AASHTO Center for Environmental Excellence
Best Practices in Context Sensitive Solutions

2006 Competition
Cover photos

Left to right:

1. Kentucky’s Pine Mountain: The new road design helps to soften the road’s dangerous curves and widens shoulders to provide added safety.

2. Kentucky: Pine Mountain is home to some 93 species of rare plants and animals.

3 Massachusetts: CSS features can be seen throughout Massachusetts, including this stretch of the Blackstone Bikeway in south-central area of the state. (Credit: Vanasse Hangen Brustlin, Inc.)

4. Montana: A new drainage system, bulb-out sidewalks, and a bench/planter are among the new CSS features on Absarokee’s main street.

5. Iowa: A segment of the new Keosauqua bridge pier lays the framework for construction alongside the existing bridge and echoes the previous design.

This page, top to bottom:

1. Texas: The Medina County Safety Rest Area was designed to fit seamlessly into the natural surroundings and provide an oasis for weary travelers.

2. Ohio: Options were presented for a typical rail station on the Eastern Corridor’s Riverfront Rail. (Image courtesy of Meisner & Associates.)

3. Ohio: The Eastern Corridor plan found the best solutions to protect and enhance the natural environment, including Clear Creek, pictured here. (Photo Credit: Meisner & Associates.)

4. Kentucky: The Pine Mountain project included features to minimize impacts to rare wildlife in the area.

5. Texas: Interpretive displays of cotton farming, which has been the livelihood of local communities, provide visitors to the Hale County Safety Rest Areas a look back in time.

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This report is sponsored by the American Association of State Highway and Transportation Officials’ (AASHTO) Center for Environmental Excellence (Center). The Center was developed in cooperation with the Federal Highway Administration to promote environmental stewardship and to encourage innovative ways to streamline the transportation delivery process. The Center is designed to serve as a resource for transportation professionals seeking technical assistance, training, information exchange, partnership-building opportunities, and quick and easy access to environmental tools.

The work of the Center is directed by AASHTO staff and is overseen by an Advisory Board comprised of the following members:

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INTRODUCTION

This report documents the AASHTO Center for Environmental Excellence’s second national competition to recognize best practices in context sensitive solutions (CSS).

CSS is a collaborative approach that brings together a broad spectrum of stakeholders to develop a transportation solution that fits within its physical setting, preserves natural and cultural resources, and meets the mobility and safety needs of the community.

Because CSS principles are key to advancing environmental streamlining and stewardship goals of state transportation agencies, the 2006 Context Sensitive Solutions Competition was launched to showcase additional examples of the many exemplary projects, programs, and initiatives underway to achieve CSS.

In March 2006, AASHTO sent a solicitation to all state Departments of Transportation seeking examples of efforts underway to integrate CSS principles with the planning and delivery of transportation projects, programs, and services. We received 62 applications from 31 states across the country.

This year, our expert panel of judges selected winners in each of four categories: best small urban or rural project, best large urban project, best program, and best organizational integration. The panel also selected additional initiatives they considered worthy of recognition as notable practices.

This year’s applicants demonstrate a true maturing of the CSS mindset within state transportation agencies. The winning projects demonstrate how DOTs are going the extra mile to meet the goals of communities in efforts ranging from routine highway improvements to corridor and regional planning initiatives.

Communities are considering transportation improvements as they develop their goals and visions for the future. Working with transportation agencies, communities are able to address issues beyond the pavement, such as needed water infrastructure improvements, aesthetic treatments, and safety features that will improve their quality of life. Citizens are able to plan for a future in which transportation facilities will help their communities grow and prosper in a sustainable manner.

As states have gained experience in implementing CSS, the approach has proven to be a key element helping to map out America’s transportation priorities. The exemplary practices documented in this report illustrate how every transportation project or program offers a unique opportunity to improve the environment in which we live—truly achieving context sensitive solutions.

John Horsley
Executive Director
American Association of State Highway and Transportation Officials
Context sensitive solutions (CSS) consider the total context within which a transportation improvement project will exist. CSS is a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility.

The AASHTO Center for Environmental Excellence’s Best Practices in Context Sensitive Solutions Competition showcases outstanding examples of the work being done throughout the country to integrate CSS principles with the planning and delivery of transportation projects, programs and services.

The award winners and notable practices demonstrate how transportation agencies and their partners, working with their communities, can succeed in meeting mobility needs while promoting community values and enhancing the social and environmental context in which transportation facilities co-exist.

The expert review panel carefully considered the applications and selected projects based on the degree to which CSS principles were successful.

Selection Process
The competition was open to all governmental entities—including state and local transportation agencies, transit agencies, metropolitan planning organizations, and resource agencies. The competition sought transportation projects, programs and organizational integration strategies that demonstrate best CSS principles to serve as best practices for the profession.

AASHTO received 62 applications from 31 states. Five winners and four notable practices were selected from across the United States.

Criteria
The review panel judged each application based on the following criteria:

• Addressing transportation needs using CSS principles and effectively using resources;
• Use of partnering, collaboration, and multi-disciplinary approaches;
• Incorporation of community values and improving community assets;
• Achieving compatibility with the natural and built environment; and
• Measuring effectiveness in meeting CSS goals.

Categories
Winners were selected in each of four categories:

Project – Small Urban or Rural Areas: Collaborative efforts to plan, design, construct, operate, and maintain projects in an urban area with a population under 250,000 inhabitants or rural areas. Examples include urban streetscapes and community livability features; scenic byways; national or state park corridors; aesthetic treatments and amenities on facilities; and exceptional outreach and inclusive collaborative decision-making processes during project planning, development, design, and construction.
Project – Large Urban Areas: Collaborative efforts to plan, design, construct, operate, and maintain a major project in an urban area with a population over 250,000 inhabitants that reflects CSS principles. Examples include reconstruction of major urban arterials, freeways or interstate highways; transportation improvements in support of community and/or business revitalization; aesthetic treatments and amenities on facilities; and exceptional outreach and inclusive collaborative decision-making processes during project planning, development, design, and construction.

