



U.S. Department
of Transportation

**Federal Highway
Administration**

Summary Report

Using Context Sensitive Solutions to Achieve Context Sensitive Design

Technical Assistance and Virtual Peer Exchanges

November 2016 – October 2017

August 2018

Notice

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Technical Report Documentation Page

1. Report No. FHWA-HEP-XX-XXX	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Summary Report Using Context Sensitive Solutions to Achieve Context Sensitive Design Technical Assistance and Virtual Peer Exchanges		5. Report Date January 30, 2018	
		6. Performing Organization Code	
7. Author(s) Damon Fordham, Leigh Lane, Gary Toth, Nikiforos Stamatiadis, Teresa Townsend, Ann Steedly, Oana Leahu-Aluas, Carter Purcell		8. Performing Organization Report No.	
9. Performing Organization Name and Address The Cadmus Group LLC 100 Fifth Avenue, Suite 100 Waltham, MA 02451		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. DTFH61-11-D-00031, order no. 5007	
12. Sponsoring Agency Name and Address Federal Highway Administration 1200 New Jersey Ave. SE Washington, D.C.		13. Type of Report and Period Covered Final Report	
		14. Sponsoring Agency Code	
15. Supplementary Notes			
16. Abstract The Federal Highway Administration (FHWA) initiated a Context Sensitive Solutions and Design (CSS/D) Targeted Technical Assistance (TA) effort in 2016. FHWA provided TA to six States on CSS/D and held a series of four virtual peer exchanges. The virtual peer exchanges provided practitioners from several State Departments of Transportation (DOTs) with an opportunity to share experiences and lessons learned on four topics related to CSS/D. This report documents how the six States were selected to receive TA; the purpose, schedule, and format of each session; key takeaways; lessons learned and recommendations for future TA activities; topic and purpose of the virtual peer exchanges; key takeaways, highlights, and lessons learned.			
17. Key Words Context Sensitive Solutions, CSS, Context Sensitive Design, CSD, CSS/D, Technical Assistance, Virtual Peer Exchange, Performance Based Practical Design, Design Flexibility, Public Involvement, Resiliency, Sustainability, Rural, Complete Streets, Context Identification, Performance Metrics		18. Distribution Statement Unrestricted	
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. No. of Pages 25	22. Price N/A

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Acknowledgements

The following are staff from the Federal Highway Administration (FHWA), State Departments of Transportation (DOTs), or other agencies who either led or provided guidance, local support, or otherwise assisted with the context sensitive solutions (CSS) and context sensitive design (CSD) technical assistance (TA) effort. Additional thanks are provided to those who presented or otherwise supported the CSS/D virtual peer exchanges. Lists of speakers for each virtual peer exchange are included later in this report.

FHWA

Gary Jensen, Shari Schaftlein, Fleming El-Amin, Shana Baker, Michael Matzke, Elizabeth Hilton, Alexis Kuklenski, Carolyn Nelson, David Cohen, Reena Mathews, Jody McCullough, Spencer Stevens, Megan Jensen, Becky Lupes, R. Keith Moore, Rodney Vaughn, George Merritt, Keith Harrison, Jim Thorne, Mary Ridgeway, Nick Blendy, Yolanda Jordan, Shakira Crandol, Danielle Blackshear, Cathy Kendall, William Stein, Jeffrey Shaw, Don Petersen, Lori Porecca, John Perry, Jason Giard, Stephanie Hickman, Kevin Michel, and Richard Duran.

State DOTs

California: Chris Schmidt

Colorado: Betsy Jacobsen and Jonny Olson

Delaware: Robert McCleary and Jim Pappas

Florida: DeWayne Carver, Billy Hattaway, Jeff Caster, Yvonne Arens, and Dana Reiding

Hawaii: Ed Sniffen

Idaho: Ted Mason, Sonna Lynn Fernandez, and Kevin Sablan

Minnesota: Scott Bradley, Jim Rosenow, Jack Broz, and Charleen Zimmer

Montana: Ivan Ulberg

New Jersey: Andy Swords

North Dakota: Wayne Zacher, Stacey Hanson, Bryon Fuchs, and Paul Benning

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Introduction

This summary report highlights the key takeaways, lessons learned, and recommendations for improving Context Sensitive Solutions and Context Sensitive Design integration with State DOT decision making processes based on the outcomes of targeted technical assistance in 6 States and 4 virtual peer exchanges conducted by FHWA. The purpose of these efforts was to demonstrate how a context based planning and development process can help accelerate project delivery and improve safety. For this report, the use of Context Sensitive Solutions to achieve Context Sensitive Design outcomes is referred to as CSS/D.

Definitions

Context Sensitive Design (CSD)

A design process that not only considers physical aspects or standard specifications of a transportation facility, but also the economic, social, and environmental resources in the community being served by that facility. A CSD approach helps to ensure projects:

1. Are safe for all users
2. Use a shared stakeholder vision as a basis for decisions and for solving problems that may arise
3. Meet or exceed the expectations of both designers and stakeholders, thereby adding lasting value to the community, the environment, and the transportation system.
4. Demonstrate effective and efficient use of resources

Context Sensitive Solutions (CSS)

A decision-making process that helps accelerate project delivery by establishing “a collaborative, interdisciplinary approach that involves all stakeholders in providing a transportation facility that fits its setting. It is an approach that leads to preserving and enhancing scenic, aesthetic, historic, community, and environmental resources, while improving or maintaining safety, mobility, and infrastructure conditions.”¹ The CSS process is guided by the following four principles:

1. A shared stakeholder vision to provide a basis for decisions.
2. A comprehensive understanding of contexts.
3. Continuing communication and collaboration to achieve consensus.
4. Flexibility and creativity to shape effective transportation solutions, while preserving and enhancing community and natural environments.

Background

From November 2016 through July 2017, FHWA provided targeted technical assistance (TA) on CSS and CSD (CSS/D) implementation in Delaware, Florida, Idaho, Minnesota, North Dakota, and Washington. The TA focused on incorporating CSS/D and Performance Based Practical Design (PBPD) during project development, leveraging CSS/D to advance sustainable transportation planning, applying CSS/D to help

¹ Federal Highway Administration. (2017). “What is CSS?” https://www.fhwa.dot.gov/planning/css/what_is_css/

streamline projects in rural environments, CSS/D and design flexibility, and incorporating CSS/D to plan and implement Complete Streets.

Following the delivery of the technical assistance, FHWA conducted four virtual peer exchanges from August through October 2017 to facilitate a deep dive exchange of ideas on the topics discussed during the TA workshops. The States who received technical assistance, and departments of transportation (DOTs) in California, Colorado, Hawaii, Wyoming, Montana, Utah, Vermont, New Jersey, Pennsylvania, as well as the Hillsborough County (FL) MPO participated in the virtual peer exchanges.

The CSS/D Targeted TA helped to refine the focus and the application of CSS and CSD principles in States where those principles are being implemented, and to build capacity for implementing CSS/D in various phases of transportation decision making throughout the U.S. The first half of this report focuses on the TA sessions while the second half focuses on the virtual peer exchanges.

CSS/Design Targeted Technical Assistance

State Selection Process

The States that participated in the TA sessions were identified through FHWA solicitation in early 2016 to gauge interest in receiving TA and potential TA topic areas. The six States selected to receive CSS/D TA include Delaware, Florida, Idaho, Minnesota, North Dakota, and Washington. FHWA, with support from a team of consultant subject matter experts (SMEs), conducted phone calls with staff members at the respective DOT and FHWA Division Office to assess the specific TA needs for each State. Once the CSS/D needs were identified, a work plan was developed for each State that provided the TA purpose, a list of reference documents, planned activities, a preliminary agenda, logistical considerations, deliverables, and a framework for next steps.

