

Iowa's Statewide Urban Design Standards Promote Improved Access Management

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ABSTRACT

In the late 1980s, the majority of local units of government and the water works in central Iowa formed a committee to develop a common set of design standards and specifications for public works infrastructure to be used throughout the metro area. This common set of standards included standard drawings and specifications for such things as storm sewers, sanitary sewers, and urban streets. The City of Des Moines and a local engineering and planning consulting firm, Snyder and Associates, coordinated the project and developed the manual with guidance from an advisory committee comprised of engineers from the member cities. The common set of standards helped the member cities realize lower bids from contractors, who were now able to design and build to the same standards no matter what community they were working for.

In the late 1990s, a complete update of the *Urban Design Standards Manual* was undertaken. At that time, the 34 central Iowa member cities decided to dedicate an entire chapter of the manual to access management standards for urban streets. This decision was reached partly as a result of the findings of research and technology transfer work conducted by the Center for Transportation Research and Education (CTRE) at Iowa State University and sponsored by the Iowa Department of Transportation; the research indicated how valuable managing access could be in terms of improving the safety of major urban streets in Iowa.

The new access management chapter in the *Urban Design Standards Manual* included material regarding general access management concepts and definitions, access permitting, entrance types, conflict points, driveway spacing, driveway design guidelines, turning lane and two-way left-turn lane guidelines, internal circulation design guidelines for commercial developments, and a section on access management and pedestrian and bicycle safety. A second chapter on traffic impact studies also includes material related to access management. Major sources of information for the new chapter were the Iowa State University/CTRE materials, the Iowa Department of Transportation access management standards for state primary highways, and the National Highway Institute access management course notebook.

Iowa is now taking the *Urban Design Standards Manual* statewide. Iowa will be the first state to have a set of statewide urban design specifications. A committee has been established and an expanded intergovernmental agreement has been drafted to allow additional cities and metropolitan areas to adopt the standards. CTRE has taken on the role of coordinating and keeping the standards manual updated. As new communities and metro areas come on board via the intergovernmental agreement, cities in Iowa will effectively adopt a uniform set of access management guidelines for its city street system.

Key words: access management—urban design standards

INTRODUCTION

For almost 25 years, municipalities in Iowa have been working together on a set of shared urban design standards and specifications for public works infrastructure. This effort was designed to lower letting costs in the largest metropolitan area in Iowa for such items as arterial street construction. In 1995, a Governor's Blue Ribbon Task Force report recommended that this concept be expanded to a statewide set of urban design specifications as a cost-saving measure. From 1998 through 2000, this idea gradually became a reality and the Iowa Statewide Urban Design and Specifications (SUDAS) project took shape.

SUDAS has ultimately become an ideal vehicle for the promotion of best practices in urban street design, such as the incorporation of the principles of access management. Lessons learned by the Iowa Department of Transportation (Iowa DOT) and local jurisdictions through years of access management planning, research, and project experience are being incorporated into the SUDAS manuals. The benefits of this approach are now being realized in terms of lower cost urban street projects that are engineered better and which recognize the careful balance that has to be maintained between serving through traffic and providing direct access to land development.

SUDAS BACKGROUND AND HISTORY

Starting in 1988, the City of Des Moines and neighboring jurisdictions developed a Central Iowa Urban Design Specification administered through Iowa Code 28E intergovernmental agreements. By 1999, the Central Committee Standards had grown to 35 units of government with nearly a half a million residents. The initial Central Iowa program evolved to provide a foundation for the SUDAS documents.

In 1995 the Iowa Governor charged a Blue Ribbon Task Force with finding better methods to maximize the benefits derived from the Iowa Road Use Tax Fund (RUTF). The task force recommended that Iowa adopt common standards for construction specifications and construction equipment to increase project bidding and lower costs (*1*).

In 1998, a statewide steering committee was formed that included representatives from the Iowa chapter of the American Public Works Association, Iowa County Engineers Association, Consulting Engineers Council of Iowa, and the Iowa DOT, as well as contractors and other stakeholders throughout the state. The steering committee completed a feasibility report in 1999 that recommended the Center for Transportation Research and Education (CTRE) develop and staff a program to adapt the Central Iowa Specifications to Statewide Urban Design and Specification documents.