Program Approaches: Organizational policies and programs that illustrate CSS principles throughout a program or function, i.e., applying to multiple projects. This category includes developing approaches that can apply to all projects of a certain type (for example, all bridges or all projects within a specific community or region). It can also apply to individual programs that are implemented to advance overall CSS integration (for example, agency-wide CSS training or comprehensive revisions to policies, procedures, or manuals).

Organizational Integration: A combination of project and program efforts implemented to make permanent changes in organization-wide skills, actions, or attitudes. The goal of the changes is to integrate CSS principles into all aspects of the daily management and operations of the agency. Examples include changing mission statements, strategic plans, policies and procedures; providing educational programs; establishing partnering relationships with transportation interest groups; using environmental quality assurance and control procedures; and using performance measures.

Achieving a Vision

The judging panel recognized several trends as DOTs across the nation continue to advance the principles of context sensitive solutions.

Transportation agencies are helping to achieve the goals of the communities they serve, in many cases working with the public and local businesses and agencies to help them develop a vision for the future. Transportation improvements are being considered in the context of a larger vision of how citizens want their communities to look—with an increasing focus on corridor and regional-level planning efforts.

More state DOTs are incorporating CSS elements into their manuals and procedures as a permanent way of doing business, developing tools and specific instructions for applying CSS on-the-ground.

Even on routine roadway improvements, agencies are going the extra mile to identify and address the needs of communities through efforts such as water infrastructure upgrades or improved access to amenities for persons with disabilities.

The panel also commended new approaches to incorporate transportation systems into the regional context, such as upgraded safety rest areas that promote unique features of each area while ensuring a safe driving experience for travelers. This type of effort sets the stage for an increased focus on incorporating CSS principles that look “beyond the pavement,” to projects that address transit, bicycle, and pedestrian access.
Winners

Best Project—Small Urban or Rural:
Montana’s Woodard Avenue – Absarokee Small-Town Makeover

Best Project—Large Urban:
Ohio Eastern Corridor

Best Program, Co-Winner:
Massachusetts Highway Department’s 2006 Project Development and Design Guide

Best Program, Co-Winner:
Texas DOT Safety Rest Area Program

Best Organizational Integration:
Washington State DOT—CSS Policies, Procedures, and Standards

Notable Practices:
U.S. 285, Foxton Road to Bailey—Colorado DOT

“Balanced Scorecard” Approach to CSS—Illinois DOT

The Bridge at Keosauqua—Iowa DOT

U.S. 119 over Pine Mountain—Kentucky Transportation Cabinet
When the small town of Absarokee, Montana faced the prospect of needed safety improvements along its Woodard Avenue main street, citizens never imagined how much their town would improve as a result of the solution offered by their state transportation agency.

Montana Department of Transportation’s Woodard Avenue project was heralded in the local media as a “Small Town Makeover,” and local officials said it “completely transformed the community,” addressing long-standing safety concerns, giving citizens better access to businesses, and improving water infrastructure. The project made the town a better place to visit and a better place to live.

In the true spirit of CSS, the Montana DOT reached out to the Absarokee community and found not only that its transportation infrastructure was in need of repair, but also that the streets did not have efficient gutters or water drainage system. They also found the drinking water system to be inefficient. In fact, the town’s aging water infrastructure contributed to a 40 percent loss of community drinking water.

To plan needed improvements in the absence of any city government, Montana DOT worked directly with the community members, the Absarokee Merchants Association, and the Stillwater County Commissioners Office. Montana DOT particularly encouraged the community’s input. Absarokee nominated five key community leaders as contacts for the project. The community leaders spoke on behalf of the community and were able to communicate to Montana DOT the wants and needs of many individuals.

Recognizing the serious need for water infrastructure improvements, Montana DOT found a way to incorporate these improvements into its roadway safety project. The agency replaced the town’s drinking water system as part of the transportation project, installed gutters along the roadway, and constructed a storm drain system underneath it—saving the rural community from shouldering the cost of these infra-

BEST PROJECT—SMALL URBAN OR RURAL:

Montana’s Woodard Avenue—Absarokee Small-Town Makeover

Absarokee’s main street makeover included improved parking facilities, accessible sidewalks, period lighting, a new drainage system and many aesthetic improvements.

The Woodard Avenue project included many extra features the community needed, such as accessible sidewalks and ramps giving disabled citizens access to local businesses.

A new water drainage system installed along with the roadway upgrades helped address flooding that had plagued the town.
structure improvements. The project also included a settlement pond to ensure proper drainage and relieve the flooding that plagued the north side of town.

**Safety Improvements**

Safety issues were among the primary concerns to be addressed by the project. The primary safety concern of the community members was limited visibility at the intersection of Woodard Avenue and Stillwater Road. To address this concern, Montana DOT added parking restrictions at the intersection and incorporated the town’s first traffic light to regulate traffic and prevent accidents.

The agency also included upgrades along sidewalks and storefronts to give persons with disabilities access to local businesses. The project included pedestrian-friendly sidewalks with bulb-outs and ramps, allowing pedestrians to see oncoming traffic and shortening the walking distance between intersections.

**The Town Expresses Its Sense of Style**

Absarokee is a small rural community with small-town values and a sense of civic pride, but it lacked attractive features that would increase tourism.

Based on the community’s input, the project incorporated numerous aesthetic features that have added a sense of style to Absarokee, emphasizing its best features and bringing out its small-town character.

Woodard Avenue is now adorned with decorative period-style lighting, tree grates fashioned by local blacksmiths, curb bulbs, patterned concrete sidewalks at each intersection, and planters that incorporate benches. Seasonal decorations can be mounted in the flagpole holders or the banner arms of the period-style lights.

