



Opposite – Residents of Radnor Township, Pennsylvania were concerned that an Interstate highway and interchange planned to go through the center of their town, would adversely affect the character of the community, and depress housing values. Rather than accept this premise, they formed a partnership with PennDot, township officials, and private sponsors to enhance and beautify the interchange area.

“Artwork reflecting elements of the Radnor town seal on overpasses, combined with stone sculptures, as well as a passive park and landscaped median areas, calms traffic and imparts a “sense of place” when entering our community. The common thread of this collaborative effort was to evoke emotion. To our great satisfaction, residential values have risen, and Radnor Township is all the better for having access to Interstate 476.”

— *Wm. H. (Mac) McCoy II*,  
Director, Radnor Community  
Enhancement Trust.

Above – Art finds a home in a rebuilt intersection in Mount Rainier, Maryland.

# Transportation: Enhancing Our Communities and the Environment

## Did you know?

Transportation projects are breathing new life into communities and offering new ways to protect and enhance the environment using principles of context-sensitive design.

The practice of highway design and construction provides an opportunity not only for mobility and safety improvements, but also for community and environmental enhancements. By using context-sensitive design principles, road projects are providing opportunities to address community concerns, and enabling environmental and community preservation benefits that otherwise would have been unattainable.

Considered one of the most important concepts to emerge in highway project planning, design, and construction in recent years, the new practice of context-sensitive design recognizes that a highway or road itself—by the way it is integrated within the community—can have far-reaching impacts beyond its transportation function.<sup>14</sup>

Context-sensitive design gathers input from technical professionals, the local community, interest groups, landowners, road users, and the general public—essentially anyone who will use the road—and incorporates those values into a transportation solution.

Using this approach, transportation officials are finding new ways to help communities address the issues that concern them—ranging from roadway safety, mobility, and historic and natural resource preservation, to aesthetics and environmental enhancements.

The concept is spreading across the nation, as the five pilot states that helped pioneer the practice—Connecticut, Kentucky, Maryland, Minnesota, and Utah—are working with other states and federal officials to spread the word by sharing their success stories and practices and through hands-on training.

The landmark publication, *Flexibility in Highway Design*, illustrates how project teams can develop roadway designs that consider aesthetic, historic, and scenic values, along with safety and mobility. Published in 1997 by the Federal Highway Administration in cooperation with the American Association of State Highway and Transportation Officials and a variety of public interest groups, this guide helped to launch context-sensitive design into the mainstream of transportation.<sup>15</sup>



Photos courtesy of Gannett Fleming, and McCormick Taylor and Associates

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Above – The Danville-Riverside Bridge project in Pennsylvania was a model for context-sensitive design, addressing community concerns about the impacts of a modern-looking bridge on Danville’s historic district.

### **The Award-Winning Danville-Riverside Bridge**

A winner of the American Road and Transportation Builders’ Globe Awards for Environmental Excellence, the Danville-Riverside Bridge project in Pennsylvania illustrates how principles of context-sensitive design linked two towns while preserving and enhancing the area’s historic character.

The \$12-million, 1,440-foot Danville-Riverside Bridge, and an associated 325-foot underpass carry State Route 54 over the north branch of the Susquehanna River, connecting the communities of Danville and Riverside, Pennsylvania. While the need to replace the 96-year-old bridge was clear for many years, the key to a successful project was the creation of a plan that addressed community concerns about the impacts of a modern-looking bridge on Danville’s historic district.

The old seven-span steel truss over the river was replaced with a seven-span continuous steel girder bridge. Aesthetic treatments included cut stone architectural surface treatments placed at all six new bridge piers and abutments, decorative masonry lighting on the structure, and gateway pylons of brick and mortar at the touchdown points for the new bridge—all of which helped replicate the design of the nearby historic buildings.<sup>16</sup> The result—a revitalized community with its historic character maintained and enhanced—and an enhanced sense of local pride.

### **Thinking Beyond the Pavement in Maryland: The Roundabout Way**

Maryland was considered the pioneer in context-sensitive design and helped to launch the effort with a 1998 workshop dubbed “Thinking Beyond the Pavement.”

The Towson Roundabout project, in a suburb of Baltimore, Maryland, is considered a model effort in context-sensitive design.

