Lessons Learned – Access Management Treatments that Work

Access Management Treatments that Work

Because these major arterial intersections are not only important for moving traffic but are also attractive locations for commercial activities dependent on traffic, managing access in these areas can be a significant challenge. Many of the case studies reviewed in this guidebook have demonstrated positive applications of access management in such areas around Iowa. In addition, the examples of poor management of access can provide us with valuable insight into situations to avoid. The following are lessons learned from the case studies.

Lesson #4: Minimizing the number of access points to major roadways and near intersections will maximize efficiency of the system while increasing the overall safety of the impacted area.

Moving access away from an intersection can be accomplished by:

**Providing proper corner clearance at intersections**

Corner clearance represents the distance provided between an intersection and the nearest access connection (i.e., a driveway). Inadequate corner clearances can result in inefficiencies in traffic operation through an intersection, such as backups caused by blocked driveways or conflicting turns. Locating local access points farther from the intersection (preferably outside the intersection’s functional area, see Figure 14) will allow a turning driver more time to complete his/her maneuver before having to negotiate another movement. Additionally, moving an ingress point farther back should minimize the conflict presented by other vehicles traveling in the opposite direction, which may be backed up from the intersection.

**Consolidating driveways**

Driveway consolidation greatly improves the functionality of a major roadway. By limiting the ingress and egress points, the roadway will be able to operate more efficiently, channeling the turns into more predictable locations. Furthermore, such channelization works to reduce the potential for collisions. Additionally, having fewer drives will minimize the number of trips that a motorist needs to take using the arterial. This may be achieved through the utilization or creation of minor roadways and/or service roads (i.e., frontage/backage roads).

**Aligning access points**

Something to consider during the process of driveway consolidation is the alignment with entry points on opposite sides of the road. Where driveways are closely offset or have no offset at all, drivers may attempt to cross the busy road directly from one to another. Figure 17 shows examples of how entryways are commonly offset. The top shows a road with adequately spaced driveways—an arrangement that significantly reduces the potential for undesirable vehicle movements. Positioning entryways with no offset essentially creates minor intersections. While this does provide for more predictable movements, it still can generate traffic backups if high-intensity land uses are located across from one another. A benefit of this design is that it allows for future signalization if the demand should call for it. Drives with inadequate or improper offset, such as those shown, offer increased opportunity for unsafe crossing movements and should be avoided.

**Promoting cross access and internal circulation within the development**

As mentioned previously, when development occurs near a major intersection, it is important that it be planned...
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as a node. If this happens, it is possible to provide for cross access and circulatory roads within the development. Cross access is an easement or service drive that provides vehicular access between two or more contiguous sites. This allows a driver to use roads dedicated for development traffic, and he/she, therefore, does not need to re-enter the major roadway. Similarly, interparcel circulation offers the flexibility of traveling between any parcels within the development without re-entering the arterial roadway. Figure 18 shows an example of how this may be achieved.

Figure 17. Aligning Access Points

Figure 18. Promoting Internal Circulation
Lesson #5: Managing turns will minimize negative impacts to through traffic.

Two-way left-turn lanes help remove left turns from the through traffic stream.

Studies show that where driveways are properly consolidated, a three-lane road with the center lane being a shared two-way left-turn lane (TWLTL), can function more efficiently than a four-lane road with no dedicated turn lanes. Converting a roadway from a four-lane to a two-lane with TWLTL, as shown in Figure 19, can reduce the number of turning-related crashes while allowing for the through traffic to freely move past turning vehicles. In general, TWLTLs function well on arterials with low to moderate commercial driveway density, where the average annual daily travel is in the range of 10,000 to 28,000 vehicles per day (VPD).
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The use of non-traversable medians helps delineate travel lanes, separating left turns from through traffic.

As urban arterial traffic is expected to rise above 24,000 VPD in a design year, a TWLTL will begin to function poorly no matter how well driveways are managed. A raised median will function much better in place of a TWLTL. Dedicated left-turn bays and right-turn slip lanes separate turning traffic from through traffic, greatly increasing the flow and capacity of the route, as shown in Figure 20.

When such medians are used, signal spacing also becomes critical to traffic flow. Stop lights spaced less than ¼ mile apart will result in slow-speed routes. Ideally, traffic signals (and major intersections) should be spaced at least ½ mile apart to maintain desirable speeds.