

Landscape Planning for Context Sensitive Highway Design

James L. Sipes, Principal
Sand County Studios
jsipes@sandcountystudios.com
206-755-6074

When we first started building roads hundreds or even thousands of years ago, roads curved around hills, bypassed bodies of water, and meandered through wooded areas because that was about the only roads could be built. It was obvious the land came first, and the road had to respond to the land. But as our technical process has increased, our ability to manipulate the land has also increased. If a wetland is located where we want our road to go, we can build a bridge or fill the wetland; if a hill is in the way, we can plough through it. The result is the road infrastructure that is in place in most of this country – a road structure that divides communities, damages the environment, ignores pedestrians and our feather and four-legged friends, and makes the automobile the center of our culture.

Seventy years ago, landscape architects were in charge of designing major roads such as the Merritt and Blueridge Parkways, and we designed the “old school” way, by remembering that the land came first. But these successes were short-lived, and over the years transportation became the specific domain of engineers. Landscape architects were relegated to preparing planting and irrigation plans. Today, opportunities again abound for landscape architects interested in transportation design and planning projects as a result, in part, of the Federal Highway Administration’s Context Sensitive Design (CSD) program. However, those landscape architects who want to become major players in the world of transportation design and planning need to understand the opportunities that exist, how to work with the engineering world, and how to distinguish what the hype from reality in CSD.

Opportunities

During the 1990s, highway designers and builders have learned that they must be more sensitive to the impact of highways on the environment and communities. This movement toward better design and planning started as Flexibility in Design, which inspired Thinking Beyond the Pavement, and evolved into Context Sensitive Design (CSD). Two years ago Congress passed the Transportation Equity Act for the 21st Century, commonly referred to as “TEA-21”, which made \$30.7 billion for new, transportation-based community projects. TEA-21 builds on the initiatives established in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), which was the last major authorizing legislation for surface transportation. TEA-21 uses the term “Context-Sensitive Design” in reference to the fundamental idea that every highway project is unique and that highway development should be integrated with communities and the environment while maintaining safety and performance. Francis B. Francois, former Executive Director of AASHTO (the American Association of State Highway Transportation Officials), said, “Aesthetic, community-sensitive design is where our nation wants to go, and we should go with them.”

For landscape architects, this idea of integrating design into the surrounding natural and human environments is old hat; haven’t we been doing that for decades? But for transportation engineers this whole idea seems to be nothing short of “radical” and requires no less than a new philosophical approach and the transformation of the entire highway development process. But for landscape architects, this idea of integrating design into the surrounding natural and human environments is old hat; haven’t we been doing that for decades? This push for a more holistic, integrated approach to transportation design should result in expanded opportunities for landscape architects.

Paris Pike

One project that is touted as an example of CSD by the Federal Highway Administration (FHWA) is Paris Pike, a 12-mile stretch of historic highway that runs through the heart of Kentucky’s horse country and connects the towns of Paris and Lexington. The Kentucky Transportation Cabinet originally proposed a four-lane design alternative that would have destroyed the character of the surrounding landscapes, which included rolling hills and mature trees, limestone walls that had been in place for centuries, and some of the most prestigious horse farms in the state. Coincidentally, these horse farms just happen to be owned by some of the most wealthy and influential people in the state.

The Kentucky Highway Department originally proposed widening Paris Pike back in 1966, but any improvements to the road was delayed for 27 years due to citizens' concern for the heritage corridor. An environmental assessment completed in 1992 indicated that there was no overriding environmental reason to delay widening the road, but a group of landowners and preservationists vowed to fight the project. The Paris Pike Committee was formed that same year, and they were instrumental in developing a memorandum of agreement that defined a more sensitive environmental approach for the project, and stipulated that landscape architects be involved. Construction for the project began in 1997 and is expected to be completed sometime this year.

Governor Paul Patton called the project one of the most unique public involvement processes in the history of the Commonwealth. "This has been a long time coming. If it weren't for the willingness of all parties to work together, we would've never seen construction," says Patton. "This is their project and one that has already made the history books." (November 19, 1996) You would expect, then, that with the success of Paris Pike that Kentucky, and the engineers involved with the process, would be firmly embracing CSD and that the role of landscape architects would be recognized. According to a representative of the Kentucky Transportation Cabinet (KTC), that is exactly what is happening. Kentucky is not seen as a leader in CSD road design, so says KTC, and the University of Kentucky's College of Engineering is teaching those methods to highway engineers in other states. The question, though, is what are they teaching?

