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Federal Highway Administration

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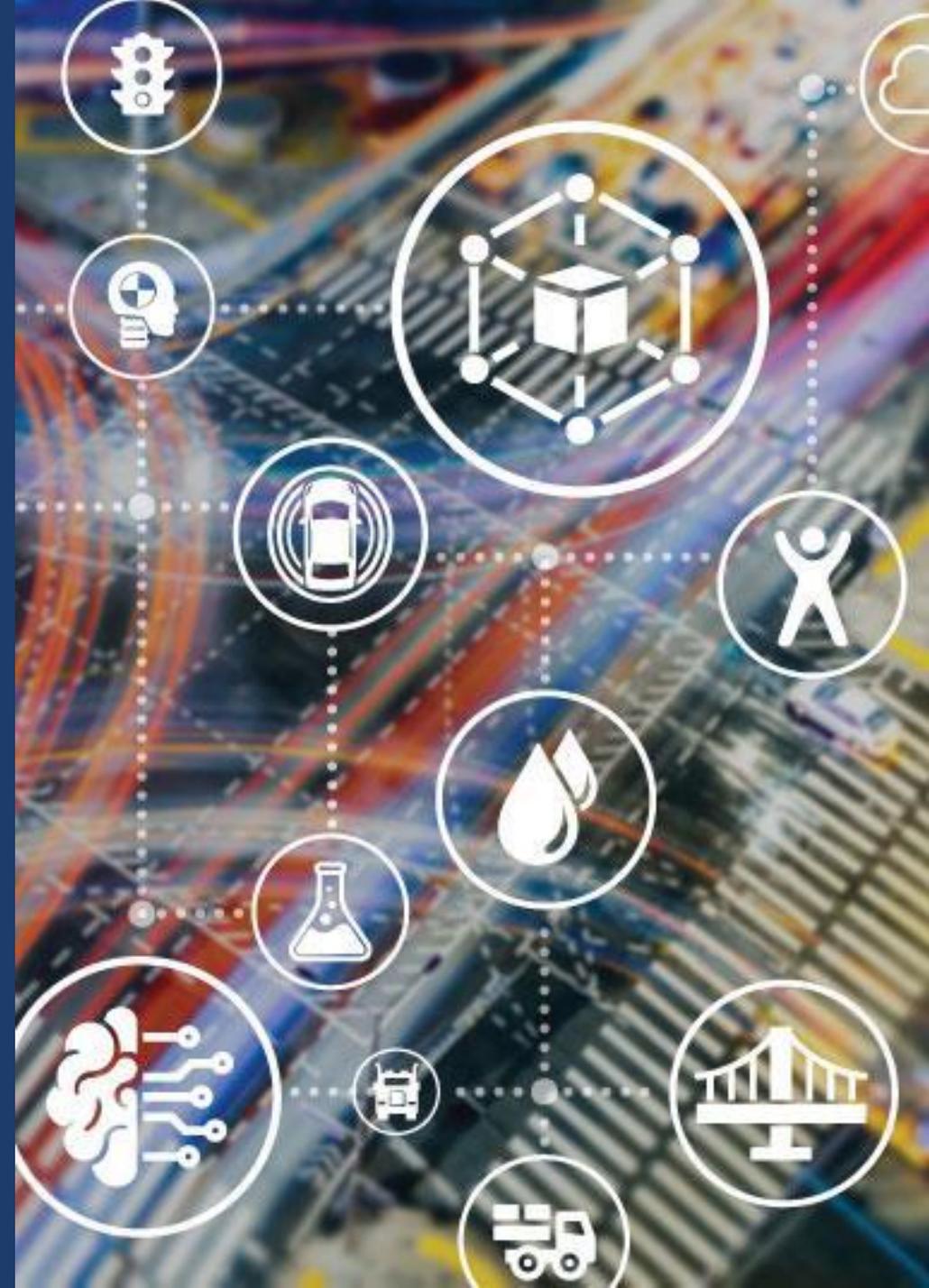
Update on FHWA Complete Streets Activity

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(FHWA) Office of Safety

James Pol—FHWA Office of Safety and Operations
Research and Development (R&D)

May 23, 2022

Transportation Research Board Research and Technology Coordinating Committee



Agenda

- ▶ Review of Bipartisan Infrastructure Law (BIL) provisions.
- ▶ Report to Congress review.
- ▶ Project activities mapped by opportunities.

All program information is continually updated:
<https://highways.dot.gov/complete-streets>.¹





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Review of BIL Provisions



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BIL

Complete Streets (CS)-Related Provisions

▶ **Highway Safety Improvement Program:**

- ▷ Requires States to complete vulnerable road user (VRU) safety assessments, taking into consideration a Safe System approach.
- ▷ Adds new special rule for States with total annual VRU fatalities comprising ≥ 15 percent of total annual crash fatalities in State.

▶ **Planning funds:**

- ▷ Defines CS standards and policies.
- ▷ Requires that each metropolitan planning organization (MPO) use ≥ 2.5 percent of funds apportioned for metropolitan planning on one or more activities to increase safe and accessible options for multiple travel modes for people of all ages and abilities.



