

## CSS IN PRACTICE

CSS has been implemented in every setting from the most rural to the most urban environments. As the following case examples highlight, CSS can deliver successful outcomes at the project, program, and policy levels.

# CONTEXT SENSITIVE SOLUTIONS FEDERAL HIGHWAY ADMINISTRATION

### RURAL



New Mexico DOT used CSS to fully involve the community in ensuring that NM 14, Turquoise Trail, a 2-lane major collector that provides access to several developing communities, minimized visual impacts, and maintained the rural nature of the area while meeting transportation needs.

[http://contextsensitivesolutions.org/content/case\\_studies/nm\\_14\\_turquoise\\_trail\\_](http://contextsensitivesolutions.org/content/case_studies/nm_14_turquoise_trail_)



Montana DOT is applying CSS concepts in Missoula, Montana to retrofit an auto-oriented, high-speed roadway to a Main Street that supports livability and downtown commerce.

<http://www.cssnationaldialog.org/2/documents/Boise/Slides-Russell-Street-Reconstruction-Project.pdf>

### SUBURBAN



An effort led by the Washington State Transportation Improvement Board, with support from FHWA, worked to convert Bridgeport Way in University Place, Washington from a suburban arterial to a corridor sensitive to local and multimodal contexts.

[http://contextsensitivesolutions.org/content/case\\_studies/kentucky\\_bridgeport](http://contextsensitivesolutions.org/content/case_studies/kentucky_bridgeport)



In Montgomery and Bucks Counties, Pennsylvania DOT converted Route 202, a four-lane, high design-speed freeway to a two-lane parkway blended into its context with design speeds of 35 mph.

[http://contextsensitivesolutions.org/content/webinar/los\\_livability\\_making\\_the\\_co/resources/Allen\\_Behler\\_LOS.pdf](http://contextsensitivesolutions.org/content/webinar/los_livability_making_the_co/resources/Allen_Behler_LOS.pdf)



U.S. Department of Transportation  
**Federal Highway Administration**

### URBAN



New Jersey DOT revamped the Route 42/College Drive Interchange from a major high-speed freeway to a low-impact, slow-speed design that created the setting for multimodal transportation and smart growth.

[http://contextsensitivesolutions.org/content/webinar/livability\\_principles\\_at\\_highwa](http://contextsensitivesolutions.org/content/webinar/livability_principles_at_highwa)



Maryland Transit Administration used extensive, creative engagement strategies to collaborate with communities to develop improvements to the West Baltimore MARC station, including station upgrades, enhanced parking, neighborhood pedestrian and bicycle connections, community gardens, and interactive public art projects.

<http://www.wbmarcproject.com>

### ORGANIZATIONAL



Pennsylvania and New Jersey DOTs partnered to develop the Smart Transportation Guide, applying CSS principles to the planning, design, and engagement of projects to achieve broad measures well beyond traditional transportation performance metrics.

[http://contextsensitivesolutions.org/content/reading/dots\\_release\\_smart\\_transportation\\_guidebook](http://contextsensitivesolutions.org/content/reading/dots_release_smart_transportation_guidebook)



Using CSS and Smart Transportation principles as a foundation since 2013, California DOT, or Caltrans, has been reinventing itself via the Caltrans Improvement Project. This remarkable change was described at a public forum by its Director of Design: "We have to begin building communities through transportation, instead of transportation through communities."

[http://www.dot.ca.gov/CIP/CIP\\_Workgroups.html](http://www.dot.ca.gov/CIP/CIP_Workgroups.html)

## WHAT IS CSS?

Context Sensitive Solutions (CSS) is a dynamic and effective approach to deliver transportation systems and facilities that enhance community, environmental, and economic resources. CSS allows agencies to proactively address today's transportation challenges, respond to evolving program demands, and mobilize to meet future needs.

*A CSS approach leverages collaborative decision-making and partnerships; enhances creativity, flexibility, and innovation; increases transparency and inclusiveness; promotes interdisciplinary team work; and supports accountability in addressing transportation needs in a manner that recognizes each community's unique natural and human settings. A multi-disciplinary team of professionals works collaboratively with*

*community members, elected officials, social, environmental and economic resource agencies, and other stakeholders to develop solutions to address the transportation need.*

The foundation of CSS, as represented in the term "context," is understanding all aspects of the place in which a transportation need exists and then developing solutions to address the problem through involvement of a full range of stakeholders. Using the CSS process, agencies are able to deliver place-based solutions that help solve transportation problems, support community quality-of-life goals, and optimize use of transportation agency resources.

