on the state highway is 50 mph near the interchange and 55 mph near the northern edge of the study area. The aforementioned minor arterial is posted at 35 mph through and around the intersection with the state highway. As shown in Figure 7, local land use includes warehousing, big box and strip retail, gas station/convenience stores, office space, banking, and several industrial and light industrial uses.

**Access Characteristics**

While access is well-managed in parts of this study area, it has not been well-managed in others. South of the interchange, access along the state highway is limited to primarily signalized intersections, with two other limited accesses present. Further access to the nearby development is provided off of an east-west local major arterial. North of the interchange, access is provided at one right-in, right-out intersection approximately ¼ mile north of the interchange at the signalized intersection with the local minor arterial 1,200 feet farther north, at access points on both sides of the highway another 1,300 feet north, and at an unsignalized intersection 1,300 feet beyond this to the north. As shown in Figure 7, most of the development along the state highway also accesses onto the local minor arterial. Access along the local minor arterial west of the state highway is relatively well-managed, with the first driveway access set back about 850 feet from the intersection with the state highway.
Figure 7. Case Study 7
East of the highway, several access points are found within 1,000 feet of the intersection, including a frontage road along the state highway that meets the minor arterial very near the state highway. In addition, very little internal circulation or cross access is provided for development on the south side of the minor arterial.

Observations

This case study demonstrates both good and poor management of access; therefore, both positive and negative observations can be made. Positive applications of access management here include

+ Use of raised and depressed medians along the state highway to delineate travel lanes and separate most left turns from the through traffic stream;
+ Use of protected left turns at signalized intersections;
+ Use of frontage roads and cross access between some land uses to improve on-site traffic circulation off the main roadways;
+ Use of grade separation at the intersection of two major highways; and
+ Consolidation of access for some businesses.

Negatives for this case study, as well as possible remedies, include

− Relatively high driveway density along the east leg of the local minor arterial—driveway accesses could be consolidated, plus internal circulation or cross access could be improved to reduce conflicts;
− Lack of connectivity between development on the east side of the state highway—cross access could be provided;
− Relatively short distance from the intersection to the frontage road on the east leg of the minor arterial—alternative access could be provided; and
− Lack of continuous frontage or backage roads along the state highway.

In summary, this case study demonstrates both good and poor access management practice. As with many locations, access management improvements could be made, especially as traffic volumes increase as development grows. This state highway meets the Interstate highway at the boundary between two local municipalities, providing an example of where better coordination with local agencies can improve the management.