

HIGHWAY CONSTRUCTION: CONTEXT-SENSITIVE DESIGN

House Bill 5107 as introduced
First Analysis (11-4-03)

Sponsor: Rep. Ruth Johnson
Committee: Land Use and Environment

THE APPARENT PROBLEM:

During the interstate era, beginning in the 1950s and continuing through the 1980s, when the world's largest public works project—a nation-spanning freeway system of networked highways—was underway, aesthetics and preservation of the environment were not part of the engineering mission. However, following the substantial completion of the U. S. Interstate system, the transportation focus shifted from new projects such as the freeways, to the National Highway System or non-freeways. On those roads the key challenges were congestion management, and system preservation that involved existing facilities. In this new era of preservation and enhancement, it soon became a significant part of road builders' work to partner with community stakeholders to protect the human and natural environment.

So, in the 1990s highway design changed rapidly throughout the United States, as highway designers and builders learned to be more sensitive to the impact of highways on the environment and communities, as citizens' expectations for better and safer roads grew. In order to address the growing interest in the improvement of highways, and in their integration into the communities they served, the U. S. Department of Transportation/Federal Highway Safety Administration created a collaborative, interdisciplinary approach that involved all stakeholders when developing a transportation improvement so that it would fit its physical setting and preserve scenic, aesthetic, historic, and environmental resources while maintaining safety and mobility. This program is commonly referred to as Context Sensitive Design, or CSD, a design approach that considers the total context within which a transportation improvement project will exist. (See [Background Information](#) below.)

In April 1994, the American Association of State Highway and Transportation Officials (AASHTO) adopted the National Highway System Design Standards policy to declare that member departments

would work through AASHTO's design standards committees, the federal department, and others who were interested to create design criteria, and a design process, for National Highway System routes. The new design criteria were to integrate safety, environmental, scenic, historic, community, and preservation concerns. Further, they were also to foster access for bicycles and pedestrian traffic along with other transportation modes.

In November 1995, this policy was enacted into federal law. A portion of Section 109 of Title 23, United States Code reads: A design for new construction, reconstruction, resurfacing [and] restoration, or rehabilitation of highway on the National Highway System (other than a highway also on the Interstate System) may take into account...[in addition to safety, durability, and economy of maintenance]...a) the constructed and natural environment of the area; b) the environmental, scenic, aesthetic, historic, community, and preservation impacts of the activity; and, c) access to other modes of transportation.

In May 1998, the Maryland Department of Transportation hosted a national conference to discuss the integration of highway development with communities and the environment, and shortly after the national workshop convened, five pilot states were selected to implement the Context Sensitive Design Approach: Connecticut, Kentucky, Maryland, Minnesota, and Utah. (See [Background Information](#) below.) A year later in June 1999, the American Society of Civil Engineers gathered in Reston, Virginia to hear from the nation's leaders on CSD.

Here in Michigan, the Michigan Department of Transportation uses the FHWA definition of context-sensitive design, and emphasizes four important approaches: the State Transportation Commission policy on Aesthetics; the involvement of stakeholders to develop and contribute creative solutions; the use

of flexible solutions and department guidelines to balance safety and capacity with environmental, cultural, and historical concerns; and public involvement from the beginning and throughout corridor planning, project scoping, environmental assessment, and design.

The State Transportation Commission on Policy Aesthetics was adopted in September 2000 and reads: MDOT shall protect, preserve, and enhance its existing aesthetic resources wherever possible. This will include appropriate maintenance of trunkline roadsides, right-of-way, landscaping and aesthetic improvements, as well as protection of scenic areas and historic, cultural, architectural and environmental resources wherever possible. To implement this policy, the department completed its Aesthetic Project Opportunities Inventory and Scenic Heritage Route Designation Report in February 2001. Projects that have embodied the new policy include a streetscape in downtown Saginaw, the M-22 Glen Arbor Bridge in Leelanau County, and the Beulah Bridge in Benzie County. Since 1992, MDOT has been awarded \$200 million in transportation enhancement program grants, for landscaping along the trunkline, bike-paths, and the preservation of a depot. Over the past 11 years, the department has contributed \$6.5 million in match money through the enhancement program toward \$32.7 million in non-motorized projects which benefit pedestrian, bicyclists, and other form of non-highway transportation.

Among the proven context-sensitive design techniques that can help reduce traffic congestion is “access management” which reduces curb cuts onto busy thoroughfares and instead favors “ring roads” that allow many businesses to share a driveway (and sometimes parking lots). Between 2000 and 2003, over 800 local public officials, professional planners, and citizens attended 30 statewide access management workshops, and an Access Management Guidebook has been published.

Context-sensitive solutions also incorporate environmental reviews, and wetlands mitigation as required by law. Erosion control is also incorporated into road design in order to protect the environment. And context-sensitive solutions protect historic resources, most recently the M-43 West Main Hill area of Kalamazoo.

Throughout all of these projects, public involvement is key, and to facilitate dialogue with local officials and citizens, MDOT has 26 decentralized Transportation Service Centers set up across the

state. Between 2001 and 2003 over 500 public hearings were convened to discuss public projects before and after they got underway. Earlier, over 200 hearings were held on the I-496 reconstruction project in Lansing between 1998 and 2002. In Grand Rapids, over 25 meetings were held on the US 131 “S” Curve, and a website was established, accompanied by public TV and radio announcement. In St. Joseph County, more than 15 public meetings took place to discuss the US 131 Corridor Study.