The entire community participated in implementing the improvements. At the local senior center, seniors were given the chance to pick out the color of concrete they would like to see on their sidewalks. Community children also participated, helping to plant trees and other foliage along the new roadway.

“I really thought this was going to be “plain Jane” but we asked for period lights, the planters, the benches, and the trees and the state agreed to everything,” Rex Anderson, a community leader, said in an article published by the *Billings Gazette*.

**Minimize Impacts, Maximize Benefits**

Montana DOT worked to minimize impacts to the community during construction of the project through careful construction sequencing, coordination by the contractors, and providing construction schedules to the public at monthly meetings.

The project avoided impacts to the town’s historic buildings and incorporated new period-style lighting.
Citizens were proud that the town was able to retain its historic character.

According to Montana DOT officials, the town now has a clean, modernized look that still holds the small-town values that are so important to the community.

As the community started to see the results of the project, compliments starting rolling in. “It was a lot more elaborate than I imagined,” John Simmons, a local blacksmith told the Gazette. “I don’t know what we did so good to deserve it.”

The final project was completed in April 2005.

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Many people say that you would have had to see the town of Absarokee before to really understand the extent of what this project has done for the small town. The community has thanked Montana DOT for the enhancement both on top of the surface as well as below. According to Absarokee business owners, as soon as the project was over, businesses flooded, but this time it was with people rather than water.

— *Montana Department of Transportation*

**View from the CSS Competition Panel**

Panelists said the Woodard Avenue project represents an “absolutely remarkable” example of a transportation agency going the extra mile to address the needs of a small community on an otherwise routine transportation improvement project. The transportation agency offered a solution for the town’s neglected water infrastructure that could be implemented along with the transportation improvements. This is a “small town example of everyone working together” in which Montana DOT showed the lessons that can be learned by looking at a project “through the community’s eyes.”

Local businesses were grateful for the new ADA-accessible ramps added as part of the project.

Citizens are proud of the new decorative bench/flower planters along the roadway.

Improved parking along the main street was one of the many benefits citizens gained from the project. (All photos courtesy of Montana DOT.)
Like many urban regions, the eastern Cincinnati metropolitan area lacked transportation choices, and major transportation improvements have not been made for more than 40 years. As a result, the region experiences significant congestion, high crash rates, and higher vehicle emissions, compromising the livability and economic vitality of the region.

In November 2005, a long-range transportation plan was adopted for the Eastern Corridor to integrate multi-modal solutions, land use planning, and environmental stewardship to address the growing needs of the 200-square-mile corridor.

Through innovative and collaborative partnerships, 19 political jurisdictions agreed to pursue a balanced transportation plan that encompasses highway, bus, rail transit, bike, pedestrian and local network projects. These decisions were made using economic and transportation analyses that estimate the plan will increase transit use by five percent, reduce vehicle miles traveled by 50 million, and increase the gross regional product by $23 billion.

Project development costs for the Eastern Corridor plan are being shared jointly by six funding partners: the Ohio Department of Transportation, Hamilton County Ohio, Clermont County Ohio, the City of Cincinnati, the Southern Ohio Regional Transit Authority (SORTA), and the Ohio–Kentucky–Indiana Regional Council of Governments.

**Land Use Visioning Employed**

An important element of the plan was the land-use vision planning process, which involved citizens, elected officials, and other stakeholders and was managed by the Hamilton County Regional Planning Commission. Goal-setting workshops, public input, land capability analyses, and economic market forecasting were among the tools used to craft the vision plan.

To develop the vision plan, a core 60-member stakeholder group reviewed comprehensive information on local community plans, ecological features and natural resources, landscape, historical features, transportation, utilities and other infrastructure, demographics, housing, and employment. Stakeholders were provided with guidance information on smart growth principles, urban design, community planning, resource conservation, and municipal

The Eastern Corridor includes communities like Fairfax (left) and Newton (right) in the Little Miami River Valley.

Renderings such as this town center help communities visualize changes along the corridor.
fiscal planning, enabling them to become “citizen planners.”

As a result, the Eastern Corridor Land Use Vision Plan established, for the first time, a mutually agreeable and workable plan to balance economic and community development issues with the need to preserve natural resources.

The Land Use Vision Plan includes a commitment to a “green infrastructure” program that focuses on sensitive features, needs, and opportunities along the Little Miami River valley, which bisects the corridor.

The Little Miami River is a designated recreational component of the National Wild and Scenic River System. A combination of access enhancements, including bike, pedestrian, and transit, as well as river corridor preservation mechanisms will further the management goals of the Little Miami River in this urbanized setting, while making the river more valuable and accessible to nearby communities.

The Land Use Vision Plan is now being incorporated into land use, zoning, and development decisions in every jurisdiction in the corridor.

**Intermodal Stations Link Communities**

The corridor plan provides opportunities for safe and efficient travel through intermodal transfer stations, locating transit hubs in key density areas, using parallel corridors for multiple modes (such as highway, rail and bike path) and using existing corridors where possible. These investments also minimize the impact to existing natural resources and land use in the area.

Under the plan, effective roadway links will improve the efficiency of bus routes and deliver transit riders to park-and-ride areas. When coupled with bike-friendly buses and rail vehicles, bikeways can extend the non-car “reach” of transit stops, hubs, and stations into local neighborhoods and destinations. The plan indicates that rail and other express transit may extend the capacity “life” of the roadway system in this Corridor, especially during peak demand periods. The plan calls for limited-capacity highway corridors to address vehicular and freight movement needs, and provide “space” for new transit ways.

**Importance of Stakeholder Involvement**

Due to the large project study area (approximately 70 square miles), many stakeholders were involved in the planning and development process. Communication tools included:

These renderings show different options for one of the Eastern Corridor multi-modal projects.

Multi-modal features such as integrated bikeways are important to communities in the Eastern Corridor.
View from the CSS Competition Panel

Panelists were impressed with the Eastern Corridor’s bottoms-up, integrated approach to regional planning. Ohio DOT partnered with other agencies to create a “living document” that will set the direction for land-use and transportation investments based on a comprehensive land use vision established for the region.