Purpose of the Technical Assistance Sessions

As stated above, the overall purpose of conducting targeted TA was to help improve and accelerate project delivery by expanding the application of CSS/D principles and build implementation capacity in States needing improvements in these areas. Within each State, FHWA and the DOT collaborated to identify one CSS/D related issue to address. The primary purpose of the TA in each State was as follows:

- **Delaware:** Apply a CSS/D framework to the process of integrating sustainability strategies into the operations of DelDOT.
- **Florida:** Convene a discussion among FDOT District senior staff and develop an action plan that will provide the steps necessary to implement FDOT's *Complete Streets Handbook* at the District level.
- **Idaho:** Determine CSS/D focus areas and pertinent questions to help ITD staff incorporate CSS/D processes and principles into relevant project delivery processes.
- **Minnesota:** Identify ways to enhance the "Advanced Flexibility in Design" workshop hosted biannually by MnDOT, in partnership with the University of Minnesota's Center for Transportation Studies, so that participants are more prepared and inclined to integrate CSS/D into their everyday project development work.

- **North Dakota:** Develop a case study showcasing how NDDOT successfully accelerated project delivery and enhanced quality of life using CSS/D principles throughout the development and design process for the U.S. Highway 85 Watford City Bypass project.
- **Washington:** Assist WSDOT with creating a process to better apply the principles of context identification and performance metrics to actual project design and construction.

Technical Assistance Schedule and Format

The TA sessions were held between November 2016 and July 2017. Each session was in the format best-suited to meet the desired outcome and purpose (workshop, interview sessions, etc.). A schedule of the TA sessions, including their format, and locations, where applicable, is provided below.

Delaware Department of Transportation

- Date: November 9, 2016
- Structure: One-day interactive workshop
- Location: Dover, Delaware

Florida Department of Transportation

- Date: July 31, 2017
- Structure: One-day interactive workshop
- Location: Tallahassee, FL

Idaho Transportation Department

- Date: November 16-18, 2016
- Structure: Three-day interactive workshop
- Location: Boise, Idaho

Minnesota Department of Transportation

- Date: November 29 - December 1, 2016
- Structure: Observation of three-day interactive workshop
- Location: Minneapolis, Minnesota

North Dakota Department of Transportation

- Date: April 4 - 6, 2017
- Structure: Site Visit and Interviews
- Location: Watford City and Bismarck, North Dakota

Washington State Department of Transportation

- Date: December 14, 2016
- Structure: One-day interactive workshop
- Location: Kent, Washington (WSDOT Kent Maintenance Facility)

Technical Assistance Key Takeaways

Summary reports documenting each of the TA sessions are available on FHWA's CSS/D website at <https://www.fhwa.dot.gov/planning/css/resources/cssta1617/>. Each report details the background and

objectives of the TA, lists TA key takeaways, and describes all TA presentations and sessions. A summary of each TA and its key takeaways are listed below.

Delaware Department of Transportation

The purpose of this technical assistance was to examine Delaware DOT's current project development procedures in conjunction with several statewide resiliency studies and identify opportunities to integrate durable roads strategies into transportation planning, project development, and delivery practices using a CSS/D approach. FHWA helped DelDOT identify gaps with their existing resiliency policies and determined strategies to better incorporate CSS/D principles, and worked collaboratively to establish a framework for a new unified policy document to help inform future decision making.

The TA workshop included key DelDOT staff and representatives of Delaware's Department of Natural Resources and Environmental Control (DNREC) was convened to examine DelDOT's current procedures, review findings from key State studies and national research, and identify opportunities to integrate key State resiliency strategies into transportation planning, development, and delivery, using a CSS/D approach.

The TA workshop resulted in identification of implementation actions for resiliency and an assessment of the ways in which CSS/D could be leveraged to support these implementation efforts. The workshop results are highlighted below.

- CSS/D is an effective method for solving problems efficiently and helps keep community and environmental context in mind. CSS/D integrates elements such as performance measures, project delivery, stakeholder engagement, and context-based decision-making.
- For DelDOT, CSS/D ensures that programs addressing resiliency will consider land use, socioeconomic context, and local decisions.
- Within a CSS/D process incorporating resilience, and giving attention to environmental justice can help participants with the following:
 - Recognizing which communities are vulnerable to storm impacts.
 - Knowing which communities may have high difficulty relocating.
 - Assessing both immediate impacts (e.g., storm surge) and long-term gradual changes (e.g., sea level rise).
- Because of the workshop, DelDOT identified the following items as essential elements that must be established and included in a new unified and integrated policy related to resiliency:
 - Mission statement (problem statement);
 - Investment strategy;
 - Collaborative advisory board (multi-agency);
 - Data collection;
 - Goals;
 - Public outreach component;
 - Design guidance;
 - Political mandate;
 - Plan and implementation strategy;
 - Roles and responsibilities; and
 - Information on other State's plans and initiatives.
- In addition, the items below represent the next steps in working towards the development of the policy:

- o Promote reevaluation of Executive Order 41 to provide a political mandate for adaptation and mitigation planning.
 - DNREC provides resource information and statewide technical assistance on adaptation and mitigation planning.
- o Craft draft mission statement for umbrella policy.
 - Requires preliminary research on other State's plans and initiatives.
- o Evaluate existing performance standards.
- o Begin developing strategic plan.
- o Work on outreach and public relations.
 - Continue publicly promote DelDOT's work on resiliency.
 - DNREC has a public relations presentation on resiliency in Delaware and will share information with other State departments.

Florida Department of Transportation

The purpose of this technical assistance was to support the Florida Department of Transportation (FDOT) with using CSS/D to advance the goals of their Complete Streets Implementation Guidebook. FHWA helped FDOT identify the challenges and prioritize strategies using CSS/D principles to help streamline project delivery of Complete Streets at the FDOT District level and statewide.

In September 2014, FDOT released its Complete Streets Policy. FDOT incorporates CSS/D principles throughout its Complete Streets effort and strives to provide more context-sensitive roads by putting "the right street in the right place." In support of the policy, FDOT released its *Complete Streets Implementation Plan* in December 2015 and the external draft of both the *Complete Streets Handbook* and *FDOT Design Manual* in April 2017. Comments received on the *Handbook* informed FDOT's decision to move forward with the [FDOT Context Classification guide](#). This document was published in August 2017. The full *Complete Streets Handbook* is still in draft form.

Through a facilitation exercise, participants at the TA workshop discussed key challenges that they associated with FDOT's Complete Streets implementation effort. The challenges that emerged were then sorted into five categories:

- Implementation phasing;
- Funding;
- Managing expectations;
- Project delivery process – scoping; and
- Training/culture change.

The goal of the Complete Streets policy is to increase the balance of multimodal elements in FDOT projects and the *Handbook* adds a new process related to the determination of eight land-use context classifications.

District personnel participants discussed challenges with the new process and ways to approach it successfully, in a manner that would not overburden existing staff resources, causing them to fall behind schedule on projects already in the capital program pipeline.

After discussing the challenges associated with Complete Streets implementation, participants brainstormed strategies to overcome them. The top strategies that emerged were:

- Resurfacing, restoration, and rehabilitation (3R) projects already in the project pipeline should be grandfathered in.

- The priority project programming process (4P)—a project scoping process used by several of the Districts—would provide a useful tool for making the decisions on how and when to include Complete Streets components into FDOT projects. This approach was discussed as a possibility to be expanded to all Districts during the planning and pre-programming phase.
- The *Handbook* should distinguish between capacity and non-capacity projects when prescribing the extent of implementation of Complete Street and context-sensitive elements. For instance, non-capacity projects such as resurfacing have manageable scopes of work that are usually bundled with other street improvements for quick implementation. For these projects, anything more than reallocating space between the modes—e.g. narrowing lanes to fit in a bike lane—could fundamentally change the cost and scope to a degree that it would effectively kill the project. District staff recommended that in these instances, non-capacity projects should be allowed to move ahead within the existing curb lines and the Complete Streets elements should be considered in a new project for planning study and incorporation into the development program.
- The *Handbook* and public outreach should make it clear that for 3R projects in the pipeline, the budget is already set and there is no new FDOT funding for additional scope, such as bulb-outs. If the local jurisdiction wishes to add elements beyond the scope of a 3R project, then it must provide the funds themselves. Participants discussed working with their respective Metropolitan Planning Organization (MPO) to secure the funding or having FDOT create a new multimodal project-scoping study to address the desired features.
- The *Handbook* can be used to educate the public and elected officials about the Complete Streets implementation process. Similarly, the *Handbook* could be used to discuss newly requested transportation features that may not fall within the scope of a 3R project, yet could more suitably be addressed during a 4P-like scoping process. The 4P process provides an opportunity for robust public engagement on “capacity” and multimodal focused projects.
- Participants expressed that more time is needed for project phasing beyond what is currently allotted in the *Handbook*. A primary cause for concern is the amount of time and resources needed to fully incorporate CSS/D principles when establishing the street context classifications. One proposed solution suggested removing the need to set classifications for 3R projects, or using relatively simple methods to distinguish context characteristics. Workshop participants expressed the need for additional ongoing collaboration to fully incorporate the process of identifying and implementing the updated classifications.
- The *Handbook* should clarify the distinction between existing and future context classifications, particularly for 3R projects.