The Maryland State Highway Administration invested \$4.25 million to build the roundabout at a complex interchange where five roads meet at center of the



historic county seat. In addition to a considerable reduction in accident numbers and severity, the project has been an economic lifesaver for the community, breathing new life into the area.

While some were skeptical of this untested solution, with community involvement and incorporation of major streetscape and landscaping improvements into the design, the roundabout project evolved into a major enhancement effort for the downtown area.<sup>17</sup>

The Towson project has been a great success. Mobility and safety improvements coupled with improving the appearance of the downtown area have provided an economic boost to local businesses. For example, a large retail building that was vacant prior to construction has since been acquired and opened by a major retailer.

A key to this success was an effective public involvement program tailored to reach the community in ways that fit their needs. As a result, the roundabout itself and the improvements to the streets are a source of local pride.

### **Community Helps Pave the Way to Improvement in Mount Rainier, Maryland**

Community involvement proved to be the key to improving Mount Rainier, Maryland, a transit-oriented community near Washington, D.C. When residents felt the state road divided their community, intensive community involvement helped devise a solution that produced a fundamental change in the way pedestrians, cars, and transit were to be handled and led to a striking change in the appearance of the roadway and its surroundings.

Above – The Maryland State Highway Administration built the Towson roundabout at a complex interchange where five roads meet at the center of the historic county seat. In addition to a significant reduction in accidents, the project has been an economic lifesaver for the community.

“The Mount Rainier project showed that communities are often less afraid of change than the designers.”

— *Maryland State Highway Administration, When Main Street Is a State Highway*





### Paris Pike: Preserving the Beauty of Kentucky's Bluegrass Region

Running through the heart of Kentucky's Bluegrass Region, the Paris-Lexington Road (US 68), commonly called Paris Pike, is nationally-renowned for its scenic beauty and historic farms. The road is wholly contained within a 10,000-acre historic district eligible for listing on the National Register of Historic Places. Lined with historic rock fences, spring-houses, large trees, and picturesque horse farms, the route is a popular part of any tour of the Bluegrass landscape. But increased traffic volume and safety concerns drove the need to rebuild the existing two-lane roadway.

In response to public concerns, a different approach to highway design was initiated that sought to determine how best to make the road fit the landscape. This approach was based upon the premise that the natural landscape patterns of the area could serve as a framework for addressing cultural, historic, scenic, natural, archaeological, and recreational resources.

The design team worked with residents in designing the road, communicating directly with individual property owners, displaying three-dimensional computer models of roadway designs, and using electronic polling to gauge public opinion.

The result: a road that is attractive and safe to drive. Paris Pike now moves with and around the hilly terrain, while avoiding sensitive areas and resources. Large trees and rock fences are preserved relatively close to the roads, and grass shoulders, timber guardrails, and stone veneer on headwalls and bridges further blend the highway into the surrounding landscape.

### Nevada's Plan for Aesthetics and Landscaping

A master plan recently adopted in Nevada illustrates how transportation is benefiting citizens and the environment through landscaping and aesthetics. *Pattern and Palette of Place: A Landscape and Aesthetics Master Plan for the Nevada State Highway System*, ensures that the state's roads link citizens with their natural and cultural environment through artwork,

Above – Paris Pike, in Kentucky's Bluegrass Region, was rebuilt using the natural landscape patterns of the area as a framework for addressing historic, scenic, and natural resources of the area. Transportation officials hired stone-masons from Scotland to teach local artisans how to build and replace dry-laid stone walls along the scenic roadway, which is contained within a 10,000-acre historic district.

“Highways are among the most visible artifacts of our civilization. Our highways give form to our communities and impact us every day of our lives. They connect us to each other and to the place we have chosen to call home. They welcome our guests upon arrival and send them on their way when they leave.”

— Kenny Guinn,  
Governor of Nevada<sup>18</sup>

“We all have significant places in our lives that we feel connected to, and for the Salish, Kootenai, and Pend d’Oreille people, that place is the reservation. We had to find out what was important to them and then design a highway around that.”

— James Sipes,  
*Jones & Jones Architects  
and Landscape  
Architects*

landscaping, street design, signage, and other treatments along the roadsides—simultaneously improving quality of life for its citizens and the public image of the state.