The Eastern Corridor has become the vehicle for unifying communities in making transportation and land-use decisions that benefit the region. Safer and more efficient travel connections will be established which are all configured to meet community expectations and land use and development goals.

– Ohio Department of Transportation

Contact

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The project currently is in the preliminary engineering and Environmental Impact Statement phase. Transportation officials are analyzing the best alternatives and designs to ensure that projects are integrated to enhance the context of the corridor.

Public workshops and open houses;
• A scientific telephone survey of stakeholders;
• A web site for comments and input;
• 30 stakeholder committee meetings;
• A vision group that was subdivided by geographical region; and
• Approximately 400 small group meetings with local jurisdictions and interest groups.

The Eastern Corridor successfully connected land use planning with multi-modal, multi-jurisdictional transportation planning by:
• Grounding the process in economic realities;
• Building consensus among 19 jurisdictions about shared futures;
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In 2003, the Executive Office of Transportation and Massachusetts Highway Department launched a three-year initiative to make sweeping changes to its project development and design process and incorporate context sensitive solutions into its day-to-day decision-making process.

Spurred by Governor Mitt Romney’s new Communities First policy, the agency created an outside Task Force—largely made up of interest groups and organizations that had criticized the agency’s design decisions—to assist in the complete overhaul of the 1997 Massachusetts Highway Design Manual.

After two-and-a-half years of work with the Design Manual Task Force, MassHighway released the Project Development and Design Guide in January 2006. The guidebook has significantly more flexible design standards, is strongly multi-modal, explicitly incorporates community setting as a design factor, dramatically re-shapes the project development process, and supports early planning and coordination with all stakeholders to create safe, attractive roads.

The new Design Guide, which formally replaces the agency’s 1997 design manual, is designed to make MassHighway projects more compatible with the state’s rich historic, environmental, community and cultural resources.

Broad Stakeholder Input

By soliciting and responding to input from a broad range of stakeholders, MassHighway said it was able to forge a statewide consensus on a number of challenging issues, such as flexibility in lane and shoulder widths; accommodation of bicyclist and pedestrians in culturally or envi-

CSS features can be seen throughout Massachusetts, including this stretch of the Blackstone Bikeway in the south-central area of the state.

A roundabout in downtown Amesbury, MA, helps maintain safety while adding to the local aesthetics of the area.
environmentally sensitive areas; the classification of community settings; design treatments in historic areas; traffic calming versus traffic throughput; and transportation measures of effectiveness.

MassHighway even followed a CSS approach in the review of its guide, providing an opportunity for public review of the document in communities around the state.

Some key features of the new Design Guide include:

- **Flexibility**—The guide has significantly more flexibility in design requirements, particularly for lane and shoulder widths. For example, the minimum width for a two-lane arterial (before a design exception is required) was reduced from forty feet in the former Design Manual to thirty feet in the new Design Guide.

- **Community Context**—Reflecting MassHighway’s stewardship responsibilities in a state full of traditional main streets, New England stone walls, historic districts and natural resources, the guidebook places much more emphasis on community context in roadway design.

- **Multi-modal Accommodation**—The Design Guide contains extensive design guidance to encourage and support safe travel for pedestrians, bicyclists, transit riders and other modes.

- **Transparent and Clear Project Development Guidelines**—The Design Guide provides direct guidance on advancing a project from planning to construction. It also describes new MassHighway procedures to streamline the project delivery process. Early coordination and communication among all interested parties is a strong theme of the Project Development chapter.

### Considering the Community Setting

The agency noted the importance of the new guide’s chapter on basic design controls, which incorporates community setting as an explicit factor to be considered in design. While the previous design manual only allowed for consideration of “urban” or “rural” context, the new document expands those into nine separate categories ranging from “rural natural” to “suburban village” to “urban central business district.”

MassHighway officials also stress that the entire Design Guide will promote environmental benefits, with chapters devoted to wildlife accommodation, drainage and erosion control, shared paths and greenways, landscaping and aesthetics, and traffic calming.

### Early Coordination Needed on Projects

The project development chapter of the Design Guide reflects a fundamentally new approach by MassHighway to project development, according to the agency. This approach requires early coordination with local officials, residents, state and local environmental agencies, historic and conservation commissions, and other stakeholders to ensure that the whole corridor, not
just the paved roadway, is taken into account during all project phases. This chapter comprehensively describes the various and early communication and coordination steps that must be taken prior to submitting a 25 percent design.

The purpose of this process is to identify issues, concerns, problems and opportunities early in the process so that the design can reflect a proper balance among environmental protection, community needs, and state transportation goals. Extensive environmental coordination requirements also minimize the risk of problems cropping up in the latter stages of design, which can create project delays and additional costs.

Through the spring of 2006, MassHighway trained hundreds of its employees in CSS principles and the components of the new Design Guide, and sponsored additional training for local officials and design consultants.

The Design Guidebook’s formal adoption as the design manual for the Massachusetts Highway Department ensures that it will provide official, long-term guidance on the safe and context sensitive design of roadways under state and local jurisdiction.

– Massachusetts Highway Department

**View from the CSS Competition Panel**

Panelists felt Massachusetts Highway Department’s design guide represents a genuine change in approach and mindset to incorporate CSS on all projects. Such tools are essential to ensuring that CSS will have a lasting effect. “If I were to take one document back to my state, this is what I’d take,” one panelist noted. This is “something DOTs can really use.”

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This rendering shows the proposed right-of-way reallocation to accommodate multiple transportation modes on King Street in Northampton, MA.

CSS features in Arlington, MA, include streetscape enhancements, multi-modal accommodations, and use of on-street parking to support local business. (All photos courtesy of Vanasse Hangen Brustlin, Inc.)

