Appendix I

Cross Section Elements

Appendix I contains additional design guidance for various cross section elements, which include the following:

- Two-Way, Left-Turn Lanes
- On-Street Parking

I.1 TWO-WAY, LEFT-TURN LANES

Criteria for when a two-way, left-turn lane (TWLTL) is to be used should be coordinated with the MDT Traffic and Safety Bureau. The following provides guidance for where the TWLTL should be considered:

1. **General**. The physical conditions under which a TWLTL should be considered include:
    a. Areas identified by a Traffic Study as having a high number of approaches;
    b. Areas of high-density, commercial development; and/or
    c. Areas with a relatively continuous demand for mid-block left-turns, but where specific approaches do not have a heavy left-turn demand;
2. **Functional Class**. Undivided 2-lane and 4-lane arterials in urban or transitional areas are the most common candidates for the implementation of a TWLTL. Once the TWLTL is used, these are commonly referred to as 3-lane and 5-lane facilities, respectively.
3. **Traffic Volumes.** Traffic volumes are a significant factor in the consideration of a TWLTL. However, if mid-block access is significant, then a TWLTL will be advantageous under any traffic volume level. The design team should coordinate with the Traffic and Safety Bureau to identify the traffic volumes and conditions in which a TWLTL is recommended.
4. **Section Length.** In rural areas, the roadway section length and the number of through lanes are important considerations. For rural and transitional area applications, only consider TWLTL where there are four or more through lanes. The application of short sections of three-lane facilities in rural or transitional areas will be determined on a site-by-site basis.

5. **Crash History.** On high-volume arterials in urban or transitional areas, traffic conflicts often result because of a significant number of mid-block left-turns combined with significant opposing traffic volumes. This may lead to a disproportionate number of mid-block, rear-end, left-turn, and/or sideswipe crashes. When changing from an undivided section, a TWLTL is likely to reduce these types of crashes. The design team should coordinate with the Traffic Engineering Section to review and evaluate the available crash data to determine if unusually high numbers of these crashes are occurring.

I.2 ON-STREET PARKING

The following factors will be evaluated in the decision to retain existing on-street parking or to introduce on-street parking:

1. Crash history or potential safety issues;
2. Impacts to traffic operations of the roadway;
3. Current or predicted demand for parking;
4. Actual needs versus existing number of spaces;
5. Alternative parking options (e.g., off-street parking);
6. Input from local businesses;
7. Impacts on right-of-way;
8. Impacts on bicyclists and pedestrians;
9. Accessibility for pedestrians with disabilities, including pedestrians with vision or mobility impairments.
10. Construction costs; and
11. Projected traffic volumes.

The following summarizes MDT practice on the selection of parking lane type:

1. **General**. Parallel parking is preferred to angle parking.
2. **Existing Angle Parking**. The order of preference for treating existing angle parking is:
    a. Eliminate;
    b. Convert to parallel parking;
    c. Change to back-in angle parking;
    d. Change the angle; or
    e. Leave as is.

    MDT will consult with the local community before selecting an option.

    A local authority may, by ordinance, permit angle parking on a roadway; however, angle parking will not be permitted on any Federal-aid or State highway unless MDT determines that the roadway is of sufficient width to permit angle parking and it does not negatively impact the traffic operations and/or safety of the roadway.

3. **New Parking**. Where on-street parking will be introduced, the design team should:
    a. Consider the various types of on-street parking options;
    b. Coordinate with the Traffic and Safety Bureau to understand the traffic operations and safety considerations of the roadway;
    c. Gather stakeholder input to understand the needs of the community; and,
    d. Develop a cross section that serves the function of the roadway and balances the needs of all users.