U.S. House of Representatives
Committee on Transportation and Infrastructure
Washington, DC 20515

James L. Oberstar
Chairman

David Heymsfeld, Chief of Staff
Ward W. McCarragher, Chief Counsel

John L. Mica
Ranking Republican Member

James W. Coon II, Republican Chief of Staff

June 09, 2010

SUMMARY OF SUBJECT MATTER

TO: Republican Members of the Subcommittee on Highways and Transit

FROM: Subcommittee on Highways and Transit Republican Staff

SUBJECT: Hearing on "Using Practical Design and Context-Sensitive Solutions in Developing Surface Transportation Projects"

PURPOSE OF HEARING

The Subcommittee on Highways and Transit is scheduled to meet on Thursday, June 10, 2010, at 10:00 a.m., in room 2167 of the Rayburn House Office Building to receive testimony on the use of Practical Design and Context Sensitive Solutions to develop highway and road projects. This hearing is part of the Subcommittee's effort to reauthorize Federal surface transportation programs under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) (P.L. 109-59), which expired on September 30, 2009, but has been extended through December 31, 2010. The Subcommittee will hear from the Federal Highway Administration, the Massachusetts State Department of Transportation, the Chair of the Clackamas County, Oregon Board of Commissioners, a professor of civil engineering at the University of Kentucky, and transportation consultants with the American Council of Engineering Companies and the Institute of Transportation Engineers.

BACKGROUND

Since the 1930s, the Federal government has worked with State and local transportation officials to ensure that our Nation's roads and bridges are designed and constructed in a way that provides the safest and most efficient facilities that have the least impact on surrounding communities and the natural environment. Context Sensitive Solutions and Practical Design are two strategies used by State and local transportation officials to minimize potential adverse effects associated with a transportation project.

Current Highway Design Guidelines

State departments of transportation (DOTs), working through the American Association of State Highway and Transportation Officials (AASHTO), each develop and adopt their own design standards. The Federal Highway Administration (FHWA) contributes to the development of the design standards through membership on AASHTO committees and taskforces, sponsoring and participating in research efforts, and other initiatives. Following development of the state design standards, FHWA uses a formal rulemaking process to adopt those standards it considers suitable for application on the NHS.

The design standards currently adopted by FHWA can be found in a publication called "A Policy on Geometric Design of Highway and Streets," more commonly referred to as the "Green Book" because of the color of its cover. The Green Book has been published by AASHTO in some form since the 1930s and contains a general set of guidelines on road design. This most recent addition was published in 2004. While often considered to be a set of national standards, the Green Book is really a series of guidelines on geometric design within which a designer has a range of flexibility, though the degree to which this flexibility is exercised within the guidelines is often debated.

Context Sensitive Solutions

Context sensitive solutions refer to a set of core principles that are intended to minimize adverse impacts of transportation projects on neighborhoods, communities and natural resources. These solutions seek to implement innovative measures to help projects fit harmoniously within the community and the natural environment. Traditionally, design standards for highway and road projects have placed principle importance on safety and vehicular throughput, i.e. moving traffic. In contrast, the CSS process emphasizes that transportation facilities should fit their physical settings and preserve scenic, aesthetic, historic and environmental resources.

In 1997 FHWA's Office of Program Administration and Office of Environment and Planning published "Flexibility in Highway Design," which recommended flexibility in application of the Green Book design values, particularly when considering impacts on the community. The guide stressed "the need to identify and discuss those flexibilities and to continue breaking down barriers that sometimes make it difficult for highway designers to be aware of local concerns of interested organizations and citizens."[1]

Building upon this recommendation, the guiding principles of CSS were developed and refined in 1998 at Thinking Beyond the Pavement: A National Workshop on Integrating Highway Development with Communities and the Environment while Maintaining Safety and Performance ("Thinking Beyond the Pavement"). Furthermore, in March 2007, AASHTO and FHWA released a Context Sensitive Solutions Strategic Planning Process Summary Report, which established core principles for CSS.[2] In that report, the principles of CSS were stated as follows:

---

[1] "Flexibility in Highway Design," Letter from the Administrator, available at http://www.fhwa.dot.gov/environment/flex/index.htm.