Best Practices in Context Sensitive Solutions
Transportation officials in Texas have launched a unique effort to ensure driver safety while promoting tourism and civic pride throughout the state. The Texas Department of Transportation’s (TxDOT) Safety Rest Area Program is creating the ultimate context sensitive solution for rest stops along the state’s highways.

Going far beyond the traditional restrooms and parking facilities, TxDOT’s Safety Rest Areas boast amenities more like a park or museum. Each rest area is designed to fit into its region with attractive structures, regional themes, exhibits, and information, educating travelers as well as providing a sense of pride to communities.

According to TxDOT, its new generation of safety rest area facilities were designed to blend with the natural beauty of the diverse Texas landscape. In addition to incorporating regional character, wherever possible the facilities themselves are located at scenic or historical sites. These key locations, along with informative exhibits, are a part of the state’s goal of encouraging travelers to take breaks during long road trips.

At each facility, TxDOT worked to preserve community heritage and regional flavor through architectural aesthetics, protection of natural resources, and promotion of environmental sensitivities such as rainwater harvesting. Exhibits at each rest area provide safe travel tips and maps, and they interpret the history, culture, and the natural environment of the surrounding areas. As an added amenity, the facilities offer free wireless Internet access.

**Regional Themes Emphasized**

At the new Donley County Safety Rest Area on U.S. 287, for example, the railroad design theme reflects nearby Hedley’s historic role as a “railroad hamlet” where cattle were loaded onto rail cars for transportation to distant markets. Interpretive displays in the rest area lobby help interpret Donley County’s local heritage.
display kiosks provide visitors with a history lesson on the region, while the wireless Internet access lets travelers check their e-mail or browse the state’s “Tex Treks” information website to view maps, events, and attractions. And playground facilities offer a needed respite to traveling children and their parents.

The new Hardeman County facility offers similar amenities and is designed to reflect the farming and ranching culture of northern Texas, while further south the Medina County facility incorporates water conservation features and emphasizes preservation of the Cypress groves along nearby streams.

**Location, Functionality Are Key**

Funded primarily through the federal Transportation Enhancements program, 21 new context sensitive facilities have been completed so far under the program with plans for 56 more.

Each facility varies in size and capacity based on average daily traffic data and future projections. Facilities were conveniently placed at approximately an hour’s interval of highway traveling distance from each other to provide drivers needed breaks from continuous driving.

Separation of passenger car parking from truck parking areas at the new facilities reduces traffic accidents and preserves views of the surrounding natural landscapes. Facilities located in tornado-prone and coastal areas incorporate tornado/hurricane shelters and emergency power connections that can serve as safe shelters for travelers or as emergency command centers for government officials.

**Collaborative Design**

TxDOT’s in-house team of architects and designers developed the concepts for the rest areas in consultation with TxDOT district offices and local communities. Public input helped designers understand the history, culture, architecture, natural features, and resources of the local areas.

Other agencies also partnered with TxDOT. The state Energy Conservation Office helped provide wind turbine generators at two safety rest areas located in windy portions of the state. Texas Parks and Wildlife provided ideas and graphics for exhibits on natural features and habitats. And reviews by the Texas Historical Commission have helped project planners develop site plans that are relevant to the era that they represent.

In addition, TxDOT collaborated with local mayors, chambers of commerce, county officials, sheriffs, and other community members. As projects were planned and designed, TxDOT used a variety of tools to communicate with the public, including display boards and presentations with photos, architectural renderings, descriptive narratives, computer-aided-drafting (CAD) three-dimensional modeling and virtual tours.

The Medina County Safety Rest Area is built in the local Alsatian style.

State-of-the-art playground facilities provide a needed respite for traveling parents and their restless children.
The design team also has developed an extensive web site that illustrates the program (http://www.dot.state.tx.us/mnt/sra/default.htm).

Connecting with Communities

When each new rest area is launched, it is introduced as the “front door” for the communities. By all accounts, the facilities have been a big hit, not only with visitors, but also with local residents.

Promotion of each region’s unique features has helped invoke a sense of civic pride for those who live nearby.

The facilities often are seen as more of a community center, where local residents have hosted weddings, family reunions, and other functions. One facility recently hosted an Easter egg hunt, while another hosted gatherings of the Route 66 Antique Car Club. Children from nearby communities often can be seen enjoying the playground equipment at the new facilities.

The facilities also help to promote environment-friendly values, such as preserving and protecting native trees and habitats. Information on the local flora and fauna depicted in rest area displays helps to educate travelers as well as local residents.

TxDOT’s approach also has been a source of inspiration to other states. In October 2004, TxDOT hosted the 3rd Bi-Annual National Safety Rest Area Conference. This event, sponsored by AASHTO’s Subcommittee on Maintenance, Roadside and Environment Task Force, allowed transportation officials from many states to learn issues regarding rest area programs, including context sensitive design, green building solutions, and crime prevention through environmental design.

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TxDOT’s context sensitive design approach gives each rest area facility a unique identity with safe, comfortable, convenient, and informative features that are inviting to travelers. The network of facilities encourages drivers to make regular stops and to rest during extended road trips, and local citizens take pride in these state facilities that represent their towns.

—Texas Department of Transportation

View from the CSS Competition Panel

TxDOT avoided the “cookie cutter” approach to rest areas and developed impressive designs that fit into and promote the context of each region. For example, Donley County’s approach, which used children to help research the history of the area and develop a railroad hamlet theme, helped to develop a safety facility that is considered a destination as well as a source of civic pride. This is an excellent example of CSS that goes beyond traditional highway applications.
While many states have implemented elements of context sensitive solutions in projects and processes, fewer transportation agencies have achieved the goal of incorporating these principles through all aspects of their operations. In Washington State, officials have worked hard to reach their goal of ensuring that all agency projects and procedures balance transportation needs, community values, and environmental goals.

