Mn/DOT Policy and Practice
Design Standards & Design Exceptions

Complete Streets External Advisory Group

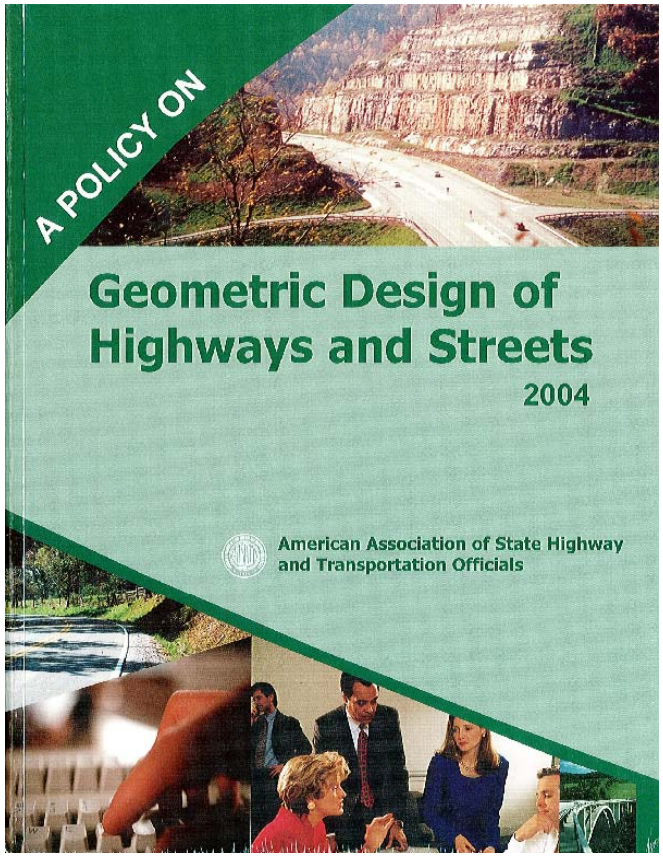
February 23, 2011

Hiway Federal Credit Union Annex

Talking Points

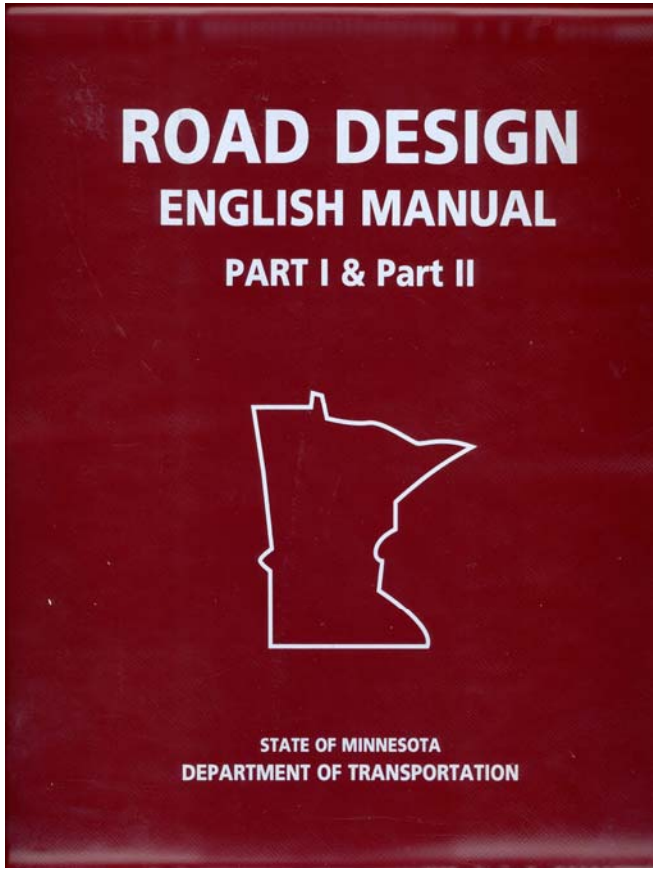
- How are design standards adopted?
- How do we approve design exceptions?
- How is the Federal Highway Administration involved?
- How much freedom/flexibility do designers have?
- What are some emerging trends?

Design Standards Adoption



1. AASHTO Technical Committee on Geometric Design
2. Balloting and formal comment by the state highway agencies (i.e. AASHTO membership)
3. Adoption by the Federal Highway Administration as the standard for the National Highway System (NHS)

Design Standards Adoption



Three Simple(?) Steps:

1. Proposal
   - Expert office, district office, Design Standards Unit, etc…
2. Mn/DOT Design Advisory Committee (DAC) concurrence
3. FHWA approval

Design Exception Approval

Two Types of Design Exception

Formal

- 13 Critical Design Elements
- Formal, standard documentation
- Mn/DOT approval by the State Design Engineer
- FHWA approval if it's full Federal oversight

Informal

- General design elements
- Informal documentation in the design office
- No signature approval

Design Exception Approval

Critical Design Elements

1. Design Speed
2. Lane Width
3. Shoulder Width
4. Bridge Shoulder Width
5. Horizontal Clearance to Obstructions
6. Bridge Structural Capacity
7. Stopping Sight Distance
8. Horizontal Alignment
9. Grades
10. Vertical Alignment
11. Normal Cross Slope
12. Superelevation
13. Vertical Clearance