While most applaud the sensitivity with which construction of the new Paris Pike preserved historic cultural features and the visual quality of the surrounding horse farms, others claim that \$93 million price tag (\$31 million more than the original proposal) for a 12-mile road is too high a price to apply to other roads in the state. But there are several projects that are in the design and planning stage in the state, including a 6-mile stretch of highway in Jessamine County that is to be widened, the Louisville Bridges, and the extension of I-66 from Somerset to London, KY. A look at these projects gives us an idea of the impact that Paris Pike is having on CSD in Kentucky.

US 93

U.S. Highway 93, a 55-mile road that cuts straight through the Flathead Indian Reservation in western Montana, is also being touted by FHWA as a model for both CSD and environmental streamlining. Like many highways in the sparsely populated West, the roadway design is indifferent to the natural beauty, the ancient culture and the fragile and unique ecosystems. When the Confederated Salish and Kootenai Tribes (CSKT) learned of a plan to widen 56 miles Highway 93 from two lanes to four through tribal lands, they protested the project and began to review their options. After years of stalemate between the tribes, the Montana Department of Transportation (MDT), and FHWA, federal funding hung in the balance while the highway's accident rate increased.

We worked with tribal, state, and federal governments to design a road that meets transportation requirements while sensitively responding to cultural and natural resources. In December 2000, all three governments approved a Memorandum of Agreement (MOA) that provided guidelines on how the new road would be built so that it is a "visitor" and is respectful of the land, the people, and the wildlife. These guidelines represented an unprecedented level of environmental protection in road design and a new alignment of state and tribal interests. Instead of cutting across the scenic landscape in a straight line, the 56-mile stretch of highway would be shaped to respect natural scenery and precious habitat and to give the driver a new look at the land. The approach identified in the MOA focused on ways the land can shape or influence the road; restoring habitat areas fragmented by the road; respecting and restoring the way of life in small towns along the road; and providing visitors a better understanding of the place. Design alternatives developed for the project addressed lane configuration and alignment, interpretive opportunities, landscape restoration, wildlife crossings, native revegetation, bike paths, visitor/cultural centers, signage, and assessment of conservation easement opportunities. A traffic operational analysis was conducted to insure that the final design would be the best in terms of safety and level of service.

These revolutionary design guidelines prompted the Federal Highway Administration and the Montana Department of Transportation (MDT) to call the US 93 project "exemplary" and tout it as a model project for Context Sensitive Design. Nonetheless, during the final design phase, design engineers repeatedly wanted to resort to using standard cookie-cutter solutions instead of site-specific design solutions outlined in the MOA. To get beyond the rhetoric of standards, the U.S. 93 design team had to learn to work within an engineering framework, find ways to modify this

framework, and develop a process by which we could incorporate innovative design solutions. Many times we were successful; sometimes we were not.

After the MOA was completed, MDT awarded contracts in 2002 for the development of construction drawings to eight engineering firms, each responsible for designing a specific segment of the corridor. These construction documents are on a fast-track schedule for completion by this year's end, and construction of 42 miles of highway is scheduled for early 2004. As members of the design management team, which also included an engineering firm as the prime, an environmental firm, and a geotechnical firm, we developed detailed design concepts that were handed over to the eight engineering firms for refinement, and we then reviewed the final designs and drawings. MDT required that each engineering firm have a landscape architect as part of their team. Among the site-specific design issues that were addressed in detail in the US 93 project were roadway alignment and design, contouring and grading, planting and revegetation, wildlife crossings, stormwater treatment, structures and surface treatments, signage, interpretive overlooks, community streetscapes, pedestrian and bike trails, wetland mitigation, and borrow site reclamation. But did the final designs live up to the promises of the MOA? Did CSD at the planning level result in CSD on the ground? After all, MT Governor Judy Marx called the project "the most environmentally sensitive highway ever developed" for the state. Will it live up such a lofty claim when constructed?

Nevada Scenic Corridors

In a presentation at the ASLA conference a few years ago, David Fasser, a landscape architect with the New York Department of Transportation, said "Landscape Architects do a good job at identifying opportunities for flexibility within existing standards. We don't need new standards, we just need to be very effective at using the standards we have." But landscape architects from five design firms are attempting to do just that in Nevada. Their goal is to develop landscape and aesthetic guidelines for all the major transportation corridors in the state, and these guidelines will become the standards by which design and planning decisions are made throughout the state. Will this approach be the the model for implementing CSD?