WSDOT has coordinated efforts to develop context sensitive solutions at all levels, from executives to technical staff. The agency encourages its employees to look beyond basic transportation issues and develop projects that are integrated within their unique contexts.

Balancing competing needs in design and construction of projects can be a difficult task. But numerous examples from communities throughout Washington demonstrate that it can be done. And CSS has provided the tools for success.

Making the Case for Change

In 2000, Washington’s Transportation Commission, a seven-member transportation accountability board appointed by Washington’s governor, adopted a Livable Communities Policy. This 50-year vision statement first identified community-based design and collaborative decision making as essential to maintain and improve the livability of communities in this state. The Livable Communities Policy led to revision and development of a number of policies, procedures, and standards to integrate CSS.

In 2003, WSDOT’s Executive Order on Context Sensitive Solutions provided the foundation and the case for change for the agency. The Executive Order recognized that consensus generated through development of context sensitive solutions is highly advantageous to all parties and may help avoid delays and other costly obstacles to project implementation.

Today, WSDOT’s CSS approach can be seen throughout all levels of the agency’s operations.
agency—from planning through construction and maintenance. These priorities are implemented through numerous policies, procedures, manuals, partnering agreements, training programs, liaison positions with resource agencies, and public involvement techniques.

A Long List of Key CSS Tools

Some of the key CSS tools used by the state DOT include the following:

- **Interdisciplinary Group**—Efforts began in June 2001 to create an Interdisciplinary Group (IDG), in part, to advise WSDOT on CSS and community-based design implementation. The IDG, still in place, is comprised of representatives from cities, the Association of Washington Cities, the County Road Administration Board, Metropolitan Planning Organizations, Federal Highway Administration, and various disciplines within WSDOT. The IDG produced a companion document to the WSDOT Design Manual, titled *Understanding Flexibility in Transportation Design*. This document incorporates CSS practices and principles into all aspects of project development.

- **Environmental Policy Statement**—Consistent and concurrent with the ongoing discussions of the Interdisciplinary Group, WSDOT adopted an Environmental Policy Statement in 2001 that acknowledges the state’s vital interests in protecting and preserving natural resources and other environmental assets and its citizens’ health and safety, and directs that agency to conduct all its affairs in accordance with the dictates of sound environmental protection practices. It also commits all WSDOT employees to encourage citizens to communicate with the agency about ways to achieve environmental stewardship goals.

- **Environmental Procedures Manual (EPM)**—The EPM implements the Environmental Policy Statement and provides guidance on assessing the various contexts that might be encountered in transportation projects. The manual describes the public involvement process; provides guidance on historic, cultural and archeological resources; provides guidance on socio-economic issues; and provides guidance on environmental justice.
Gray Notebook—Also in 2001, WSDOT initiated an agency accountability program designed to improve the quality and availability of information to the public. The Gray Notebook, named for its gray cover, provides quarterly, in-depth reports on agency and transportation system performance. Its purpose is to keep WSDOT accountable to the Transportation Commission, Washington State citizens, legislators, and transportation organizations. It is also an important internal management tool.

CSS Executive Order—On November 24, 2003, Washington State Secretary of Transportation Doug MacDonald, issued an Executive Order on Context Sensitive Solutions that endorses the CSS approach for all projects, large and small, from early planning through construction and eventual operation.

Ensuring CSS in Project Delivery

Most recently, WSDOT has also developed a process of project development known as Managing Project Delivery, which is discussed in WSDOT’s Design Manual. The process is a CSS approach that the WSDOT uses to develop and deliver all projects.

The process calls for collaborative interaction with a variety of user groups in order to develop and deliver projects on time and within budget. It calls for: (1) building an interdisciplinary team with the necessary skills and understanding of the project; (2) effectively defining the project scope and managing that scope throughout the project delivery process; (3) scaling the process based on project complexity and team size; (4) including the customers in the project delivery process; (5) communication; (6) managing customer expectations; and (7) managing change.

Through its numerous partnerships, commitments of multiple offices and management levels within the agency, and strong support of staff development for agency staff and agency partners, WSDOT is confident that its CSS approach will result in a lasting commitment to context sensitive solutions that will benefit communities throughout the state.

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In 2000, WSDOT adopted its 50-year vision statement, which first identified community-based design and collaborative decision making as essential to maintain and improve livability of communities in the state. While it can be difficult to plan, design, and construct a project that balances competing needs, CSS provides tools to help WSDOT staff meet this challenge.

—Washington State DOT

View from the CSS Competition Panel

The judging panel was impressed with WSDOT’s comprehensive list of tools to integrate CSS into all of its business practices. WSDOT really has incorporated the CSS “mindset,” reaching out to its customers and applying a collaborative approach to its policies and processes across-the-board.
In 2001, the Colorado DOT initiated a study on needed safety improvements to a 50-mile stretch of U.S. 285, a fast-growing area that is a bedroom community to the Denver metropolitan area and a corridor for recreational travelers headed to the mountains.

As part of the environmental review process that analyzed the various improvements, CDOT initiated agreements for streamlined and cooperative permitting and reviews with the U.S. Army Corps of Engineers and the State Historic Preservation Office, setting the stage for a context sensitive solutions process that would help to address numerous potential impacts.

The agency worked cooperatively to avoid and minimize impacts to wetlands and historic properties. It conducted value engineering that included members of the public and held numerous public meetings. The agency also reached out to natural resource agencies and environmental organizations throughout the environmental review process, including scooping, development of alternatives, and communicating recommendations for the preferred alternatives.

CDOT undertook numerous efforts to incorporate community values into the project, including:

- Working with local planning agencies and open space agencies to identify parcels that could be preserved through acquisition or open space set-asides.
- Incorporating grade-separated intersections, eliminating one grade separation altogether, and using underpasses rather than overpasses to minimize the “urban feel” of the project.
- Incorporating numerous design enhancements to improve safety, including improved access control, improved clear zones, and elimination of hazardous curves.
- Including an access management plan along the corridor to improve access and safety while maintaining mobility.