Full Federal Oversight

New construction or reconstruction on the Interstate

-or-

Major bridge project on the National Highway System

Design Flexibility

Two Varieties of Design Flexibility

Within Standard

- Within the ranges given in the Green Book or RDM
- Guides should be engineered to allow appropriate solutions within a reasonable range of conditions

Non-Standard

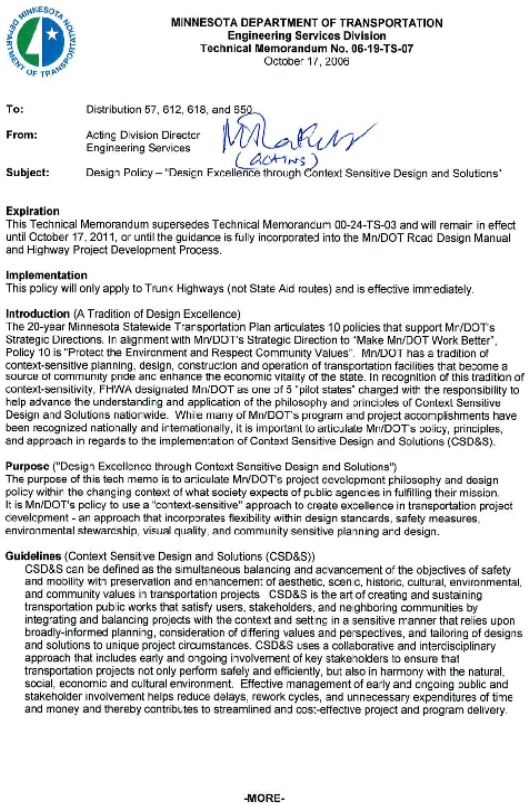
- Design exception process
- Should be considered a normal variation of design

Emerging Trends

- Complete Streets
  - Modal provision
  - Safety for the most vulnerable users
  - Dovetails with accessibility

Emerging Trends

- Context Sensitive Design
  - Overarching philosophy
  - Some notable, award-winning successes
  - Some missed opportunities



MINNESOTA DEPARTMENT OF TRANSPORTATION
Engineering Services Division
Technical Memorandum No. 06-19-TS-07
October 17, 2006

To: Distribution 57, 612, 618, and 850

From: Acting Division Director
Engineering Services

Subject: Design Policy – "Design Excellence through Context Sensitive Design and Solutions"

Expiration
This Technical Memorandum supersedes Technical Memorandum 00-24-TS-03 and will remain in effect until October 17, 2011, or until the guidance is fully incorporated into the Mn/DOT Road Design Manual and Highway Project Development Process.

Implementation
This policy will only apply to Trunk Highways (not State Aid routes) and is effective immediately.

Introduction (A Tradition of Design Excellence)
The 20-year Minnesota Statewide Transportation Plan articulates 10 policies that support Mn/DOT's Strategic Directions. In alignment with Mn/DOT's Strategic Direction to "Make Mn/DOT Work Better", Policy 10 is "Protect the Environment and Respect Community Values". Mn/DOT has a tradition of context-sensitive planning, design, construction and operation of transportation facilities that become a source of community pride and enhance the economic vitality of the state. In recognition of this tradition of context-sensitivity, FHWA designated Mn/DOT as one of 5 "pilot states" charged with the responsibility to help advance the understanding and application of the philosophy and principles of Context Sensitive Design and Solutions nationwide. While many of Mn/DOT's program and project accomplishments have been recognized nationally and internationally, it is important to articulate Mn/DOT's policy, principles, and approach in regards to the implementation of Context Sensitive Design and Solutions (CSD&S).

Purpose ("Design Excellence through Context Sensitive Design and Solutions")
The purpose of this tech memo is to articulate Mn/DOT's project development philosophy and design policy within the changing context of what society expects of public agencies in fulfilling their mission. It is Mn/DOT's policy to use a "context-sensitive" approach to create excellence in transportation project development - an approach that incorporates flexibility within design standards, safety measures, environmental stewardship, visual quality, and community sensitive planning and design.

Guidelines (Context Sensitive Design and Solutions (CSD&S))
CSD&S can be defined as the simultaneous balancing and advancement of the objectives of safety and mobility with preservation and enhancement of aesthetic, scenic, historic, cultural, environmental, and community values in transportation projects. CSD&S is the art of creating and sustaining transportation public works that satisfy users, stakeholders, and neighboring communities by integrating and balancing projects with the context and setting in a sensitive manner that relies upon broadly-informed planning, consideration of differing values and perspectives, and tailoring of designs and solutions to unique project circumstances. CSD&S uses a collaborative and interdisciplinary approach that includes early and ongoing involvement of key stakeholders to ensure that transportation projects not only perform safely and efficiently, but also in harmony with the natural, social, economic and cultural environment. Effective management of early and ongoing public and stakeholder involvement helps reduce delays, rework cycles, and unnecessary expenditures of time and money and thereby contributes to streamlined and cost-effective project and program delivery.

-MORE-

Emerging Trends

- Performance-Based Design
  - Needs-based; value-based approach
  - Missouri DOT's "Practical Design"
    - "Radical cost control"
  - Right-sizing projects
  - Optimize use of available funding

Emerging Trends

- Flexible Design Approach
  - Makes it all go
  - Rigorous, sophisticated design approach
    - Assesses tradeoffs
    - Recognizes context, need, value, etc…
  - Good design policy is the foundation
    - 2011 Green Book
    - RDM 13 Critical Element review

Questions?