In 2000, the Iowa DOT provided a grant that allowed CTRE to begin work. Metropolitan Planning Organizations (MPOs) and Regional Planning Affiliations (RPAs, which are the transportation planning organizations for parts of Iowa outside metropolitan areas) provided matching funds of 60 percent to the Iowa DOT grant. The City of Des Moines contributed much of the preliminary legal work necessary to create the organizational structure and licensing agreement. The Iowa DOT also supplied additional legal assistance and ongoing technical help through its Office of Design. The Central Iowa Committee granted CTRE license to use and update the documents for the entire state; copyright will eventually be handed over to CTRE and its parent, Iowa State University.

District committees were formed for each of the six Iowa DOT Districts to review existing manuals and recommend changes to bring them up to the "state of the practice." Before adoption, all standards and specifications are subject to approval by a majority vote of the Statewide Steering Committee.

During 2000 and 2001, CTRE staff visited the 23 metropolitan planning organizations and regional planning affiliations in the state at least twice explaining the program and obtaining funding resolutions. During 2002, 49 meetings were held with these groups to exchange ideas and solutions, and consider recommended amendments. To make SUDAS possible, over 200 city, county, and Iowa DOT engineers, plus other state, federal, and industry representatives contributed untold hours of expertise in an environment of collaboration and compromise.

In early 2003, the first edition of the finalized amendments to the *Iowa Statewide Urban Standard Specifications and Statewide Urban Design Standards Manuals* were issued (2).

ACCESS MANAGEMENT AND SUDAS

Access management has quickly become a significant component of the Statewide Urban Design Standards. Access management is a process that manages access to land development while seeking to preserve the flow of traffic on the surrounding road system. Sound access management practices can lead to safer roads that also provide better service to motorists.

In 1996, the Iowa DOT established an Access Management Task Force as part of its umbrella Iowa Safety Management System (Iowa SMS) development effort (3). The task force worked with CTRE at Iowa State University and other researchers at the University of Northern Iowa to improve awareness of how access management could lead to safer and better functioning highways, roads, and streets in Iowa. The task force and research team also investigated the effects that access management projects have on local business vitality. The results of this research were very supportive of an expanded access management program in Iowa (4) For instance, the research showed that case study roadways had crash rates that were 40 percent less on average following access management projects. At the same time, the vast majority of businesses were found to be unaffected by access changes.

In order to encourage wider adoption of access management principles in Iowa by state, city, and county roadway officials, the task force commissioned a variety of outreach tools, including the following:

- a website
- presentations at numerous conferences in and near Iowa
- a statewide conference, a videotape, a set of brochures
- a guidebook
- a set of answers to frequently asked questions about access management for use in public and stakeholder involvement situations

In combination, these efforts greatly increased awareness of access management and the benefits and impacts of incorporation of access management treatments. Many of these documents are available electronically on the websites listed in the references for this paper.

As SUDAS was developed, the SUDAS Steering Committee and the consulting firm then managing the development and update of the *Statewide Urban Design Standards Manual* identified the need for a section or an entire chapter on access management. This effort was closely coordinated with the Access Management Task Force's outreach materials so that a consistent message would result. For example, the Manual borrowed a considerable amount of material from the *Iowa Access Management Handbook* (5). Several national sources were also used in the development of the access management chapter. In particular, the National Highway Institute (NHI) training course notebook on access management and materials from

leading states such as Florida, Colorado, New Jersey, and Oregon were used to add content to the SUDAS chapter on access management (6).

The current version of the *Statewide Urban Design Standards Manual* contains a chapter on traffic impact studies and site impact analysis that complements the 44-page access management section. The SUDAS access management materials are better termed guidelines or suggestions rather than outright standards. The access management chapter in the *Statewide Urban Design Standards Manual* includes extensive material regarding the following:

- general access management concepts and definitions
- access permitting processes in Iowa
- driveway entrance types
- conflict points and their importance to traffic safety
- driveway spacing and corner clearance
- driveway geometrics and design guidelines
- turning lane and two-way left-turn lane guidelines
- internal circulation design guidelines for commercial developments
- access management impacts on pedestrian and bicycle safety

This material can be obtained as a hard copy, on a CD-ROM, or be downloaded from the World Wide Web (<http://www.iowasudas.org/>). The web-based version is free; the paper and CD-ROM versions are made available at a modest cost. The appendix to this paper shows examples of diagrams and tabular material from the *Statewide Urban Design Standards Manual* related to access management.