Idaho Transportation Department

The purpose of this technical assistance was to support the Idaho Transportation Department (ITD) in development of a CSS/D and practical design checklist that could be used throughout the State in conjunction with their project charter. FHWA helped ITD identify 8 key focus areas to better integrate CSS/D principles into their transportation decision-making process and worked collaboratively to establish a CSS/D checklist for use during the project delivery process.

The involvement of stakeholder groups in the workshop allowed ITD staff to gain a better understanding of the unique perspectives defining project context. The workshop format and facilitation strategy allowed participants to think in an integrated, collaborative manner to explore specific process elements to improve CSS/D integration. By using “real world” case studies, participants could think critically about project issues, interest, challenges and opportunities. Through facilitation exercises, participants at the

workshop came up with key focus areas to be considered for better integrating CSS/D and practical solutions principles into ITD's decision-making process. The focus areas that emerged were:

- Lessons learned;
- Community engagement;
- Stakeholder involvement;
- Project understanding;
- Outreach strategies;
- Outreach tools;
- User accommodation; and
- Vision.

Participants then developed and refined questions relevant to each focus area for the ultimate purpose of developing a practical solutions/design checklist. Because the workshop allowed for flexibility in terms of discussions and desired outcomes, the participants decided that a checklist was not appropriate. Instead, the participants decided that the questions informed specific recommendations for improving the stages of the project delivery process through ITD's project charter.

In conjunction with the recommendations, ITD's Planning Services Section created a list of action items for themselves detailing how ITD's existing guides, manuals, and processes will be altered to enhance CSS/D and public involvement outreach efforts. These action items were:

- Include or modify ITD's project charter with CSS/public involvement references;
- Update the Project Charter Guidebook with CSS/public involvement component;
- Make the Project Management Academy accessible and more user friendly;
- Develop a community engagement document;
- Publicize available public involvement tools;
- Develop a stakeholder identification list;
- Consolidate CSS/D, public involvement plans, and related documents; and
- Use IPLAN (ITD's web-based portal linking directly to ITD's authoritative data sources) as an information site.

Minnesota Department of Transportation

The purpose of this technical assistance effort was to observe the "Advanced Flexibility in Design" workshop, hosted biannually by Minnesota DOT, and identify ways to enhance the workshop so that participants are more prepared and inclined to integrate CSS/D into their business practices. FHWA provided recommendations MnDOT can use to better incorporate CSS/D in their "Advanced Flexibility in Design" workshop.

MnDOT was an original adopter of CSS/D and participated in the initial pilot conducted by FHWA. Since the early 2000s, MnDOT has championed the integration of CSS/D into its business practices and phases of decision-making. To this end, MnDOT has developed policies, guidance, process improvement approaches, and training, all in support of CSS/D integration efforts. In 2009, MnDOT considered CSS/D one of its flagship initiatives. Most recently, MnDOT has focused on applying a performance-based, data-driven practical design process that maximizes performance outcomes in a cost-effective manner.

Upon their observations of the "Advanced Flexibility in Design" workshop, SMEs provided a set of recommendations to the workshop organizers and instructors for improving the workshop. Overall, the SMEs thought the course was well-constructed and included an appropriate duration and quantity of content, and they would not recommend structural modifications. Instead, their recommendations

related mainly to the content of the sessions. High-level descriptions of those recommendations are listed below:

- Place a greater emphasis on context and how it impacts design choices;
- Place a greater emphasis on how flexibility improves responsiveness to context;
- Place greater emphasis on how to find alternatives;
- Place greater emphasis on the importance of the purpose and need statement for achieving right-size solutions; and
- Highlight the importance of outcomes and broader performance metrics.

North Dakota Department of Transportation

The purpose of this technical assistance was to assist the North Dakota Department of Transportation (NDDOT) with developing a case study of the U.S. Highway 85 Watford City Southwest Bypass Project. The case study involved interviewing NDDOT staff and other relevant stakeholders impacted by the project, as well as conducting a site visit of the project. The case study documents NDDOT's approach of incorporating CSS/D principles, tribal consultation, and other activities on a major transportation project that demonstrated how understanding context, shared stakeholder vision, interagency coordination, and design flexibility can help expedite project development and streamline project schedules. The case study will be used as a training and capacity building tool for NDDOT staff and other local government agencies, as well as a national case study other States can use when embarking on a transportation project.

The case study was developed by conducting interviews with project staff and visiting the site of the bypass. The interviews revealed a set of themes and key highlights summarized below. These areas are further described in the case study alongside photos and other visuals to help tell the story of the bypass project:

- A CSS/D approach can accelerate project delivery.
- NDDOT practices outstanding resource agency coordination and collaboration. Through interagency coordination meetings (ICM), NDDOT has built strong relationships and trust with Federal and State agencies. Throughout the bypass project, NDDOT had a long-standing item on the monthly ICM agenda to provide updates on the National Environmental Policy Act (NEPA) process, design, permitting, and commitment compliance during construction. Likewise, NDDOT also collaborates with North Dakota Interagency Review Team (NDIRT). NDDOT holds annual multi-day field trips with NDIRT to review and gather feedback on completed construction projects. This process serves as a valuable accountability tool for NDDOT.
- NDDOT has a well-established and outstanding process to coordinate with tribes through the Tribal Consultation Committee (TCC).
- The bypass is supporting improved quality of life for Watford City residents, after the area experienced unprecedented growth. By having the bypass divert heavy truck traffic away from the city, city administrators could instead focus on providing crucial infrastructure and enhancing the quality of life for the growing population. With the volume of traffic reduced, downtown Watford City became more accommodating to light-duty vehicles and pedestrians, contributing to economic activity.
- NDDOT staff place an emphasis on face-to-face communication, resulting in an improved and expedited review process.

- A collaborative partnership between all units of NDDOT exists, especially between right of way staff and designers. This level of collaboration helped expedite the project timeline because any issues encountered in the field were quickly incorporated into plans as they were being finalized.
- CSS/D approach and flexible design concepts used on the bypass project helped achieve the goal of minimizing impacts to the human and natural environment.
- The bypass resulted in dramatic improvements to vehicular safety. Traffic fatalities in McKenzie County, where Watford City is located, dropped significantly after the bypass was built, compared to years prior.
- The project won the Western Association of State Highway and Transportation Officials (WASHTO) America's Transportation award and was a Top 10 Finalist in the overall America's Transportation Awards competition.
- Case Study: The case study that resulted from the site visit and interviews is available at <https://www.fhwa.dot.gov/planning/css/resources/cssta1617/>.
- Interview Questions: Interview questions were grouped into the following categories:
 - Project Purpose and Need
 - Economic Development and Growth Pressures
 - Stakeholders
 - Decision-making Process
 - Public Involvement
 - Human Environment Considerations
 - Natural Environment Considerations
 - Cultural Resources
 - Design Flexibility
- Interviewees: Through coordination with NDDOT and Keith Moore of the FHWA Resource Center, the following staff members were interviewed.

Washington State Department of Transportation

The purpose of the technical assistance was help WSDOT create a process for better applying the principles of context identification and performance metrics to actual project design and construction. FHWA assisted WSDOT with examining their existing guidance and identify opportunities to improve it by collaborating with a cross section of State transportation engineers, planners, and key policy personnel, and by including input from key stakeholder groups.