The alignment of the roadway was shifted to avoid historic properties and wetlands. The slant-leg and open-span bridge is a context-sensitive solution that preserves mountain vistas for travelers westbound on U.S. 285.
• Incorporating wildlife crossings in five separate locations. Whenever possible, the 72 culvert crossings will be modified to incorporate small animal crossings.

• Including citizen input on colors, textures, and styles of constructed elements, such as bridges and retaining walls.

• Making commitments to rock cutting and slope cutting in a natural manner.

Ultimately, the process was so successful in building public support and in avoiding and minimizing environmental impacts that CDOT and the Federal Highway Administration (FHWA) agreed to downgrade the project from requiring an Environmental Impact Statement to an Environmental Assessment.

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CSS principles were used to specifically pinpoint the problem areas, work cooperatively with the general public and neighborhood groups to develop design concepts, and then focus on development of a highway design that addressed the safety and capacity issues while respecting the mountainous character.

—Colorado DOT

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**View from the CSS Competition Panel**

The judging panel commended CDOT’s “great multi-disciplinary team,” good communication tools, and use of wildlife crossings, resulting in a project that minimized impacts to such an extent that the federal agencies downgraded it from an EIS to an EA.

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A grade-separated intersection (below) instead of the more traditional diamond interchange (left) responds to the public’s desire to maintain a rural, mountainous character.

Public meetings and workshops were held at key points in the process to gather input on the design for the project. (All photos courtesy of Colorado DOT.)
Beginning in 2003, the Illinois Department of Transportation began to reach out to the public to develop a comprehensive policy on context sensitive solutions. The agency heard several themes from the public:

- Transportation projects must be approached in a multi-modal scope;
- Stakeholders need to be involved in transportation planning and program development decisions, and not just in the design decisions; and
- A public perception exists that the department’s design standards are too rigid.

In 2004, the state legislature echoed the call for CSS, enacting provisions that require the agency to “embrace principles of context sensitive design and context sensitive solutions” throughout its policies and procedures.

Advancing its previous efforts on CSS and answering the call of the public and lawmakers, Illinois DOT in 2005 issued a document establishing CSS as its official policy. The agency also instituted a “Balanced Scorecard” approach for implementing the policy.

The Balanced Scorecard is a strategic management tool which establishes long-range goals, related short-term objectives, strategic initiatives and performance measures to help direct and inform the agency’s staff about performance expectations and results. The agency’s CSS goals are to adequately meet the state’s transportation needs, ensure that transportation projects exist in harmony with their surroundings, and ensure that transportation projects add lasting value to the communities they serve.

The Balanced Scorecard approach is designed to help maintain the viability of CSS implementation over the long term and is divided into four main objectives: policy development, training, program delivery, and com-

South Lake Shore Drive is one of Chicago’s primary commuter routes, carrying more than 100,000 vehicles a day. It is also a popular scenic drive alongside Lake Michigan. State and local transportation agencies balanced these demands by using a context-sensitive reconstruction plan that not only improved the roadway but enhanced the neighborhood.

The I-74 Peoria Bridge is part of a complete rehabilitation of I-74 from East Peoria through Peoria, a 3-year nearly $400 million project. The project is the largest construction project ever undertaken in downstate Illinois and was a community endeavor from day one.
munication. As initiatives are achieved and objectives change, the strategic plan is updated.

Illinois DOT also has developed a “Sharepoint” website that contains event calendars, document libraries, presentation libraries, and other materials that can be shared throughout the Department. For example, the site includes all of the agency’s CSS training modules and presentations can be reviewed and updated.

The CSS mindset is being incorporated as a way of doing business for the Illinois DOT, both within the organization and on its projects across the state.

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“Through early, frequent, and meaningful communication with stakeholders, and a flexible and creative approach to design, the resulting projects should improve safety and mobility for the traveling public, while seeking to preserve and enhance the scenic, economic, historic, and natural qualities of the settings through which they pass.”

—Excerpt from Illinois DOT definition of CSS

View from the CSS Competition Panel

Panel members felt Illinios DOT is developing a good set of tools, including changes to policies and procedures as well as training components that will help to instill CSS throughout the agency.

The 63rd Street Underpass was just one of the detailed aesthetic treatments included in Chicago’s South Lake Shore Drive Reconstruction project. The grand opening was an event for the whole community.

IDOT hosted the Federal Highway Administration’s Community Impact Assessment course, led by the Center for Transportation and the Environment from North Carolina State University. (All photos courtesy of Illinois DOT.)
The City of Keosauqua was proud of its landmark truss bridge, which had spanned the Keosauqua River since 1939. In fact, the name “Keosauqua” means “the stream bearing a floating mass of snow, slush or ice” in a Native American language. The community identifies very strongly with the river.

When it came time to address the safety concerns related to the aging bridge structure, the Iowa Department of Transportation knew its best approach was to work with the citizens through a thoughtful, context sensitive approach to find the best solution for the community.

Before considering a new replacement bridge for Keosauqua, the Iowa DOT seriously considered the possibility of rehabilitating the existing structure. Three main issues favored a replacement bridge. First, the existing piers were comprised of limestone blocks and determining their structural capacity would be very difficult. The most likely methods of strengthening the piers would completely alter the current appearance of the bridge. Second, the current bridge had limited vertical and horizontal clearance, and the bridge had been struck numerous times. In addition, widening a truss structure was very difficult. Finally, most of the rehabilitation options involved closing the bridge to traffic for an extended period of time, an outcome that was not acceptable to the community.

With support from the community and a broad stakeholder group, and sign-off from the state historic preservation officer, Iowa DOT set out to design a bridge worthy of inheriting the scenic crossing that only two previous bridges had spanned.