There have turned out to be several major benefits of having the access management material present in the SUDAS documents. These are that:

- Access management principles are available in one place for hundreds of local governments in Iowa plus their engineering consultants. When projects are being designed with SUDAS, they are more likely to incorporate sound access management principles since local governments and design consultants throughout Iowa will be using the standards as a guide. This improves the functionality and safety of designs.
- Access management principles are now considered early in the design process since SUDAS is the standard reference that engineering and planning firms and local governments will consult first.
- The access management materials in SUDAS are available for city engineering staff to use in educating stakeholders such as city council members and for city planning staff to use in educating planning and zoning commissioners about the benefits and importance of access management since a variety of material has been included that answers the questions that commonly arise when designs and access-related features are being considered.
- The access management materials in SUDAS are adaptable for use in stakeholder education and involvement. SUDAS provides more depth on design issues than other public involvement materials for access management that are used in Iowa.

Although no formal studies of usage have been conducted, there is ample anecdotal evidence to show that the SUDAS access management materials are well used in Iowa. The SUDAS staff indicates that a number of suggestions to improve and expand on the access management chapter have been received.

There have also been complaints to the effect that the access management guidelines are too lenient or unreasonably tough. Desirable corner clearance distance has been a particularly well-discussed area of the guidelines.

FUTURE DIRECTIONS FOR SUDAS

SUDAS is about to undergo a major change. The contents are being reviewed and completely updated so that they may be used statewide in Iowa rather than just in the Des Moines metropolitan area. Completion of the SUDAS documents update for statewide use is expected during 2004 with regular annual updates starting shortly thereafter. Fifty meetings are scheduled around the state during 2004 to develop amendments. Until the statewide manual updates are finalized and the copyright is transferred to Iowa State University/CTRE, local jurisdictions can use the existing central Iowa design and specification manuals distributed by CTRE, with the addenda of changes.

These common standards and specifications are expected to develop design, construction, and contracting uniformity among communities. By reducing bias toward particular materials or methods and encouraging additional bids, the annual statewide savings for Iowa in Iowa RUTF dollars is estimated at nearly \$9 million.

Equally important, the statewide standards will provide a central means of transfer for emerging technologies and tested processes. CTRE will keep the manuals up to date, relieving individual communities of that burden and keeping cities informed about new procedures.

For instance, content revision represents an opportunity to incorporate new knowledge about access management. For instance, the newly released *National Access Management Handbook* will be available to help improve the access management chapter in SUDAS. In addition, comments that have been received by users of the initial version will be considered prior to modifications being issued. A particularly challenging issue being addressed as this paper is written is the accommodation of Americans with Disabilities Act sidewalk and crossing design provisions in the access management section of SUDAS.

CONCLUSION

When the SUDAS updates are completed in 2004, Iowa will be one of only a few states with border-to-border uniform urban design and specification standards. Several other states are closely monitoring Iowa's process, products, and results. The SUDAS process represents an excellent opportunity for the transportation design community to jointly promote and adopt important concepts such as access management.

APPENDIX: EXAMPLE FIGURES AND TABLES FROM THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS MANUAL (CHAPTER 5, SECTION 5, ACCESS MANAGEMENT) (7)