[2] Joint AASHTO/FHWA Context Sensitive Solutions Strategic Planning Process Summary Report, March 2007, available at http://www.contextsensitivesolutions.org/content/topics/what_is_css/core-principles/

- Strive toward a shared stakeholder vision to provide a basis for decisions.
- Demonstrate a comprehensive understanding for contexts.
- Foster continuing communication and collaboration to achieve consensus.
- Exercise flexibility and creativity to shape effective transportation solutions, while preserving and enhancing community and natural environments.

CSS has been adopted by some states, including Pennsylvania, Maryland and Washington State. Other States have adopted approaches that are similar to CSS or integrate some of its principles.

There are potential pitfalls associated with incorporating context sensitive solutions. Some in the transportation community believe that the context sensitive design process undermines proven engineering approaches. Reduction of highway lighting, elimination of safety shoulders, and reduced use of standard safety appliances such as metal guardrails can have an adverse impact on highway safety. Narrow streets and the reduction in the number of highway lanes can result in lower vehicle throughput, slower travel times and higher vehicle emissions due to increased idling times.

Context sensitive solutions may also make project sponsors more susceptible to tort lawsuits. Many CSS features can be contrary to previously accepted safety practices. Project sponsors are exposed to potential liability if the safest possible design is not used.

Practical Design

Another innovative aspect of delivering highway projects is practical design. While some consider practical design to be similar to CSS, practical design is more about planning and designing projects to more effectively reach the desired objectives. Utilizing a practical design approach focuses on "right-sizing" projects to more appropriately reflect financial constraints, therefore allowing the delivery of a greater number of transportation projects.

Missouri adopted this approach in 2005 and the Missouri DOT (MoDOT) Practical Design Implementation Manual states that "MoDOT's goal of practical design is to build 'good' projects, not 'great' projects, to achieve a great system." MoDOT is responsible for more than 32,000 miles of highways, which includes more than 10,000 bridges. With declining revenues and increasing construction costs, MoDOT made the decision to look for cost savings in every highway project by adopting practical design. For example, this meant that a highway through the mountains might have a thinner bed of concrete where it rests on bedrock; or instead of widening a deteriorating bridge and making nearby highway improvements, as would have been done before practical design, MoDOT will now simply repair the bridge to make it safe to cross again and use the cost savings to repair additional bridges. As a result, after the first five years of implementing practical design, 83 percent of Missouri's highways were rated in 2009 to be in good condition, versus 44 percent in 2003, and MoDOT estimates it has saved 13 percent on project costs.[3]

[3] Jones, Joseph, "Practical Design." *Public Roads,* Vol. 73 No. 4 (Jan/Feb 2010).

Using Missouri's success as an example, other States have since adopted their own variations of practical design. The Kentucky DOT has adopted a process called "practical solutions" that focuses on building right-sized projects that still make substantial improvements to a transportation facility and meet mobility, safety, community and environmental goals.

Surface Transportation Authorization Act of 2009

The Committee Print of the Surface Transportation Authorization Act of 2009 (STAA) requires the Director of the Office of Livability to encourage States, regional and local governmental entities and Indian tribes to adopt and implement practical design standards and comprehensive street design policies and principles. This language was included despite the fact that concerns were raised over the possibility that the new standards may result in additional lawsuits and slow project delivery. The STAA Committee Print was marked up by the Subcommittee on Highways and Transit on June 24, 2009. To date, no further legislative action on the STAA has been taken.

WITNESSES

Mr. King Gee
Associate Administrator for Infrastructure
Federal Highway Administration

Ms. Luisa M. Paiewonsky
Administrator, Highway Division
Massachusetts Department of Transportation

The Honorable Lynn Peterson
Chair
Clackamas County Board of County Commissioners
Clackamas County, Oregon

Mr. Steven B. Bolt, P.E., PTOE
President
Orth-Rodgers & Associates, Inc.

Mr. Hal Kassoff, P.E.
Senior Vice President
Parsons Brinckerhoff

Dr. Nikiforos Stamatiadis, Ph.D., P.E.
Professor of Civil Engineering/Transportation
University of Kentucky