



**Workshop on**  
**Design Excellence**  
**through**  
**Context Sensitive**  
**Solutions**

**March 9-10, 2010**

**Hosted by:**  
Center for Transportation Studies  
University of Minnesota

**Sponsored by:**  
Minnesota Department of Transportation  
Federal Highway Administration

**With assistance from:**  
Zan Associates  
Howard R. Green Company

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**Day One**

	<b>Activity</b>	<b>Objective</b>	<b>Presenter</b>
	<b>7:30 – 8:30</b> <b>Registration</b>		
<b>1</b>	<b>8:30 - 8:45</b> Introductions and Welcome	Participants understand workshop goals and expectations for workshop.	Jim Grothaus, CTS
<b>2</b>	<b>8:45 – 9:30</b> The Business Case for CSS	Participants understand how CSS fits into Mn/DOT’s business model and to the national transportation picture.	Scott Bradley, Mn/DOT
<b>2</b>	<b>9:30– 10:30</b> Principles of CSS	Participants understand concept of placemaking, elements of context, and the importance of community objectives. Discuss overall principles of Context Sensitive Solutions.	Charleen Zimmer, Zan Associates
	<b>10:30 – 10:45</b> <b>Break</b>		
<b>3</b>	<b>10:45 12:15</b> Design Workshop A	Teams identify contextual elements, problems to be solved, key stakeholders and team members for a design case study. Participants practice writing purpose and need statement.	Charleen Zimmer, Zan Associates Jack Broz, HR Green Scott Bradley, Mn/DOT
	<b>12:15 – 1:00</b> <b>Lunch</b>		
<b>4</b>	<b>1:00 – 2:00</b> Achieving Community Objectives Thru Design	Participants understand the concepts of design flexibility, concepts related to driver and vehicle behavior, and need to consider network and alignment alternatives as well as curb-to-curb design alternatives. Participants understand the value of the design exception process, the limits of tort liability and the need for documentation.	Jack Broz, HR Green
	<b>2:00-2:15</b> <b>Bream</b>		
<b>5</b>	<b>2:15– 3:45</b> Design Workshop B	Teams begin identifying design options for design case study (alignments, cross-sections, etc.)	Charleen Zimmer, Zan Associates Jack Broz, HR Green Scott Bradley, Mn/DOT
<b>6</b>	<b>3:45 – 4:30</b> Public and Interagency Participation in CSS	Participants discuss involving communities and key stakeholders in defining the problem, articulating objectives, assessing the trade-offs and developing the design. Homework assignment.	Charleen Zimmer, Zan Associates

**Day Two**

	<b>Topic</b>	<b>Objective</b>	<b>Presenter</b>
7	<b>8:00 – 9:00</b> <b>Feedback from Homework Assignment</b>	Participants share observations from homework assignment reflecting CSS principles.	Charleen Zimmer, Zan Associates
8	<b>9:00 – 10:00</b> Designing Complete Streets	Participants understand the needs of various modes of travel, the concept of “complete streets”, and the design trade-offs that must be considered.	Jack Broz, HR Green
	<b>10:00 – 10:15</b> <b>Break</b>		
9	<b>10:15 – 11:45</b> Design Workshop C	Teams determine modal priorities for the design case study and reassess design options based on modes and community objectives; continue to develop alignment and cross-section alternatives.	Charleen Zimmer, Zan Associates Jack Broz, HR Green Scott Bradley, Mn/DOT
	<b>11:45 – 12:45</b> <b>Lunch</b>		
10	<b>12:45 1:45</b> <b>Aesthetics and Landscape Architecture</b> =	Participants understand the Mn/DOT visual impact assessment process and discuss concepts related to materials, architectural treatments, landscaping, construction and maintenance.	Scott Bradley, Mn/DOT
	<b>1:45-2:00</b> <b>Break</b>		
11	<b>2:00 – 3:30</b> Design Workshop D	Teams identify materials, aesthetic details, and landscape treatments for design case study. Teams evaluate the effectiveness of their overall design in meeting community objectives.	Charleen Zimmer, Zan Associates Jack Broz, HR Green Scott Bradley, Mn/DOT
12	<b>3:30-4:15</b> Evaluating Effectiveness of CSS – Case Study Presentations	Teams present case studies developed in design workshops. Group discussion of effectiveness in meeting community objectives and principles of CSS.	Jack Broz, HR Green Charleen Zimmer, Zan Associates
	<b>4:15-4:30</b> Closing Comments and Presentation of Certificates	Participants receive certificates for completing course.	Scott Bradley, Mn/DOT Jim Grothaus, CTS

# Workshop Participant Manual

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## Acknowledgements

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The University of Minnesota Center for Transportation Studies would like to thank the following individuals who contributed their expertise and experiences as well as their time to this project:

### **Steering Committee**

Scott Bradley, Landscape Architecture Chief, Mn/DOT  
Jack Broz, Howard R. Green Company  
Jim Grothaus, UM Center for Transportation Studies  
Cheryl Martin, Federal Highway Administration  
Jim Rosenow, State Geometrics Engineer, Mn/DOT  
Charleen Zimmer, Zan Associates

### **UM Center for Transportation Studies**

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### **Instructors/Speakers**

Mike Barnes, Mn/DOT  
Scott Bradley, Mn/DOT  
Jack Broz, Howard R. Green Company  
Charleen Zimmer, Zan Associates

### **Use of Materials**

We would like to thank the following organizations for use of their materials:

**Pedestrian and Bicycle Information Center** ([www.pedbikeimages.org](http://www.pedbikeimages.org)) for the use of several photographs.