## BENEFITS OF CSS

### FOR TRANSPORTATION AGENCIES

Solves transportation problems effectively and efficiently

Measures performance with meaningful data

Accelerates project delivery

Increases stakeholder participation and satisfaction

Manages risks and liability

Shares responsibility for solutions and funding

Addresses full transportation life cycle

### FOR ALL STAKEHOLDERS

Enhances transportation decision-making

Improves safety and mobility for all users

Expands multimodal options (including transit)

Tailors transportation solutions

Maximizes value and return on investment

Demonstrates due diligence, transparency, and accountability

Improves environmental outcomes

Strengthens partnerships

Builds projects that sustain communities

## CSS TODAY

CSS emerged in the 1990s as an approach to getting transportation projects built in a responsive, timely, cost-effective, contextually-based, and environmentally sound manner. Today CSS continues to serve as an effective tool as agencies work to plan, build, and retrofit transportation projects. The Federal Highway Administration (FHWA) is working to leverage successful programs and projects and assist states and local agencies in incorporating

CSS as a core program delivery tool to meet today's transportation challenges and to integrate a host of federal, state and local programs and initiatives. The timeline shown below and on the bottom pages throughout this brochure highlights many of the key milestones and resources in the history of CSS.



FHWA initiates "CSS Champions Program"

Second National Dialog on CSS begins

*Going the Distance Together: A Citizen's Guide to CSS for Better Transportation* (NCHRP 184 web only)

*Going the Distance Together: CSS for Better Transportation A Practitioner's Guide* (NCHRP 8-68)

*Practical Highway Design Solutions: A Synthesis of Highway Practice* (NCHRP 443)

FHWA publishes *CSS National Dialog 2 Final Report*

FHWA introduces Performance-Based Practical Design (PBPD) to complement CSS

FAST Act enacted

National Environmental Policy Act

National Highway System (NHS) Task Force established

ISTEA enacted

FHWA policy statement on avoidance, minimization, and mitigation

American Association of State Highway and Transportation Officials (AASHTO) plans to develop design criteria and process for NHS routes integrating safety, environmental, and community concerns.

NHS Designation Act

*Flexibility in Highway Design* (FHWA-PD-97-062)

# LINKING CSS

A host of transportation programs and activities are related to CSS and can benefit from its application. CSS can be integrated within all phases of multimodal project development and delivery including planning, environmental review, design, right-of-way, construction, maintenance, and operations. Several strategic programs and activities that are supported by the CSS process are shown below. Links to FHWA program pages are provided to explore and learn more about each topic area.



## NEPA

The National Environmental Policy Act (NEPA) requires agencies to examine and address social, economic, and environmental impacts and integrate public input into decision-making for federal actions. The CSS process inherently complements and enhances the delivery of the NEPA process in various ways. Implementing CSS during NEPA helps project teams better understand area communities and the affected environment, identify community needs and concerns, and develop solutions appropriate for the areas affected by an action. Enhancing stakeholder input through CSS can help identify significant human and natural environment issues and potential consequences early in the planning and NEPA processes. The CSS process provides the opportunity to develop consensus-based goals and objectives that can be reflected in project purpose and need beginning in planning and then carried into NEPA and incorporated in the alternatives analysis process. CSS incorporates work by interdisciplinary teams and leverages flexibility in planning and design to enhance the development and delivery of project solutions, from alternatives and avoidance strategies to mitigation and enhancement.

<https://www.environment.fhwa.dot.gov/projdev/index.asp>

## ENVIRONMENTAL JUSTICE

Executive Order 12898 on Environmental Justice outlines three main principles for agencies taking federal action including: avoiding, minimizing or mitigating disproportionately high and adverse human health and environmental effects (including social and economic effects); ensuring full and fair participation by all potentially affected communities in decision-making; and preventing the denial of, reduction in, or delay in the receipt of benefits for minority and low-income populations. CSS provides a collaborative process where sensitivity to the context of a project and fulfillment of needed transportation functions are both required to achieve excellence in transportation planning, project development, design, and delivery. The process helps fulfill the environmental justice principles by considering the needs of all stakeholders, meaningfully engaging all stakeholders, addressing the unique context of each community, and delivering projects that strengthen communities.

[http://www.fhwa.dot.gov/environment/environmental\\_justice](http://www.fhwa.dot.gov/environment/environmental_justice)

## PERFORMANCE-BASED PRACTICAL DESIGN

Performance-Based Practical Design (PBPD) is an approach to transportation design that focuses closely on core project purpose and need, while balancing project objectives with system objectives within a performance management framework. PBPD projects respond to community and environmental goals, while supporting safety and mobility objectives. Under PBPD, designers utilize objective data analysis to support and validate flexible design decisions. Agencies use this flexibility in design to develop projects based on existing conditions and project needs, achieving cost savings that can be then applied to other projects. Factors such as context sensitivity, livability, and sustainability are internalized through performance management metrics. Solutions are cost effective yet sensitive to all contexts yielding a high return on investment.