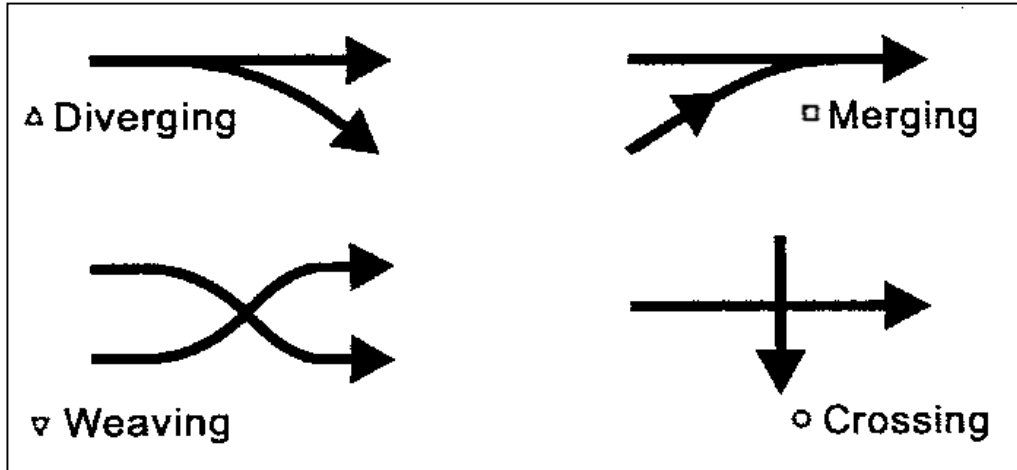


FIGURE 1. Graphic Explaining Conflict Point Terminology

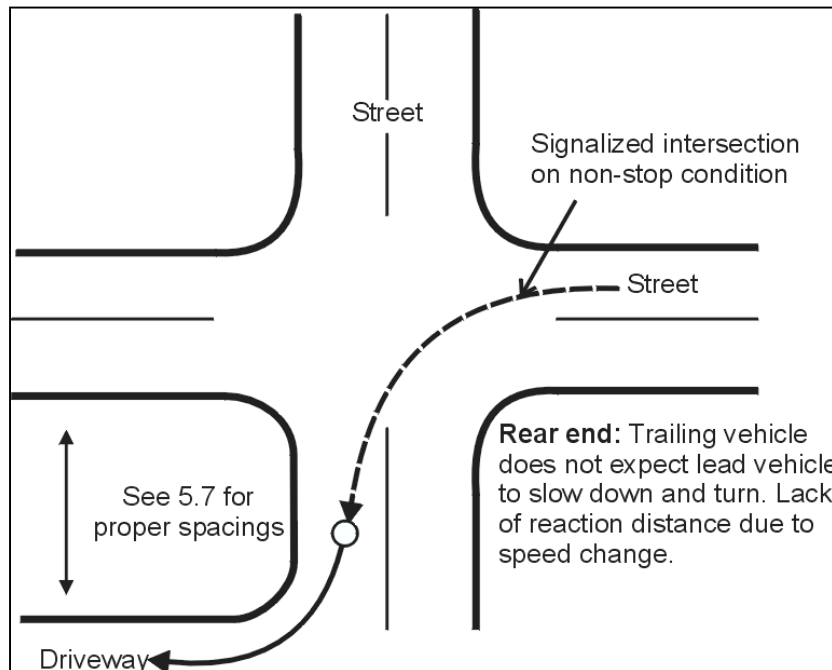


FIGURE 2. Graphic Explaining Driveway Corner Clearance

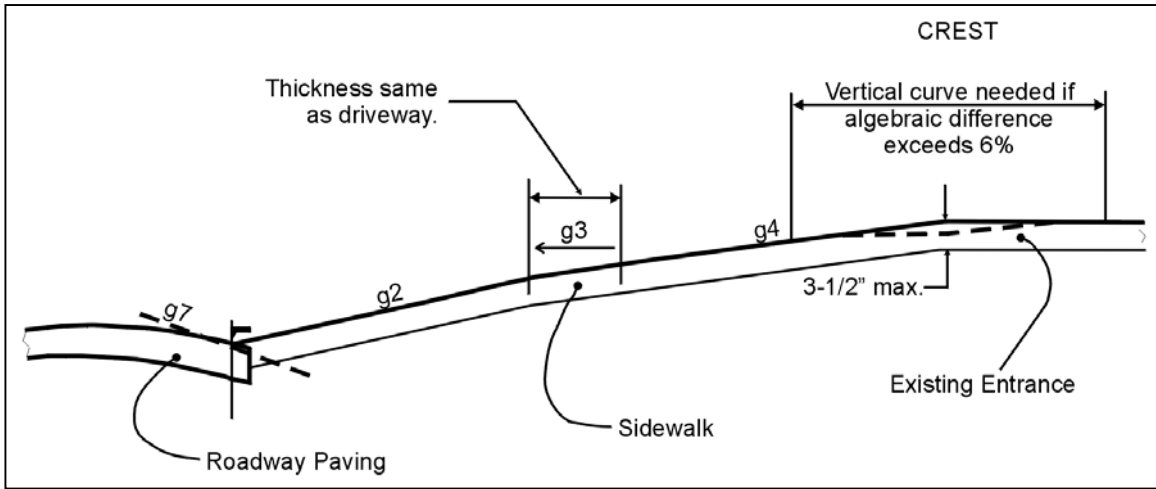


FIGURE 3. Graphic Explaining Commercial Driveway Grade Guidelines

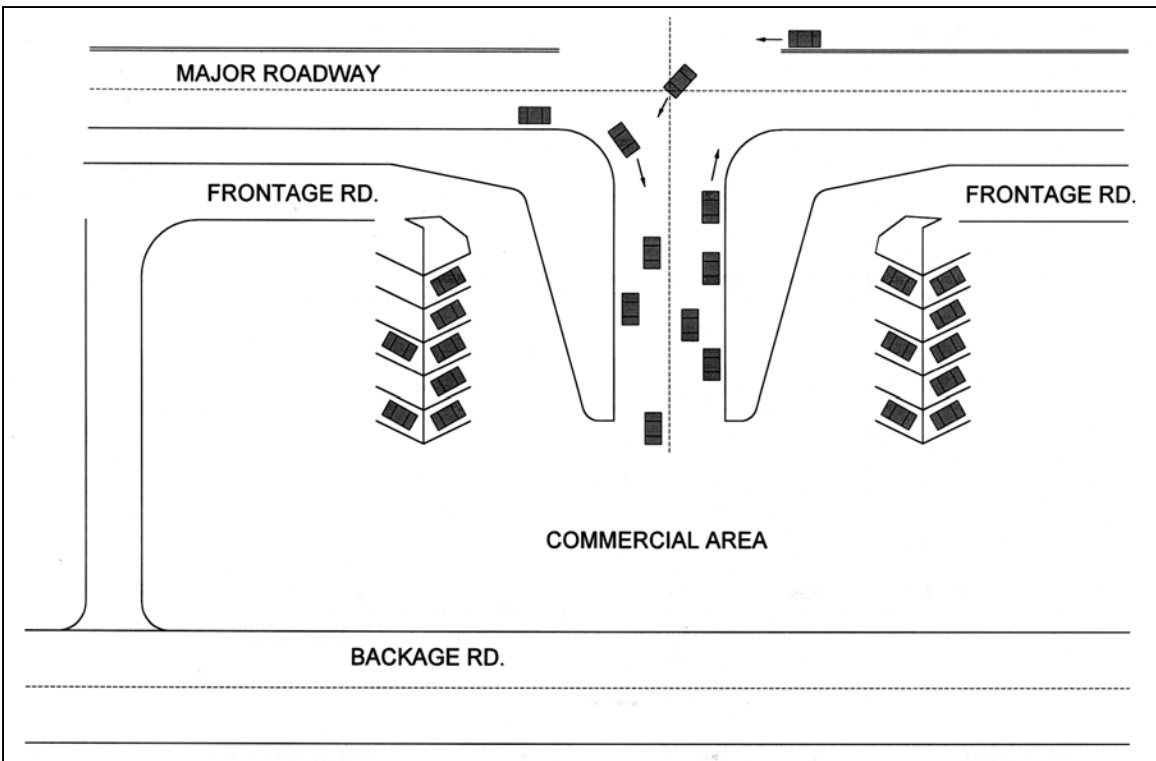


FIGURE 4. Graphic Explaining Internal Circulation and Adequate Driveway Throat Length

TABLE 1. Safety Impacts of Excessive Direct Access

Access Points per Mile	Undivided (Painted Centerline) Crash Rate (per MVMT)	TWLTL Crash Rate (per MVMT)	Raised Median Crash Rate (per MVMT)	Rate Reduction Raised Median vs. TWLTL
Less than 20	3.8	3.4	2.9	-0.5
20 to 40	7.3	5.9	5.1	-0.8
40 to 60	9.4	7.4	6.5	-0.9
Over 60	10.6	9.2	8.2	-1.0

Note: MVMT = million vehicle miles traveled; TWLTL = two-way left-turn lane.

Source: *National Cooperative Highway Research Program Report*.

TABLE 2. Relationships between Access Management Treatments and Pedestrian Safety

Roadway Type	Median	Mid-block Pedestrian Crash Rate	Intersection Pedestrian Crash Rate
Undivided four lane	None	6.69	2.32
Five lane (TWLTL)	Painted	6.66	2.49
Divided four lane	Raised	3.86	0.97

Note: TWLTL = two-way left-turn lane.

Source: Oregon State University, 1998.

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