**International Association for Public Participation** ([www.iap2.org](http://www.iap2.org)) for materials on public participation.

**Howard R. Green Company** for design break-out case study materials.

# Workshop Participant Manual

## Introduction

**“Design Excellence Through Context Sensitive Solutions”** is a two-day workshop designed for transportation planners and engineers by the University of Minnesota Center for Transportation Studies (CTS) for the Minnesota Department of Transportation (Mn/DOT) with assistance by Zan Associates and Howard R. Green Company. This reference manual is intended to orient you to the workshop, to provide you with the information you need regarding schedule and activities, and to provide you with session materials for use during the workshop and reference materials for your use after the workshop.

### Workshop Objective

To have participants enhance their existing experience and skills as necessary to integrate the principles of Context Sensitive Solutions (CSS) into the existing Mn/DOT project development process and apply the principles so that projects ultimately:

- Are more responsive to communities and stakeholders;
- Attain a level of design excellence;
- Leave a lasting public works legacy; and
- Are developed in a timely and cost-effective manner.

### Workshop Goal

Planning and designing a transportation facility so that it fits its physical, cultural, social and environmental setting and is recognized as an asset by the community in which it is located.

### Background

The Federal Highway Administration (FHWA) has provided leadership in encouraging context sensitive solutions through their examination of the American Association of State Highway and Transportation Officials (AASHTO) roadway engineering design standards in their 1997 publication, “Flexibility in Highway Design”. Developed in collaboration with AASHTO, Scenic America, and the National Trust for Historic Preservation and the Bicycle Federation, the publication “identifies and explains the opportunities, flexibilities, and constraints facing designers and design teams responsible for the development of transportation facilities.” (p. iii).

Building on this effort, FHWA conducted a national working conference, “Thinking Beyond the Pavement” in 1998 where 325 people from 39 states (transportation professionals and stakeholders representing public agencies, elected officials, private businesses and citizen perspectives) worked together to identify the common qualities of successful transportation projects and articulate principles to achieve more flexible design. The conference also articulated

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## Introduction

goals for encouraging the use of context sensitive solutions and implementing training programs for engineers nationwide.

To implement this goal, FHWA provided funding to five “pilot” states to develop Context Sensitive Solutions training workshops. Minnesota, along with Utah, Connecticut, Kentucky and Maryland, was provided funding to develop a Context Sensitive Solutions curriculum. This workshop is based on that curriculum.

The Federal Highway Administration (FHWA), the Transportation Research Board (TRB), the Institute of Transportation Engineers (ITE) and the American Association of State Highway and Transportation Officials (AASHTO) have all published recent documents recommending greater flexibility in design and the flexible application of design standards. Mn/DOT recently held a forum on “Flexible Design for 21<sup>st</sup> Century Challenges: Balancing Competing Objectives and Optimizing Return on Investments (see Toolbox section of this manual for more information) to learn from other states that have undertaken initiatives to apply greater design flexibility in transportation planning, design development and operations statewide. This workshop reflects this future direction.

### Approach

The intent of this workshop is to share information regarding context sensitive solutions and design flexibility, their role in meeting the strategic objectives of Mn/DOT, and practical methods to define and accommodate context with the existing Mn/DOT Highway Project Development Process. The emphasis will be on identifying context and using design flexibility to accommodate community values as a seamless part of project development. CSS is NOT another step in the project development process, but IS an integral part of a successful project process and contributes to a successful project outcome. CSS is NOT a particular type of project or a particular project outcome. Rather, CSS is a way of thinking about problems and designing solutions to those problems.

In keeping with this approach, the “Design Excellence through Context Sensitive Solutions” workshop uses case studies to define and illustrate a CSS approach to planning and designing roadway projects. The workshop employs small group design and discussion of real-life projects that will give you the opportunity to get hands-on experience in applying the principles of CSS and design flexibility. The workshop will also provide you with an opportunity to consider current project assignments and discuss with instructors and fellow participants how context sensitive solutions might apply.

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### Design Workshops

**At the heart of the Context Sensitive Solutions workshop is the design workshop. You will be organized into three working teams. Each group will be assigned a roadway project. You will be asked to work as an interdisciplinary team to understand the context of the project, define the problems that need to be addressed, develop alternative solutions, apply concepts of design flexibility, and identify an integrated solution to the problem.**

Materials provided to support the small group work include a written description of the project, aerials reflecting existing conditions, and other materials providing information on the project context.