WSDOT is a leader in applying CSS/D and practical solutions principles to its transportation project planning process. WSDOT has developed and circulated valuable guidance to its project teams regarding CSS/D and multimodal approaches for effective design and planning. It has also incrementally adapted its design manual to provide increasing design flexibility based on urban and rural context. Over the last several years, WSDOT has introduced several new policies and guidance materials supporting CSS/D principles, each building upon the last and ultimately leading to the development of the Practical Solutions Process. WSDOT has promoted practical solutions as a framework for implementing practical design, good asset management, performance-based decision making, community engagement, and least cost planning.

Lessons learned from the TA included:

- Applying guidance and commitment from various project development policies and documents to actual projects is a leading issue.

- For WSDOT, it is important to coordinate with the Comprehensive Planners—early and continuously.
- There are likely multiple metrics that go along with each guiding question—but knowing which metric to use is an aspect of understanding the context.
- CSS/D is an iterative process. Throughout the design and planning process, it should be applied repeatedly, and especially when large project changes are occurring.
- The need for enhanced resources and staffing to support public understanding of the issues during planning and scoping was a leading issue discovered. Another dominant issue is finding a way to work with the State legislature to ensure that WSDOT’s philosophy of incorporating multimodal uses and quality of life principles are in alignment with the State’s transportation priorities.
- When warranted, it is good to be flexible and exert engineering judgement to take alternative approaches. Ensure that decisions are supported and warranted with quantitative, evidence-based reasoning, and are well documented.

The following recommendations were provided to WSDOT as it begins updating its 2017 design manual:

1. **Define context.** WSDOT’s design manual and the project development process both contain points at which context should be defined; however, neither document offers direction on how to define context nor what to do with the resulting defined context. WSDOT may wish to develop a formal process for when and how to ask the Context Questions generated as part of this TA, as well as when and how to assign performance metrics. WSDOT staff are reviewing National Cooperative Highway Research Program (NCHRP) 15-52: Developing a Context Sensitive Functional Classification System for More Flexibility in Geometric Design as a potential tool to assist with context understanding.
2. **Emphasize the scoping phase.** The scoping phase can be considered as a key component of the project development process. As WSDOT is defining it now, the scoping phase should be highlighted in between the planning and design processes, and cover the policy framework, managing system assets, identification of need, and assessing alternative strategies.
3. **Work in coordination with others in the community.** WSDOT should collaborate with local jurisdictions, MPOs, and other State and local agencies to create regionally integrated transportation and land use plans. WSDOT should consider bringing on “on-call” consultants capable of supplying TA to communities on how to create a local network and land use plan that supports WSDOT’s mission to provide appropriate mobility for all. This will help advance WSDOT’s approach to project development and its community engagement efforts which may increase opportunities for collaborative comprehensive planning.

CSS/Design Virtual Peer Exchanges

Topic and Purpose of Each Virtual Peer Exchange

The purpose of the virtual peer exchanges was to provide an opportunity for State DOTs to share experiences and lessons learned on four topics related to CSS/D. Each virtual peer exchange began with a brief Federal overview of the topic, followed by presentations from DOTs, and concluding with an interactive discussion among all participants. Each virtual peer exchange featured at least one speaker from a DOT that had received TA. The topics and purpose of each virtual peer exchange were as follows, listed in the order they occurred:

- **Virtual Peer Exchange #1: Incorporating CSS and Performance Based Practical Design.**
Participating States – Minnesota, Washington, Pennsylvania, and Florida
August 22, 2017

The purpose of the peer exchange was to share experiences and lessons learned from incorporating CSS/D and PBPD concepts in statewide design guidance manuals. Presenters from DOTs in Minnesota, Washington, Pennsylvania, and Florida discussed incorporating CSS/D principles and PBPD in design standards, as well as the connection between these efforts and the Expanded Functional Classification System (Expanded FCS), which focuses on the creation of a CSS-approach.

- **Virtual Peer Exchange #2: Leveraging CSS/Design for Sustainable Transportation**
Participating States – Delaware, Hawaii, Utah, and Colorado
August 31, 2017

The purpose of the peer exchange was to share approaches and lessons learned from transportation agencies using a CSS/D approach to plan, design, build, and maintain sustainable transportation infrastructure. Presenters from DOTs in Colorado, Delaware, Hawaii, and Utah, as well as a presenter from an MPO in Florida, discussed how they define sustainable transportation, including what key focus areas inform their decision-making processes for all phases of project development and delivery. In addition, they highlighted policies, practices, and innovations within their organizations that support sustainability and resiliency using a context-sensitive approach. Examples of sustainable transportation showcased include infrastructure; natural disaster/catastrophic events/emergency planning; and environment, energy, and economic solutions.

- **Virtual Peer Exchange #3: Delivering Context-Sensitive Projects in Rural Environments**
Participating States – Idaho, North Dakota, Wyoming, and Montana
September 29, 2017

The purpose of the peer exchange was to share experiences and lessons learned incorporating CSS/D during planning, design, construction, and operations and maintenance of highways in rural environments and smaller communities. Presenters from DOTs in Idaho, North Dakota, Wyoming, and Montana discussed their experiences incorporating CSS/D to improve project delivery. The discussion highlighted effective CSS/D practices, as well as information on how State DOTs are either working towards or delivering context-sensitive transportation solutions in support of improved community quality of life.

- **Virtual Peer Exchange #4: Incorporating CSS/Design and Multimodal Thoroughfares (Complete Streets)**
Participating States: Vermont, Colorado, New Jersey, California, and Florida
October 25, 2017

The purpose of the peer exchange was to accelerate the learning curve for State DOTs working to incorporate CSS/D for multimodal thoroughfares into their policies and standards. Presenters from DOTs in Florida, Vermont, New Jersey, Colorado, and California discussed their experiences incorporating CSS/D and *Complete Streets* principles to promote multimodal accessibility and ensure roads are safe for people of all ages and abilities. The discussion highlighted how CSS/D can help advance goals of creating and maintaining multimodal networks by balancing the needs

of different modes, supporting local land uses, economic development, cultural resources, and improving the human environment.

Virtual Peer Exchange #1: Incorporating CSS and Performance Based Practical Design

Speaker List

The featured speakers for this virtual peer exchange are listed below, in speaking order.

- Fleming El-Amin, Community Planner, FHWA Office of Human Environment, Livability Team
- Jim Rosenow, Design Flexibility Engineer, Minnesota DOT
- John Donahue, Design Analysis and Policy Manager, Washington State DOT
- Brian Shunk, Project Development Engineer, Pennsylvania DOT
- DeWayne Carver, State Complete Streets Program Manager, Florida DOT

Peer Exchange Discussion - Key Highlights and Takeaways

Federal Highway Administration

- FHWA advanced CSS and CSD implementation by developing resources that increase understanding of context and its applicability to emerging issues, providing technical assistance, and keeping CSS and CSD principles relevant to the delivery of the Federal Aid Program.
- FHWA developed a new CSS/D website that provides information to help users gain a better understanding of CSS/D, its application, and its connection to quality of life, environmental justice, project delivery, placemaking, PBPD, sustainability, and Complete Streets. The website features webinar recordings, relevant publications, case studies, sections on the history of CSS/D, and key references.
- FHWA information on Performance Based Practical Design (PBPD) is available at <https://www.fhwa.dot.gov/design/pbpd/>. The FHWA Office of Infrastructure also has several resources on PBPD, including fact sheets, frequently asked questions, a start-up guide, webinars, case studies, training workshops, and additional references.