<https://www.fhwa.dot.gov/design/pbpd>

## STAKEHOLDER COLLABORATION

A CSS approach engages those with an interest, that is stakeholders, in defining transportation needs and developing solutions. Stakeholders can include agencies, organizations, and individuals. The collective support among these stakeholders is paramount for design solutions to move forward. CSS engages stakeholders in a collaborative and continuous process from identifying planning or project needs and issues through setting goals and objectives to developing, analyzing, selecting, and enhancing plan or project alternatives. This collaboration helps identify issues and generate solutions early in the process. Improvements in available mapping, visualization, multimedia, and other tools (such as FHWA's PlanWorks to support stakeholder collaboration), along with social media technologies, allow agencies to make engineering concepts and the planning process accessible and leverage resources to facilitate input from busy stakeholders. By providing feedback on stakeholder input and decision-making, a CSS program builds ongoing relationships between the agency and the public it serves.

<http://contextsensitivesolutions.org/content/topics/process/involving-stakeholders>

## SUSTAINABILITY

Sustainable transportation projects satisfy functional transportation requirements from conception to completion, through maintenance and operation, as well as improving the natural, built, and social environments. These projects support human and ecosystem health goals, offer modal options to all users, are affordable, efficient and equitable, and limit the use of available resources. CSS provides a process by which transportation professionals and stakeholders can develop and deliver sustainable outcomes. The CSS process focuses on defining context, incorporating community goals and needs, preserving environmental features, achieving efficient use of resources, and adding lasting value to the community. These elements link directly to the triple bottom line of sustainability: economic growth; health of the environment; and improved quality of life. FHWA's Sustainable Highways Initiative, Sustainable Pavements Program, and Infrastructure Voluntary Evaluation Sustainability Tool are some of the resources available to implement transportation sustainability.

<https://www.sustainablehighways.dot.gov>

## LIVABILITY

Livability is defined within the context of transportation as linking transportation facilities and amenities to quality of life. These linkages include job access, housing availability and affordability, schools, mobility options, and transportation safety. Under the Livability Initiative, USDOT provides technical tools and resources and works with other federal agencies through the HUD-DOT-EPA and EPA Partnership for Sustainable Communities to coordinate housing, transportation, water, and other infrastructure programs. The FHWA Livability Initiative website identifies CSS as a key approach to deliver outcomes that support livable communities. The CSS approach develops and evaluates the information on project and community characteristics, needs, and goals necessary to deliver outcomes that address livability issues such as accessibility, connectivity and multimodal needs, community characteristics and values, economic conditions and opportunities, and equity considerations.

<http://www.fhwa.dot.gov/livability>

## DESIGN FLEXIBILITY

A key pillar of CSS is flexibility in design. Flexible design can meet local and community needs, improve accommodations for all transportation facility users, and provide a practical way to help state DOTs meet the challenges of constrained budgets and environmental or built conditions. When the flexibility inherent in design policies is not recognized or not used, it can lead to one-size-fits-all solutions and turn into conflicts, project delays, and overly complex projects. Through efforts including CSS and PBPD, FHWA is helping design professionals better understand how to use flexible design and multidisciplinary approaches to delivering projects.

## PERFORMANCE MEASURES

Transportation legislation and stakeholder expectations continue to place increasing importance on measuring transportation investments and outcomes. Performance measures embody accountability to tangible outcomes that can be measured to support program, process, and project delivery. CSS is a principle-driven, benefit-justified approach that allows for quantification of benefits. This systematic approach provides a framework for timely data collection that allows for evaluations of plans and projects and identification of areas for improvement. As the transportation industry moves to higher levels of accountability, the CSS approach ensures that agencies fully understand and establish goals and metrics for the problems they are trying to solve by defining the full economic, financial, social, environmental, political, mobility, and access context in which a transportation need exists.

<https://www.fhwa.dot.gov/tpm>

1998

Thinking Beyond the Pavement sponsored by FHWA and AASHTO

2002

5 states and FHWA pilot Context Sensitive Design approach

2003

TEA-21 enacted

*A Guide to Best Practices for Achieving CSS* (NCHRP 480)

FHWA goal for all states to use CSS by 2007

2004

FHWA launches CSS website

*A Guide for Achieving Flexibility in Highway Design* (AASHTO)

2005

SAFETEA-LU enacted

AASHTO Best Practices in Context Sensitive Design Competition

2006

FHWA and AASHTO National CSS Peer Exchange

ASCE hosts CSS in Practice

FHWA and AASHTO publish strategic plan to mainstream CSS

*Integrating CSS into Transportation Practice* (FHWA-HEP-07-014)

2008

FHWA CSS Peer Exchanges in Indiana and Nevada

2009

FHWA launches National Dialog on CSS

*Quantifying the Benefits of CSS* (NCHRP Report 642)

2010

ITE publishes *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*

FHWA publishes *CSS National Dialog Final Report*