According to Iowa DOT, the final design is an elegantly arched steel-girder shape built on piers specially designed with a stone texture reminiscent of its predecessor. The pier’s
softened lines are “suited to the natural context, as if the bridge had been shaped and weathered by the flow of time and of the river,” the agency said. A breakwater tower rises above the railing of the bicycle path, allowing people on the bridge to touch the immense pier.

Designers were able to incorporate virtually all of the values expressed by the community. The construction staging allows for uninterrupted traffic in both directions, pedestrians and bicyclists are accommodated on both sides of the new structure, and themed lighting provided by the city incorporates the same design as the local streetscape.

In addition to the historical references seen in the bridge’s form and texture, a commemorative bronze plate and salvaged limestone from the old bridge will help to mark the new bridge’s place in time. Construction on the new bridge should be completed by the spring of 2007.

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**View from the CSS Competition Panel**

The panel was impressed with Iowa DOT’s flexible design approach, which actually reduced the width of the new bridge from the standard to maintain slower traffic, as well as broad community involvement that helped gain approval for replacement of the historic bridge from the state historic preservation officer.
In the mountains of Kentucky, on a highway built in the 1920s atop old logging trails, lies a 7.7-mile stretch of U.S. 119 that had been known for the region’s natural beauty as well the roadway’s serious safety hazards.

Narrow driving lanes, switchbacks, steep grades, and sheer drops with no shoulders made crossing Pine Mountain a risky experience. Changing traffic demands of school buses, coal trucks, 18-wheelers, and sports utility vehicles rendered the roadway inadequate and dangerous.

Due to the severe safety hazards, the Kentucky Transportation Cabinet addressed the issue head-on, using a unique context sensitive approach. The Pine Mountain Task Force was established to gather input from a broad range of stakeholders, including residents, engineers, environmental groups, elected leaders, property owners, and teachers.

Safety concerns became so severe that the Transportation Cabinet—at the urging of the Task Force—closed the road to all vehicles over 30 feet. The Task Force ultimately recommended construction of a tunnel as well spot improvements to address the serious safety concerns on the existing road.

The project successfully addressed the challenges of the existing mountain road, widening curves in eight spots by removing or shaving off rock outcroppings and adding truck lanes in some areas. The Transportation Cabinet used a non-traditional design approach to accommodate large tractor-trailers, with two 14-foot lanes with a center pavement used for truck paths and safety buffers. In some areas, the median striping width was offset on each side to accommodate the sweep path of these large vehicles. This non-geometric design allows larger, longer vehicles to pass each other safely.
The design also accommodated Pine Mountain’s sensitive natural environment, which is home to more than 93 species of rare plants and animals. The Transportation Cabinet’s efforts to address the natural elements included a ban on fill in sensitive watershed areas, stream restoration at three areas, a new 1.8-acre scenic overlook and other pull-offs, use of native stone to create a gateway sign for a trail, and land acquisition and donation to natural resource agencies.

The Transportation Cabinet also stressed the benefit in using a design-build contractor for the project, with deadlines that were contractually imposed. Using one contractor streamlined the project, both in terms of time and efficiency. The contractor was able to work on all 13 sites concurrently and coordinate road closures to minimize impacts on the community.

The project was completed in April 2005.

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View from the CSS Competition Panel
Panelists commended Kentucky Transportation Cabinet for its community-driven solution as well as the use of design-build contracting techniques and selection of a CSS-conscious contractor. The agency used a CSS approach to address significant design challenges in a budget-conscious way.

Without the CSS approach, we could have spent the next 40 years figuring out what to do. Instead, we have a safe roadway that highlights the beauty of the mountain and honors the heritage it represents.
—Kentucky Transportation Cabinet

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The judging panel selected the winning projects based on those that demonstrated a broad commitment to all aspects of CSS principles, including broad stakeholder involvement, design flexibility, environmental and cultural sensitivity, safety, and aesthetics.

In addition to recognizing nine exemplary projects as winners in the various competition categories, the judging panel found that the following additional projects and programs offered good examples of a particular element of CSS.

- **Fish Dam Ford, South Carolina DOT**, illustrates a creative decision to purchase and preserve a Revolutionary War battlefield found on the site of the project. This context sensitive solution preserved the historic site for future generations and saved $1.7 million in mitigation costs that would have been required to excavate and document the historic battlefield.

- **Woodward Avenue Project, Michigan DOT**, provides an example of an excellent animation software tool for visualization of alternative changes to an intersection.

- **Cooper River Bridge Project, South Carolina DOT**, offers a good example of aesthetics on a beautiful bridge design.

- **Snake River Canyon Highway, Wyoming DOT**, illustrates good NEPA practice that involves the recreational and environmental community to help solve difficult engineering issues near the Snake River.

- **I-405, Washington State DOT**, illustrates an impressive 100-year visioning effort.

- **Dixie Fix Project, Kentucky Transportation Cabinet**, shows an effective strategy for the transportation agency’s interaction with diverse communities and jurisdictions through visioning sessions for the corridor, development of a blueprint for implementation, and regulations to ensure that community goals are reached.

- **Improvements to U.S. 84/285, New Mexico DOT**, provides a context sensitive solution that represents the values of various local Native American cultures through aesthetic treatments and by reducing the roadway’s footprint along the corridor.

- **Reconstruction of the U.S. 10 and Eastern Road Interchange, Michigan DOT**, offers a good example of a state participating in community visioning as a stakeholder.

These examples illustrate how context sensitive approaches hold the key to solving transportation challenges facing agencies across the country. Implementation of CSS principles continues to progress across the country, underscoring that the only true transportation “solutions” are those that advance the goals and visions of communities.
**Arizona**

Federal Highway Administration, Central Federal Lands Highway Division

Arizona’s General Hitchcock Highway (Mt. Lemmon Highway)

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**California DOT**

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**Illinois DOT**

Balanced Scorecard Approach to CSS

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**Iowa DOT**

The Bridge at Keosauqua

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**Kansas DOT**

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**Kentucky Transportation Cabinet**

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