Minnesota Department of Transportation

- Minnesota was one of the five CSS pilot States after the 1998 *Thinking Beyond the Pavement* conference. In 2000, MnDOT published a technical memorandum that established CSS as the overarching umbrella for design.
- By 2009, it became clear that design flexibility was not prevalent as a practice within MnDOT. MnDOT held a Flexible Design Forum to solicit ideas from other States; the event revealed that overly conservative standards were barriers to solutions. MnDOT revised its design criteria to align with the American Association of State Highway and Transportation Officials (AASHTO) Green Book, allowing as much flexibility as possible.
- In 2016, MnDOT released a PBPD departmental policy and is developing an accompanying PBPD guideline document, organized in the mold of Missouri DOT's Practical Design Implementation Manual.
- MnDOT is in the process of updating their Road Design Manual to incorporate PBPD and Complete Streets principles. The Manual will also incorporate new context and functional class frameworks from NCHRP Report 855.

Washington State Department of Transportation

- Similar to MnDOT, WSDOT has incorporated CSD through an evolution of initiatives, including a flexibility guide, CSS executive orders, and updates to the WSDOT Design Manual.
- In 2015, WSDOT introduced a flow chart to represent the basis of design, and context is central to the process. At the time, context documentation was flexible and open, and there were concerns about how to establish more details about project expectations.
- Paralleling the research in NCHRP 15-52: Developing a Context-Sensitive Functional Classification System for More Flexibility in Geometric Design, WSDOT updated its context documentation to include more detail.
- WSDOT leveraged its Planning Division to incorporate context criteria into its transportation project maps.
- In 2017, WSDOT established a context guidance flow chart that incorporates modal accommodation. WSDOT staff will determine an initial modal accommodation level, adjustable based on public involvement, consultation with local agencies, and other data that was not initially available or considered before finalizing.

Pennsylvania Department of Transportation

- The Pennsylvania Department of Transportation (PennDOT) has implemented CSS/D by seeking to balance safety and mobility while preserving the natural environment and enhancing community quality of life.
- In the mid-2000s, PennDOT published a CSS manual and held statewide CSS training sessions. In 2008, PennDOT released the Smart Transportation Guidebook, which incorporated CSS/D principles in the planning and design of streets to foster sustainable and livable communities. The Guidebook also laid out seven different contexts to better identify design parameters. PennDOT created a table for each roadway type that specifies design values for each of the contexts.
- Two projects that exemplify CSS/D in Pennsylvania are West 38 Street in Erie and the Pond Eddy Bridge in Shohola Township that crosses Delaware River into New York.
- PennDOT has a new design manual which aims to embody a context-based design process. Context categories have been reduced from seven to five because of confusion among designers where there was overlap. Functional classification of road types has also been simplified.
- PennDOT is using the research from NCHRP 15-52 for its updated decision-making matrix.
- Some of the challenges PennDOT has experienced with the design updates have been: overcoming institutional resistance to change, encouraging engineering judgment, attaining buy-in, and reaching all audiences for training.
- Some of the lessons PennDOT learned by going through the update process include: getting upper management buy-in from the outset is crucial; using a control group is important, DOTs should be ready to address unanticipated issues, and the process may take longer than initially planned.

Florida Department of Transportation

- Historically, typical sections in Florida have been designed based on needed capacity and a rural or urban designation. In the early 2000s, the concept of CSS emerged and in 2014, FDOT refined its thinking on typical sections by adopting a Complete Streets policy. The policy indicates the FDOT will plan, design, construct, and operate roadways that serve all users and are in harmony with the local context. The major features of the policy are safety, quality of life, economic development, and a focus on a range of users.

- FDOT developed an implementation plan for the policy. The NCHRP 15-52 research also helped FDOT determine how context should be defined in Florida.
- The FDOT Context Classification document establishes how context will be defined in Florida and includes a matrix which specifies which characteristics to use to determine context and roadway design.
- The FDOT Design Manual has undergone a full update and features design criteria based on the established context classifications.

Discussion

- Because of the large size of the department, one obstacle FDOT has experienced during design revisions has been disseminating information to all employees. FDOT has addressed this by establishing a core team at the central office, and mirroring this structure within the districts. The FDOT central office also held workshops with division staff to address anticipated concerns. An even larger challenge has been determining the public's role in selecting context classifications. The Complete Streets policy was helpful for FDOT since many partners and localities already maintained similar policies.
- Design revisions at WSDOT were driven by high-level decisions to incorporate context as a central component of how engineers approach the design process. WSDOT experienced that similar levels of effort must go into policy development as go into training.
- An impetus for the design revisions at PennDOT was that designers were often defaulting to the lowest values whenever presented with ranges for design values such as lane widths or curb returns, because those would be the most inexpensive to build. To address this, lookup tables will be modified to provide a recommended value and a minimum value instead of a range, with the ability to use higher values where needed. The goal is to instill engineering judgment back into design.
- At MnDOT, one of the biggest challenges to getting buy-in on rightsizing streets is that historically designers have been taught to focus on throughput and vehicle safety above all else. Although data shows that rightsizing does not reduce vehicle safety, this has still been a difficult perception to overcome.
- With flexibility in design standards, conversations need to be held between the DOT and community members to determine which options are appropriate while still maintaining safety.
- Through a program called PennDOT Connects, transportation projects in Pennsylvania progress from planning to construction with local input and interaction at all critical decision points in the design process.
- In Florida, the introduction of context classifications has brought planning and design and roadway functional classification closer together.
- At WSDOT, key design dimensions are presented as ranges to support a performance-based process instead of stipulating definitive values.
- Some engineers may hesitate to select smaller dimensions because it has been ingrained that it would not look right in practice. However, this perception may be stemming from a disconnect between how something looks in a design on paper, and how it looks when it is built.
- Although States may have a typical process used to make updates to their design manuals, whenever very large or consequential changes are made, the process may need to be altered to solicit greater input and involve more stakeholders.
- The seventh version of the AASHTO Green Book has been balloted, and will be released by Fall 2018. Initial discussions have begun to outline a strategy for the eighth version, which will likely

more fully incorporate concepts introduced in NCHRP 15-52 on context-sensitive functional classifications, PBPD, and integration of multiple modes.

Virtual Peer Exchange #2: Leveraging CSS/Design for Sustainable Transportation

Speaker List

The featured speakers for this virtual peer exchange are listed below, in speaking order.

- Fleming El-Amin, Community Planner, FHWA Office of Human Environment, Livability Team
- Jim Pappas, Assistant Director, Office of Performance Management, Delaware DOT
- Ed Sniffen, Deputy Director, Hawaii DOT
- Allison G. Yeh, Executive Planner and Sustainability Coordinator, Hillsborough County MPO, Florida
- Shane Marshall, Deputy Director, Utah DOT
- Johnny Olson, Transportation Region 4 Director, Colorado DOT

Peer Exchange Discussion - Key Highlights and Takeaways

Federal Highway Administration

- FHWA's Office of Natural Environment has developed numerous resources on sustainability and resiliency including publications, webinars, training workshops, peer exchanges, policy and guidance, case studies, administration of pilot programs, and technical assistance to State, regional, and local transportation agencies.
 - These resources help increase the health and longevity of the Nation's Highways and assist various State DOTs with assessing vulnerabilities, considering resilience in the transportation planning process, incorporating resilience in asset management plans, addressing resilience in project development and design, and optimizing operations and maintenance practices.
- FHWA's INVEST (Infrastructure Voluntary Evaluation Sustainability Tool) is a practical, web-based, collection of voluntary best practices and criteria designed to help transportation agencies assess and improve the sustainability of their projects, plans, and programs.
 - INVEST helps agencies improve their economic, social, and environmental outcomes. The tool was built and refined with the help of the many agencies who served as pilots, along with input from stakeholder associations and subject matter experts.

Delaware Department of Transportation

- Delaware has the lowest average elevation of any State in the nation, and because of that, sea level rise is a constant concern.
- The former Governor of Delaware instituted Executive Order 41.
 - This directive required the creation of a statewide task force, and working groups which are ongoing today, in topic areas such as mitigation, flood avoidance, workforce safety, and asset management.
 - The most important result of this order was that all State agencies were involved and cooperating.
- The Delaware Division of Natural Resources and Environmental Control provided grants to all State agencies to address resiliency challenges.

- Communication was key to success in Delaware. An outreach study illustrated how the State addressed sea level rise which was directly related to concerns raised by Delaware residents.