### **US 93 from Evaro to Polson: A Hallmark of Context-Sensitive Design in Montana**

Highway 93 extends north of Missoula, Montana, connecting the state’s two fastest growing areas, and crossing the Flathead Indian Reservation of the Confederated Salish and Kootenai Tribes. The need for safety improvements on the highway resulted in an historic and unique solution in which federal, state, and tribal governments reached a shared vision of the road’s interaction with the environment and tribal culture—an agreement heralded as one of the nation’s showcases in context-sensitive design.

In a collaborative process, the Montana Department of Transportation, Federal Highway Administration, and the tribes agreed that the new highway would be designed with the idea that the road is a visitor and should respond to and be respectful of the land and Spirit of Place.<sup>19</sup>

Rather than following the initial plan to rebuild the Evaro-to-Polson leg into to a four-lane undivided highway, the highway’s new design incorporates the spiritual and cultural values of the local tribes by blending the highway design into the features of the land, limiting access to the roadway, incorporating landscaping and interpretive signage, and designing innovative “critter crossings” to allow safe movement of fish and wildlife. All of this was accomplished while significantly improving the route’s safety and capacity.

The tribes say their history is not written in books, but is etched into the landscape. Among the ancient rock outcrops, mountain formations, crevices, forests, and other natural features lay landmarks and sacred sites that have been embedded into the minds of tribal members through generations of personal experience and coyote stories. The coyote represents the link between tribal members and the natural and spiritual worlds through which the highway will be constructed. All of this is contained in what the tribes call the Spirit of Place, a continuum of everything on the reservation that is seen and unseen, touched, felt, and traveled through.

After an extensive study of the land and tribal history, the architecture firm analyzed the landscape and came up with ideas for how the road should respond to the land. For example, in one area, the road design favors keeping the pines and rolling character of the sandy hills close to the highway to create the perception that the road is integrated with the land rather than slicing through it.

In another landscape area, the design calls for maintaining the integrity of lakes and ponds, and restoring those that were divided by the existing highway. It also calls for healing the scars from road cuts by treating with a substance that gives the rock a natural weathered look.

To enhance and preserve tribal culture, place-name, and interpretive signs conveying important cultural and natural landscape information will



be provided in three languages: Kootenai, Salish, and English. The borders of the signs will illustrate traditional beadwork patterns.

A logo depicting the coyote, legendary hero of the Salish, Kootenai, and Pend d'Oreille people, will be featured on interpretive signs. Native materials, such as quarried stone and rough-sawn lumber, will be used whenever possible. Only indigenous plants and soils will be used to re-vegetate disturbed areas.

### *Protecting Wildlife*

US 93's new highway design features 42 fish and wildlife-crossing structures that facilitate the movement of fish and wildlife through the corridor. Among the 42 structures are eight open-span bridges, 33 corrugated metal-pipe or concrete-box culverts of various sizes, and one 200-foot-wide wildlife overcrossing—a structure that will allow bears and other large animals to cross over the highway without coming into contact with traffic. This structure will help link grizzly bear populations of the Mission Range and Bob Marshall Wilderness Area to the east, with the Bitterroot Grizzly Bear Recovery Zone to the west. Wildlife fences and cattle guards will funnel wildlife toward and through the crossing structures.<sup>20</sup>

Extensive wildlife crossing structures incorporated into context-sensitive designs, will enable animals like this grizzly bear to move more freely over or beneath US 93 in Montana.

“When planned, designed, and built properly, highways can be the enabler of environmental, conservation, and community preservation benefits that otherwise would have been unattainable.”

— Hal Kassoff,  
Parsons Brinckerhoff



## Principles of Context-Sensitive Design

### Thinking Beyond the Pavement Qualities and Characteristics

The following principles were presented at the 1998 workshop, “Thinking Beyond the Pavement: A National Workshop on Integrating Highway Development with Communities and the Environment,” held in Maryland.

#### Qualities of Excellence in Transportation Design

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

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

Source: U.S. Department of Transportation, Federal Highway Administration’s Context-Sensitive Design/Thinking Beyond the Pavement web site, [www.fhwa.dot.gov/csd/qualities.htm](http://www.fhwa.dot.gov/csd/qualities.htm)