

INTERSECTIONS

Intersections are where different users and uses of the street combine and intersect. Intersections can be the most challenging element to street design, because they are where the majority of conflicts and crashes occur. Therefore, a focus on quality design is very important to ensure the safety of all street users. Just as street segments can be designed to be 'self-regulating', designers should strive to make intersections similarly self-evident to all users. . Intersection design should facilitate visibility and predictability for all users, creating an environment in which complex movements are evident, simple, and obvious.

Intersections should be designed as a component of a corridor and the larger street network. Trade-offs can often be made between design decisions at one intersection and the impact of those design objectives on the network in terms of traffic volume and capacity. For example, a traffic signalization project can increase vehicle throughput and reduce delay at an intersection, but the benefits will be greatest if signals can be timed throughout a corridor.

There are several different types of intersection designs, traffic signals, and timing. Use of these devices should be only in appropriate locations based on engineering judgement, keeping in mind maintenance, operations, and effectiveness. Given that safe design should be self-evident, locations should be carefully selected.

INTERSECTION CONFIGURATIONS

Intersections can range from simple crossings that are relatively straightforward to complex, multiway junctions that require careful planning and design. Regardless of the level of complexity, intersections should be designed to be as compact as possible, minimizing crossing distances, complexity, and delay for all modes. Wherever possible, dedicated turn lanes should be limited in order to improve pedestrian and bicycle safety.

Intersection design configurations should reflect the surrounding land uses and built environment. Designs should convert skewed intersections to right angles and unnecessary turn lanes to public space. Designers should align lanes so that the number of approach and departure lanes are equal at intersections and limit opportunities for people traveling through intersections to make unexpected or sudden movements. Aligning intersections at right angles also facilitates transportation system management, such as signal timing, transit signal priority, and leading pedestrian intervals.

Finally, by focusing on simplifying and reducing the size of intersections, there may be opportunities to reclaim public space. The location of reclaimed space can be in the middle of an intersection or extended from corners or legs of an intersection. The

additional space can be closed for motor vehicle use and then used for multiple other purposes, such as widening sidewalks, adding bicycle and/or transit facilities, providing space for traffic control devices, utilities, plantings, green infrastructure, street furniture, or public art. Reclaiming space can entail short-term or temporary solutions, such as seasonal parklets or bicycle share stations, or longer-term, permanent changes, such as the removal of a travel lane or closure of slip lanes.

REFERENCES

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 - Part 2 Signs: Chapter 2D. Guide Signs – Conventional Roads
 - Section 2D.45: Signing on Conventional Roads on Approaches to Interchanges http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdpart2d_2011.pdf
 - Part 3 Markings: Chapter 3B. Pavement and Curb Markings http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdpart3_2011.pdf
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 - SHS-E08_D_GUIDE “D” Guide Signs http://mdotcf.state.mi.us/public/tands/Details_Web/mdot_signs_e08_d_guide.pdf