Your team will be asked to apply the principles of CSS and design flexibility to the assigned case study and present the findings of your work on the last day of the workshop. Team working sessions will be interspersed with presentations thereby allowing you to apply concepts presented and to anticipate issues to be discussed.

Each small group will be led by a group facilitator. The facilitator's role is to introduce your team to the case study, to serve as an informational resource on the project, and to provide guidance and expertise in the application of the principles of Context Sensitive Solutions.

### Evaluation

**Evaluation is a critical part of this pilot workshop. It is important to have your feedback about what worked and what could be made to work better. Please take the time to fill out the evaluation form at the end of the class. Your comments and suggestions will be an important component for planning future presentations of this workshop.**

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### About the Instructors and Speakers

**Michael Barnes, P.E.**, is the Director of Mn/DOT's Engineering Services Division and is an advocate and management champion for the department's renewed efforts in context sensitive solutions. He has been with the Department for the past 23 years in various technician, engineering, technology, and management positions. During his career, he has managed a wide range of projects from small to large, and from road construction to technology projects which has helped him gain a strong appreciation for stakeholder involvement and the need for innovation.

**Scott Bradley** is the Mn/DOT Director of Context Sensitive Solutions. Scott has a Bachelor's Degree in Landscape Architecture and a Master's Degree in Business Administration and 30 years of varied private and public experience in landscape architecture practice. Scott has Mn/DOT's administrative responsibility for several statewide programs and manages landscape architectural planning, design, construction and maintenance support for multi-modal corridor development projects. Scott is Mn/DOT's first point of contact and champion for Context Sensitive Solutions.

As Secretary of the TRB Committee on Landscape and Environmental Design, for the past 9 years, and Chair of the TRB Context Sensitive Design and Solutions Task Force, for the past 6 years, Scott has been an active organizer and presenter for many state, regional, national, and international conferences and workshops. Scott is a Fellow in the American Society of Landscape Architects and active in the ASLA Professional Practice Network for Context Sensitive Solutions in Transportation. Scott also serves on the National Park Service Development Advisory Board, as an external advisor to the Director of the NPS; on the Planning and Environment Research Council for the University of Minnesota's Center for Transportation Studies; and on the Federal Highway Administration's Context Sensitive Solutions Advisory Board.

**Jack Broz, P.E.**, is the Transportation Group Leader for Howard R. Green Company. He has a B.S. degree in Civil Engineering from the University of Illinois and has 30 years of experience in highway design. His transportation project experience includes projects ranging from mega Interstate highway projects to alley restorations. These projects have been located throughout the Midwest as well as in Florida, Maryland, Utah and California. His projects include a diversification of transportation modes including aviation, freight rail, commuter rail, bicycles, pedestrians and even horseback trails in Utah. In the past year, his work resulted in the opening of 26 miles of new freeway and nearly 10 miles of new streets with a cumulative construction value of about \$600 million. He has professional affiliations with American Society of Civil Engineers (ASCE), American Planning Association (APA) and American Council of Engineering Companies (ACEC).

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**Jack is known as an innovative designer who successfully applies CSS principles to his projects and works effectively with local communities. He recently completed design of Highway 10 through Detroit Lakes. The project includes significant technical, social and regulator challenges. The project involved working with the railroad to realign tracks with up to 60 trains per day. The end result included a new underpass for a major city street under the railroad and Highway 10, new frontage roads, significant water quality improvements along with an expanded downtown development.**

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**Charleen Zimmer, AICP, is President of Zan Associates, which she formed in 2001. She has a Bachelor of Arts degree from the University of Michigan and has over 30 years of experience providing services in planning, public participation, consensus building and training with a focus on better integration of transportation, environmental and community planning decisions and designs. Current and recent projects include: (1) public affairs coordination for the Highway 212 and ROC 52 design-build projects, (2) public outreach activities for the City of Minneapolis related to the MARQ2 street reconstruction project, the conversion of Hennepin and 1<sup>st</sup> Avenue North from one-way to two-way, and the implementation of a coordinated street furniture program, and (3) project oversight assistance to the City of Minneapolis on a ten-year transportation action plan (citywide and downtown), a streetcar feasibility study, a pedestrian master plan, and new sidewalk and street design guidelines. She was the 1998 recipient of the Ray Laapagaard Distinguished Service Award given by the UM Center for Transportation Studies for leadership and mentorship in transportation.**

**Charleen was the lead consultant and instructor for the development of Mn/DOT's initial pilot training program in Context Sensitive Solutions and she has been involved in CSS training for UM-CTS and Mn/DOT for the past ten years. In addition to the two-day Mn/DOT CSS training program, she has taught several one-day CTS T<sup>2</sup> workshops on Context Sensitive Design for Local Units of Government, and was part of a team that developed and taught a Mn/DOT workshop on CSS and Public Participation.**

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