Recently, legislation has been introduced in Michigan, to encourage road designers to continue to follow the principles of Context Sensitive Design.

THE CONTENT OF THE BILL:

House Bill 5107 would amend Public Act 51 of 1951, the Michigan Transportation Fund Act, to require the Department of Transportation to consider context-sensitive design in the construction and repair of highways.

More specifically under the bill, the Department of Transportation would be required to consider the use of context-sensitive design in undertaking the opening, widening, and improving, including the construction and re-construction, of all state trunk line highways. In doing so, the department would be required to consider the input of affected counties. As used in this subdivision of the act, “context-sensitive design” would mean a process designed to develop a transportation project so that it is in harmony with its environment, and preserves community, scenic, aesthetic, historic, and natural resources while maintaining safety and mobility.

MCL 247.651c

BACKGROUND INFORMATION:

Designing beautiful roads. In 1995 the Danish approach to designing beautiful roads was formulated as a strategy and published as a set of objectives for work that combined the architectural and visual aspects of road planning and design. That document was updated in 2002 and contains many photos, artists’ renditions, and sketches that illustrate the Danish approach to road architecture. View the document on line at www.vd.dk and look for the 2002 reports in English. In May 2002, an international symposium called “Main Street America Meets Main Street Europe” was convened in Seattle, Washington, to discuss experiences with context-sensitive highway design. About 90 senior executives from state departments of transportation

and the Federal Highway Administration participated, and the presentations have been compiled on a CD, which can be ordered on the website listed below.

Context sensitive design website. The website for information about Context Sensitive Design/Thinking Beyond the Pavement is hosted by the Federal Highway Administration (FHWA), the American Association of State Highway and Transportation Officials, and their following partners: FHWA Federal Lands Highway; Connecticut Department of Transportation; Kentucky Transportation Cabinet; Maryland Department of Transportation, State Highway Administration; Minnesota Department of Transportation; and the Utah Department of Transportation. Visit the Context Sensitive Design website at <http://www.fhwa.dot.gov/csd/>

Principles of design excellence. In 1998 when the Maryland Department of Transportation convened the first nation-wide Context Sensitive Design workshop, the following *principles of excellence in transportation design* were presented:

- The project satisfies the purpose and needs as agreed to by a full range of stakeholders. This agreement is forged in the earliest phase of the project and amended as warranted as the project develops;

- The project is a safe facility for both the user and the community;

- The project is in harmony with the community, and it preserves environmental, scenic, aesthetic, historic, and natural resources values of the area, i.e., exhibits context-sensitive design;

- The project exceeds the expectations of both designers and stakeholders and achieves a level of excellence in people's minds;

- The project involves efficient and effective use of the resources (time, budget, community) of all involved parties;

- The project is designed and built with minimal disruption to the community; and

- The project is seen as having added lasting value to the community.

Further, the workshop presented the following *characteristics of the process contributing to excellence*:

- Communication with all stakeholders is open, honest, early, and continuous;

- A multidisciplinary team is established early, with disciplines based on the needs of the specific project, and with the inclusion of the public;

- A full range of stakeholders is involved with transportation officials in the scoping phase. The purposes of the project are clearly defined, and consensus on the scope is forged before proceeding;

- The highway development process is tailored to meet the circumstances. This process should examine multiple alternatives that will result in a consensus of approach methods;

- A commitment to the process from top agency officials and local leaders is secured;

- The public involvement process, which includes informal meetings, is tailored to the project;

- The landscape, the community, and valued resources are understood before engineering design is started; and,

- A full range of tools for communication about project alternatives is used (e.g. visualization).

FISCAL IMPLICATIONS:

The House Fiscal Agency notes that the bill would have no apparent fiscal impact on the state or on local units of government. (10-13-03)

ARGUMENTS:

For:

The principles of context-sensitive design in highway project planning have been developed over the past several years at both the federal and state levels of government. The enterprise is worthy of codification, in order to ensure that the Michigan Department of Transportation continues to use the Federal Highway Administration's definition of context-sensitive design, and to emphasize the four important approaches the department has developed, those being: the State Transportation Commission policy on Aesthetics; the involvement of stakeholders to develop and contribute creative solutions; the use of flexible solutions and department guidelines to balance safety and capacity with environmental, cultural, and historical concerns; and public involvement from the beginning and throughout

corridor planning, project scoping, environmental assessment, and design.

The natural beauty of Michigan will be better protected if the Transportation Commission's Policy on Aesthetics, adopted in September 2000, is addressed, conceptually, within statute. That policy reads: MDOT shall protect, preserve, and enhance its existing aesthetic resources wherever possible. This will include appropriate maintenance of trunkline roadsides, right-of-way, landscaping and aesthetic improvements, as well as protection of scenic areas and historic, cultural, architectural and environmental resources wherever possible.

Against:

This program is already well-established in the Michigan Department of Transportation. Consequently there is no need for the legislation.

Response:

If the program is situated in statute, it is more apt to be treated as a funding priority in eras of economic downturn.

POSITIONS:

The Michigan Environmental Council supports the bill. (11-3-03)

The Department of Transportation is neutral on the bill. (11-3-03)

The County Road Association on Michigan is opposed to the bill because the program is already underway. (11-3-03)

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■ This analysis was prepared by nonpartisan House staff for use by House members in their deliberations, and does not constitute an official statement of legislative intent.