Hawaii Department of Transportation

- Hawaii faces several unique challenges relating to sustainability, including extensive shorelines, coastal roadways, a tourism-based economy, and its status as the most oil-dependent State per capita. Additionally, Hawaii is very car-centric, with 1.2 million cars for a population of one million.
- The integration of sustainability goals into legislation was an important success factor in Hawaii. In 2015, legislation was enacted that outlined five initiatives and aggressive goals to address sustainability statewide.
- Hawaii DOT (HDOT) organized a Sustainable Transportation Forum to consolidate public discussions about sustainability. This included over 60 community groups working to support legislation together, representing a variety of interests. HDOT continues to work with that group and keep them involved.
- HDOT also tackled some “low-hanging fruit” projects, such as converting highway lighting to energy efficient lighting, and incentivizing electric vehicles as passenger cars by working directly with companies to install charging stations.
- To ensure everyone was engaged in the sustainability goals, HDOT built sustainability goals into their mission statement and their Statewide Transportation Improvement Plan.

Hillsborough Metropolitan Planning Organization (Hillsborough County, FL)

- Hillsborough MPO completed an evaluation, collecting data on sea level rise, storm-surge, and flooding, and sought feedback from partner agencies on this quantitative information.
 - Hillsborough MPO engaged with the county-sponsored Local Mitigation Strategy Working Group for analytical work. The Working Group identified several assets to study along with the system-wide analysis.
- Hillsborough MPO also looked at econometric modeling.
 - One analysis showed that with an \$8 million investment, the county could cut the economic cost of a storm recovery in half, and decrease weeks of disruption.
- Hillsborough MPO sought to engage with the public, holding stakeholder meetings, and distributing over 3,500 public surveys to gather input. Public outreach and awareness is a priority and a challenge because of lack of a recent significant hurricane event.
- Hillsborough MPO cooperated extensively with other agencies and offices. In 2015, the Florida Governor signed legislation mandating vulnerability assessments, and Hillsborough MPO’s partner land-use agency built sustainability policies into their local plans.

Utah Department of Transportation

- The Utah Department of Transportation (UDOT) approaches CSS in terms of planning.
- UDOT is embarking upon a pilot study along I-15, examining risk and resilience issues through the corridor. This corridor will help them determine how the planning process could be adapted throughout Utah.
- UDOT extrapolated a 7-point framework from this pilot project – 1) Asset Characterization, 2) Threat Characterization, 3) Consequence Analysis, 4) Vulnerability Analysis, 5) Threat Assessment, 6) Risk/Resilience Assessment, and 7) Risk/Resilience Management.
- This process revealed several vulnerabilities which UDOT was then able to approach with more in-depth and detailed analyses, including an evaluation by a team of outside experts.

Colorado Department of Transportation

- The Colorado Department of Transportation (CDOT) focuses on incorporating risk and resiliency into planning, improving current systems, and identifying priorities to the system.
- CDOT has recent experiences with emergency response, and is focusing on “building back better,” to ensure that recovery from an event improves facilities and processes.
- CDOT aims to incorporate quantitative analysis (such as criticality models and annual owner risk models) into everyday asset management and decision-making.
- Colorado stresses making sustainability into a holistic, statewide approach.
 - The Governor’s office has developed a framework for use by all State agencies to incorporate sustainability. CDOT coordinates with the Governor’s office, working groups, and in partnership with other state agencies (such as in Housing, Health, and Local Agencies).

Discussion

- In Hawaii and other States, to show the (CSS/D) process is working, it is crucial to keep everyone engaged in the conversation. HDOT aims to meet with and report to the public regularly, and to make sustainability “business as usual” in the public eye—more than just a buzzword.
 - Hillsborough MPO agrees with this approach, pointing out that if local stakeholder groups cannot come to DOT meetings, DOT can send staff to theirs.
- Hillsborough MPO notes that DOTs can navigate “hot-button” public issues by highlighting economic consequences, since these can be more tangible effects to quantify for the public.
- In regards to public outreach, DOTs must be flexible and strive to include all stakeholders and community groups throughout all phases.
- In Delaware, emergency management relies on proactive responses. Maintenance workers pre-stage areas with strategically placed equipment and generators before events. This is followed up with a debriefing after events to consolidate lessons learned.
- The peers exchange participations recommended that state DOTs conduct public education outreach before a disaster occurs and discuss “what-if” scenarios with local communities to increase preparedness.
- In Colorado, engaging high-level officials and State agencies sustainability has proved helpful.
 - Similarly, in Hawaii, having statewide leadership support in incorporating sustainability into goals and legislation helps keep agencies like DOTs focused on big-picture goals.
- Completing pilot studies and risk analyses in Utah led to an awareness of potential risks across the UDOT workforce, from maintenance crews to leadership. Learning more about specific risks has also contextualized vulnerabilities across the state and informed design and project selection priorities and processes.
- DelDOT has developed a Strategic Implementation Plan to ensure sustainability and resiliency processes and information are disseminated effectively.
- CDOT incorporates sustainability and CSS/D into planning projects and documents early in the project development process.
- CDOT incorporates sustainability measures—like mandating use of certain concretes and asphalts, and creating awareness of natural resources into their policies.
- HDOT has a public engagement plan that applies to all initiatives and projects. HDOT releases public information during different stages of the project and coaches staff on the appropriate level of comments for each stage of the project. For example, HDOT works to incorporate more public comments during the planning stage so that the community are more fully prepared for the construction phase.

- HDOT continues to receive public comments and address concerns throughout construction.
- When CDOT measures success, they focus on three main performance measure areas: economic, social, and environmental. For example, metrics cover tourism dollars, freight value, and an index which measures a county's ability to respond to environmental emergency. It is impacted by forces such as a county's racial and socioeconomic makeup. This approach drives social needs into the discussion alongside economic ones.

Virtual Peer Exchange #3: Delivering Context-Sensitive Projects in Rural Environments

Speaker List

The featured speakers for this virtual peer exchange are listed below, in speaking order.

- Fleming El-Amin, Community Planner, FHWA Office of Human Environment, Livability Team
- Keith Moore, Environmental Program Specialist, FHWA Resource Center
- Sonna Lynn Fernandez, Transportation Planning Project Manager, Idaho Transportation Department
- Wayne Zacher, Transportation Engineer, North Dakota DOT
- James A. Evensen, District Construction Engineer, Wyoming DOT
- Ivan Ulberg, Traffic Design Engineer, Montana DOT

Peer Exchange Discussion - Key Highlights and Takeaways

Federal Highway Administration

- FHWA's Office of Project Development and Environmental Review has developed numerous resources on accelerating project delivery, streamlining, environmental stewardship, NEPA, and the development process.
 - FHWA's Environmental Review Toolkit is a one-stop resource for information and updates about transportation and the environment. The toolkit provides up-to-date information on environmental resources, policy guidance, best practices, and training.
- eNEPA 2.0 is an online project collaboration and streamlining tool that facilitates the environmental review process and has recently been updated. The tool assists with permitting requirements and allows its users to customize its steps and processes to tailor to State-specific requirements.
- FHWA's Office of Innovative Program delivery houses the Center for Accelerating Innovation. This Center oversees the Every Day Counts Initiative, which is a State-based program coordinated by FHWA to facilitate the rapid deployment of proven strategies and technologies to shorten the project delivery process, enhance roadway safety, reduce congestion and improve environmental outcomes.
- FHWA's Planning and Environment websites feature resources to assist rural communities in delivering context-sensitive projects in support of improved community quality of life, such as fact sheets on transportation and rural quality of life, rural-focused case studies, publications, videos, and webinars.
- The FHWA Resource Center is an information and resource clearinghouse that provides training and technical assistance for numerous transportation focus areas. The Environment and Realty team has provided CSS/D and project delivery support to numerous State DOTs and other transportation agencies. Resource Center staff also collaborate with NHI to deliver transportation training courses.

