Case Studies – Case 11

Case 11

Background
The last case study is located at the intersection of a state highway and an Interstate in a rapidly growing area of one of Iowa's larger metropolitan areas. The two roadways meet at a grade-separated partial cloverleaf interchange, as shown in Figure 11. This location is also within one of the community's largest commercial shopping areas, which includes a large regional mall.

Roadway and Land Use Characteristics
At this interchange, both ramp terminals that handle traffic exiting the Interstate end at signalized accesses. An additional intersection with a local major arterial is located farther to the south at the terminus of the state highway. Traffic volumes on the Interstate are around 46,000 vehicles per day (VPD) in the study area, while volumes on the state highway vary between nearly 17,000 VPD on the north end of the study area to approximately 14,100 VPD south of the interchange. Volumes along the aforementioned local major arterial, which runs east-west at the southern end of the study area, are approximately 6,000 VPD west of the signalized intersection and 17,100 VPD east of the intersection. All three roadways are four-lane divided facilities. In the study area, the Interstate has a posted speed of 65 mph, while the north-south state highway has a speed limit of 35 mph. The east-west local arterial speed limit is posted at 40 mph. As shown in Figure 11, land uses in the area include the large regional mall, big box retail, several restaurants, gas/convenience stores, various retail stores, and a hotel.

Access Characteristics
Overall, access is very well-managed at this case study location. Access is well-managed throughout much of this area. The east-west Interstate is a freeway design and, by definition, is completely access-controlled. Along the state highway, north of the interchange, access is limited to the signalized intersection that connects the west-bound ramp terminal to a local minor arterial. This local minor arterial provides access to all development in the north-west quadrant of the study area. South of the interchange, a similar signalized intersection connects the east-bound ramp terminal to a major access for the regional mall. Approximately 750 feet farther south, two right-in, right-out accesses serve the big box retailer to the west and the mall to the east. The state highway terminates at a signalized intersection with the major arterial another 500 feet farther south. A raised median runs the length of the major arterial with breaks at signals only. Approximately 550 feet west of this intersection along the major arterial is one right-in, right-out access to the big box retailer. Another 800 feet west, a signalized intersection provides access to the big box retailer and future development in this area. East along the major arterial, access is limited to a signalized intersection 850 feet from the state highway intersection.
Figure 11. Case Study 11
Observations

As noted, access is very well-managed at this location. Positive applications of access management here include:

- Use of grade separation at the intersection of two major highways;
- Consolidation of access for several businesses into relatively few access points;
- Use of raised medians throughout the study area to delineate travel lanes and remove most left turns from the through traffic stream;
- Restriction of all direct driveway accesses along the north leg;
- Use of protected left turns and dedicated left-turn bays at signalized intersections throughout the study area; and

- Use of supporting roadways and cross access between land uses to improve internal traffic circulation off the main roadways, creating development as a node, not a strip.

In summary, this case study demonstrates very good access management practice. In fact, an analysis of crash data at this location indicates that the access management techniques utilized at this location appear to have had a positive effect on safety. The analysis found that access-related crashes are relatively rare in this area. Nonetheless, as with many locations, access management improvements could still be made, especially as traffic volumes increase with further development.