Idaho Transportation Department

- Idaho's low population and vast land area present a challenge for providing transportation services in the State.
- ITD developed guidance related to CSS/D and Practical Solutions several years ago. CSS/D principles are incorporated into the way ITD does business but they recognize there are always opportunities to improve.
- In November 2016, ITD received CSS/D TA from FHWA through a workshop focused on the ways in which ITD could better integrate CSS/D into its project delivery process.
 - Some of the recommendations that emerged from workshop participants included updating ITD's Project Outreach Planner (POP), creating a user-friendly comment side, developing a communications portal, and amending ITD's project charter to incorporate CSS/D elements.
- ITD replaced its Public Involvement Process Plan, which was a standalone, static document, with a web-based Public Involvement Procedures Manual that outlines the public involvement process from pre-project planning, to project design and construction, and all the way through to operations. The manual included an enhanced section on how ITD staff should incorporate CSS/D.
- ITD's POP is a tool for analyzing and quantifying public outreach needs that creates customized public involvement plans for projects. It will be used to help determine which approaches, technologies, and strategies can be used to most efficiently and effectively communicate with the public.
- ITD is developing a comment website where members of the public can find project information and leave comments on plans, studies, and projects.
- Each project at ITD must have a completed project charter detailing items such as project objectives, stakeholders, scope, schedule, and budget. Workshop attendees suggested amending the charter to include specific CSS/D questions to prompt project managers and teams to consider CSS/D integration, and the project charter guidebook has been updated to reflect such questions.

North Dakota Department of Transportation

- CSS/D has been ingrained into the NDDOT way of doing business, so it is not typically discussed as a standalone concept.
- Some of the ways in which NDDOT embodies CSS/D principles include holding NDDOT Director-level meetings with Federal and State partners, coordinating with two interagency teams on projects, having an ongoing substantive tribal consultation process, and holding public input meetings for projects more involved than preventative maintenance and that impact a community.
- Background was provided on the Watford City Bypass project, which was documented as a [case study](#) as part of FHWA's TA effort.
 - Because of the oil boom in the region, Watford City's population increased so rapidly that an accurate count could not be determined. Traffic increased substantially, and a large portion of the traffic was comprised of heavy-duty trucks.
 - The bypass followed Federal policies and requirements but was entirely State-funded. The project timeline was accelerated because many project processes happened concurrently.
- Some of the lessons NDDOT learned while undergoing this project include:

- Partner agencies should reach consensus and commit early on a project delivery process that will help streamline the effort and should regularly participate in meetings to keep all team members up to date.
 - In preparation for when top-down decisions are needed, senior leadership should be regularly informed of project.
 - Engineering solutions that involve a CSD approach helps to accelerate project delivery without circumventing the environmental review process.
- The project development process for the Hwy 85 Bypass project took 17 months to complete, and construction took 13 months to complete.

Wyoming Department of Transportation

- Wyoming has the lowest population of all 50 States.
- The Wyoming Department of Transportation (WYDOT) does not have a single CSS/D policy, but has three related policies: one on public involvement, another on transportation system enhancements, and a third on context-sensitive amenities.
- The Sturgis Motorcycle Rally is an event that exemplifies CSS/D in Wyoming.
 - Local communities in northeast Wyoming contacted WYDOT for assistance on managing increased traffic because of the event and capitalizing on the subsequent economic boost.
 - WYDOT has established detours around small towns during construction so through-traffic can bypass small towns while bikers and pedestrians can fully enjoy small town services and amenities.
 - WYDOT plans for the event months in advance and coordinates with the Wyoming Highway Patrol to update planning based on lessons learned in past events.
 - WYDOT utilizes temporary portable traffic signals and portable digital message boards to inform drivers of event activities and to manage traffic congestion. In addition, Highway Patrol and emergency personnel are stationed in key areas to reduce response time.
- The North Sheridan Interchange Project is another WYDOT project that incorporates CSS/D.
 - Public and private groups were engaged in the planning and scoping phase of the project.
 - The project, which is currently under construction, includes landscaping, enhanced lighting, and bicycle and pedestrian pathways.

Montana Department of Transportation

- The Montana Department of Transportation (MDT) manages approximately 17 percent of the roadways in Montana. These roadways account for most vehicle miles traveled in the State.
- Montana is home to several trade corridors, which influences their transportation planning and project development process.
- MDT developed a [CSS guide](#) in 2015; the guide includes processes MDT was already using that exhibited CSS/D principles.
- There are many challenges and opportunities associating with defining context in rural/urban interfaces and urban areas in MT.
- MDT is continually improving their outreach strategies to better engage community members in the transportation decision-making process.

Discussion

- In Wyoming, two items frequently raised by rural community members are pedestrian and bicycle pathways and beautification of urban areas through features such as decorative lighting.
- Community visioning can either be a help or a hindrance. If a community has an established plan, the DOT can draw connections between a proposed project and the plan. However, when a community has not fully considered transportation's role within their community, the DOT can often receive a variety of differing and sometimes conflicting requests.
- On the Watford City Bypass project, NDDOT received requests for a shared use path but the department hesitates to add such routes if they do not connect to a larger network.
- With Wyoming's sparse population, many citizens know their legislators or even the Governor personally, so they can make their requests for CSS/D amenities known directly.
- WYDOT has had a lot of success reducing wildlife-vehicle hits through strategies such as separated crossings.
- NDDOT has a tribal consultation process that involves sit-down discussions with tribes twice a year to discuss transportation projects one by one. Partner agencies are also involved in these discussions, allowing NDDOT to expedite projects by consulting with tribes all together instead of individually.
- In Montana, there was disagreement between MDT and one of the tribal governments on a corridor MDT wanted to build, which led to an opening of dialogue between the two parties. MDT and the tribe worked together, with the help of an outside facilitator, to build a corridor that incorporated animal crossings, accounted for culturally sensitive areas, and captured vistas that were both good for tourists and had cultural significance.
- The web-based communications portal ITD has developed helps expedite projects because stakeholders are involved early in the project development process. Having an enhanced project charter also helps ITD staff identify at which points they need to communicate with the public.
- MDT uses a risk analysis framework to accommodate for any aspects that differ from a standard, straightforward project. Once the risks have been identified, resources are allocated upfront to mitigate them, so MDT does not find itself having to go back to the beginning if one of the risk factors causes issues with the project.
- The bypass around Watford City helped increase quality of life by diverting heavy traffic from downtown and thus allowing residents to safely and efficiently travel throughout the area again. Watford City's residents were concerned that the bypass would hurt the local economy but an origin-destination study revealed that most of the regional traffic was not stopping in the city prior to the bypass. The results of that study confirmed that the bypass would not affect local businesses negatively.

Virtual Peer Exchange #4: Incorporating CSS/Design and Multimodal Thoroughfares (Complete Streets)

Speaker List

The featured speakers for this virtual peer exchange are listed below, in speaking order.

- Fleming El-Amin, Community Planner, FHWA Office of Human Environment, Livability Team
- Jon Kaplan, Bicycle and Pedestrian Program Manager, Vermont Agency of Transportation
- Betsy Jacobsen, Bicycle/Pedestrian and Scenic Byways Section Manager, Colorado DOT
- Andy Swords, Director, Division of Statewide Planning, New Jersey DOT
- Chris Schmidt, Division Chief, Transportation Planning, California Department of Transportation

- DeWayne Carver, State Complete Streets Program Manager, Florida DOT

Peer Exchange Discussion - Key Highlights and Takeaways

Federal Highway Administration

- FHWA has produced several pedestrian and bicycle planning design resources recently to respond to significant and growing demand from FHWA's partners and stakeholders, including urban, suburban, and rural communities. These resources are available on FHWA's Bicycle and Pedestrian Program website: https://www.fhwa.dot.gov/environment/bicycle_pedestrian/.
 - o The key themes throughout these resources are: safety, building on existing national design guidelines, connected pedestrian and bicycle networks, design flexibility, and using data to inform decision-making and improve the planning process.

Vermont Agency of Transportation

- Vermont has been working to make roads usable for all modes of transportation since as far back as 1997. The State's emphasis on Complete Streets began in 2011 when a statewide Complete Streets statute was passed. The law addresses the needs of all users during transportation design, construction, operations, and maintenance.
- The concept of Complete Streets aligns with the strategic goals the Vermont Agency of Transportation (VTrans) has for safety and for providing residents with walking, biking, and transit options.
- One of the challenges experienced at the municipal level after the law was passed was that there was not a universal understanding of what Complete Streets meant, since the term was new. The Vermont Department of Health sponsored the development of a Complete Streets guide for Vermont communities, which VTrans reviewed and edited. The guide features examples of the types of strategies to use to make streets work for all users.
- VTrans also developed its own Complete Streets guide intended for an internal agency audience featuring checklists and instructions on how to document Complete Streets processes.
- VTrans has embarked on an effort to update the Vermont State Standards in conjunction with Smart Growth America. The update process has included a large set of both internal and external stakeholders. The updates will be context-sensitive and integrate Complete Streets principles.
- VTrans has collaborated with the Vermont Agency of Commerce and Community Development to provide grants through the Better Connections Program, which ties Complete Streets with economic development.
- VTrans incorporated a road diet into a paving project in the town of Berlin, resulting in approximately one mile of mostly buffered bike lanes.

Colorado Department of Transportation

- When CDOT was formulating its bicycle and pedestrian policy, they purposefully avoided using the term Complete Streets so it would not solely be understood as a "new age" approach. The policy, which was codified into law in 2010 states that "the Department shall include the needs of bicyclists and pedestrians in the planning, design, operation and maintenance of transportation facilities as a necessary component of all programs and activities."
- Because of a lack of clarity of the policy's intent, there were challenges associated with implementation. In addition, some designers felt dedicated funding was necessary for implementation, and CDOT experienced resistance from some internal and external stakeholders.

- CDOT developed a bicycle and pedestrian chapter in its CDOT Roadway Design Guide, conducted training for engineers and planners, and developed the first statewide bicycle and pedestrian plan. The DOT is currently conducting more public outreach and education on its bicycle and pedestrian efforts.
- In 2015, the policy was revised, expanding from four pages to fourteen. The updated policy defines responsibilities, requires training for design engineers, specifies the process for exemptions, and establishes a process for identifying high priority bicycle and pedestrian corridors.
- Inspired by participation in a conference focused on walkability issues, CDOT developed a publication called Colorado Downtown Streets. While not a guide, the resource ensures communities and CDOT can easily communicate values and needs, especially for situations where a community's main street is also a State highway. The publication has been well-received, and a new round of workshops were planned to promote it.

New Jersey Department of Transportation

- New Jersey Department of Transportation (NJDOT) manages a very dense system of highways and railroads throughout the State.
- NJDOT collaborated with PennDOT on the development of the Smart Transportation Guidebook, which was an early example of Complete Streets concepts.
- NJDOT has three initiatives related to accommodating all road users: Complete Streets, road diets, and transit villages.
 - New Jersey was one of the first States to adopt a Complete Streets policy in 2009, which led to widespread local adoption at the county and municipality level. NJDOT bicycle and pedestrian staff review all projects for compliance with the policy. NJDOT released its Complete Streets Design Guide in 2016 and is currently conducting training for it.
 - NJDOT produced an eleven-minute video showing how road diets work and how they improve safety. The video also showcases case studies and addresses skeptics' concerns. NJDOT conducted training on road diets in 2016 and has 45 road diet projects either completed or in the works.
 - NJDOT's transit village initiative was established to encourage growth and redevelopment in the walkable areas around transit stations. Communities should earn the transit village designation by meeting specific requirements, which include adopting transit-oriented development and demonstrating bicycle and pedestrian friendliness. The commonalities among transit village top performers is that they have vibrant, walkable communities that attract development.

California Department of Transportation

- The California Department of Transportation (Caltrans) has incorporated Complete Streets into its Transportation Asset Management Plan, which informs project selection for Caltrans's maintenance program.
- Since 2016, Complete Streets considerations have been incorporated into Caltrans' project initiation documents, which determine project scope, schedule, and budget. These documents are reviewed for compliance with Caltrans's Complete Street policy.
- Caltrans developed the State Highway Operations Protections Program (SHOPP) tool to quantify assets and track performance across all projects. The tool includes several Complete Streets elements.

- The Complete Streets Elements Toolbox was designed in-house for project development teams to use. It provides definitions, guidance, project examples, and quantification methods for all elements listed in SHOPP tool.
- Caltrans is beginning to implement its statewide bicycle and pedestrian plan and will also make plans at the district level.

Florida Department of Transportation

- FDOT adopted a Complete Streets policy in 2014 that indicates FDOT will plan, design, construct, and operate roadways that serve all users and are in harmony with the local context. Policy adoption in Florida was later than in other States, allowing FDOT the opportunity to learn from the early adopters.
- One of the pieces of advice from other States was to work with Smart Growth America to transform policy into implementation. FDOT did so and through that process, identified relevant documents to update.
- The [NCHRP 15-52](#) research also helped FDOT determine how context should be defined in Florida.
- The FDOT Context Classification document establishes how context will be defined in Florida and includes a matrix which specifies which characteristics to use to determine context.
- The FDOT Design Manual has undergone a full update and features design criteria based on the established context classifications.
- Design speeds are now considered early in the process, allowing for appropriate lane widths that no longer require design variances.

Discussion

- CDOT found that having support at the administrative level within the department is very important. When CDOT was developing its bicycle and pedestrian policy, there was support from community members, but changes in administration sometimes halted progress.
- The term “Complete Streets” caused some confusion for VTrans because it gave the impression that something new was taking place, however, VTrans had already been working to accommodate all modes previously.
- While NJDOT was developing its policy, there were many discussions about possible exceptions to the policy, and it took a lot of wordsmithing to fully capture the exception categories.
- When FDOT received direction from its Secretary to write a policy, there were discussions about whether to use the term “Complete Streets.” Ultimately, the term was used, but care was taken to define it, making sure to include phrases like “context-sensitive” and “all users” instead of focusing on bicyclists and pedestrians. Before FDOT adopted its Complete Street policy, many of the local communities had their own policies; once FDOT adopted its policy, there was greater understanding and agreement on what was feasible.
- A misconception VTrans discovered with its policy is that some people believed that in every project the street would need to be made “complete.” However, the policy is not prescriptive; it is based on the context of the project.
- Design speed inform the functionality of the road, so getting design speed wrong can lead to many challenges. Historically, the emphasis on prioritizing moving vehicles has led to the establishment of high design speeds. But from a vulnerable-user perspective, speed is a safety issue, so it is important to get design speed right from the beginning.
- Florida’s Complete Streets initiative does not provide new funding, however FDOT has discovered strategic approaches to use existing funding to meet needs of all users.

- VTrans discussed how CSD helps to improve safety for vulnerable users throughout the state. Beyond meeting ADA requirements, VTrans recommends state DOTs establish a holistic approach and strategy that provides communities with optimal multimodal accessibility, particularly for those who do not drive.
- In VT, project managers document how they complied with the Complete Streets policy or met one of the exemptions. Because of this, VTrans recommends that Complete Streets elements be included in a project's purpose and need.
- FDOT has changed its process so that a variation is required if any criteria cannot be met, including bicycle and pedestrian criteria. Before, a note was sufficient to justify not being able to meet bicycle and pedestrian criteria.
- There are numerous benefits of walking and bicycling, including economic and health related benefits that can be used to highlight the benefits of Complete Streets.
- When considering enhancements for walking and bicycling facilities in rural areas, it is important to highlight the health and safety benefits for increasing accommodation for pedestrians and bicyclists. This is particularly important in areas with high vehicle speeds and very limited infrastructure for multimodal accessibility.
- Road diets can often provide the space necessary to accommodate Complete Streets features such as bike lanes.
- In situations where developments happen one at a time in isolation from each other, DOTs vary regarding whether they fill in any gaps and develop new bicycle or pedestrian facilities.
- Caltrans updated its design manual to incorporate Complete Streets and create flexibility for its designers. The revised manual provides guidance and refers to additional resources designers can rely on. Caltrans designers can use any available guidance if they use their professional engineering judgment and document all decisions.