BIL

Increasing Safe and Accessible Transportation Options (§11206)

“The term ‘Complete Streets standards or policies’ means standards or policies that ensure the safe and adequate accommodation of all users of the transportation system, including pedestrians, bicyclists, public transportation users, children, older individuals, individuals with disabilities, motorists, and freight vehicles.”¹



BIL

CS-Related Provisions

The VRU research plan prioritizes research on roadway designs, the development of safety countermeasures to minimize fatalities and serious injuries to VRU, and the promotion of bicycling and walking, including research relating to the following areas:

- ▶ **Roadway safety improvements.**
- ▶ **Traffic speed impacts.**
- ▶ **Tools to evaluate the impact of transportation improvements on projected rates and safety of bicycling and walking.**
- ▶ **Other priorities as determined by the Secretary.**



BIL

CS-Related Provisions

Safe Streets and Roads for All (SS4A):

- ▶ Supports local initiatives to prevent transportation-related death and serious injury on roads and streets (commonly referred to as “Vision Zero” or “Toward Zero Deaths” initiatives).
- ▶ Includes grants for MPOs, tribes, local governments, and other political subdivisions of States.
- ▶ Funds comprehensive safety action plans or planning, design, and development activities for infrastructure projects and other strategies identified in a comprehensive safety action plan.



BIL

CS-Related Provisions

Manual on Uniform Traffic Control Devices (MUTCD):

- ▶ Adds to MUTCD purposes, inclusion, and mobility for all users.
- ▶ Requires MUTCD update within 18 mo, every 4 yr thereafter.
- ▶ Requires first update to provide for protection of VRU to the greatest extent practicable, among other specified elements.



BIL

CS-Related Provisions

- ▶ **Bridge accommodation**—modifies an existing requirement for highway bridge deck replacement and rehabilitation to provide for safe accommodation of bicycles to also include pedestrians.
- ▶ **Reconnecting Communities grant program**—restores community connectivity by removing, retrofitting, or mitigating highways or other transportation facilities that create barriers to community connectivity, including to mobility, access, or economic development.



BIL

CS-Related Provisions

- ▶ Carbon Reduction Program—provides funding for projects to reduce transportation emissions or the development of carbon reduction strategies.
- ▶ Promoting Resilient Operations for Transformative, Efficient, and Cost-saving Transportation program—includes formula grants to help improve planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure elements.



What Are CS?

- ▶ **“A complete street is safe, and feels safe, for everyone using the street.” – FHWA Deputy Administrator Stephanie Pollack**
- ▶ **A full transition to a CS design model requires identification and elimination of barriers, and development of new policies, rules, and procedures to prioritize safety.**

Source: FHWA.



CS Is...

A Safety Strategy



It addresses the national crisis of traffic deaths by implementing the Safe System Approach.

Source: FHWA.

A Connectivity Strategy



It allows people to travel safely and comfortably by whichever mode they choose or rely on.

Source: FHWA

CS Is...

An Equity Strategy

It ensures a fair, safe, accessible, and healthy transportation network for all people, including those in underserved communities.

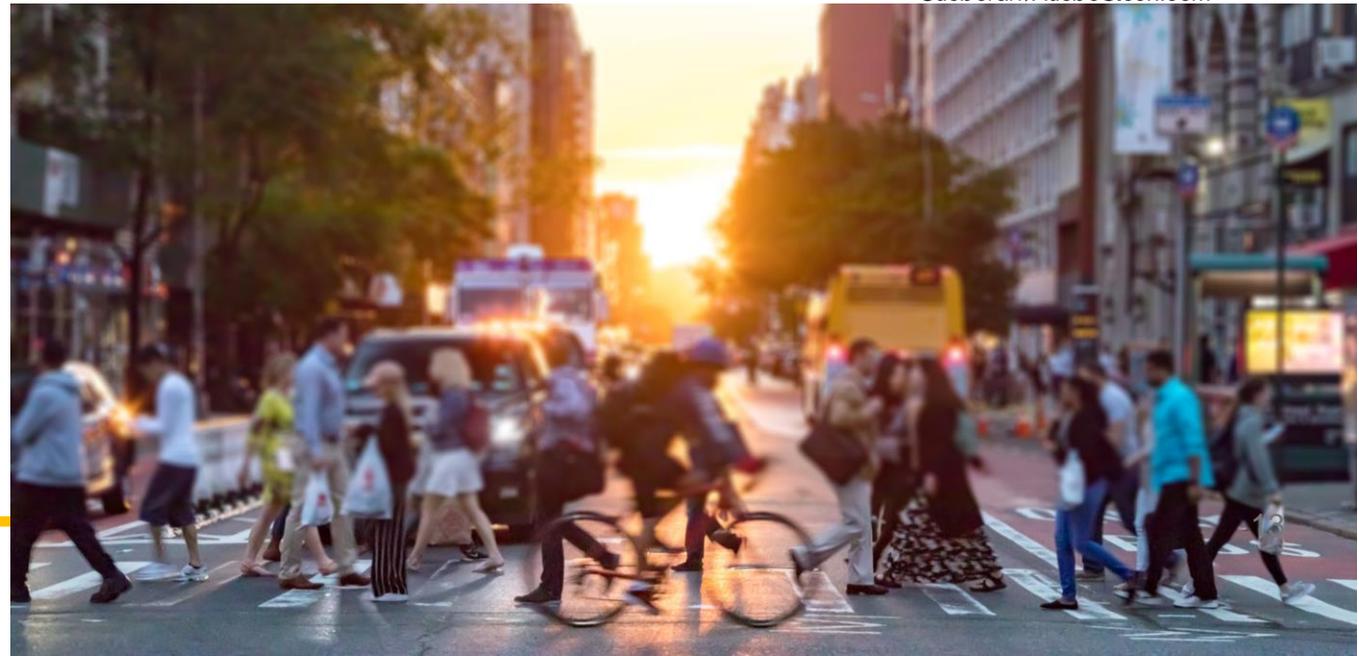
Source: FHWA, modification with permission of © 2017 Robert Wood Johnson Foundation.



A Climate Strategy

It reduces carbon pollution through mode shift to zero-carbon modes, such as walking and biking, and encourages vehicle electrification.

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Our Scope

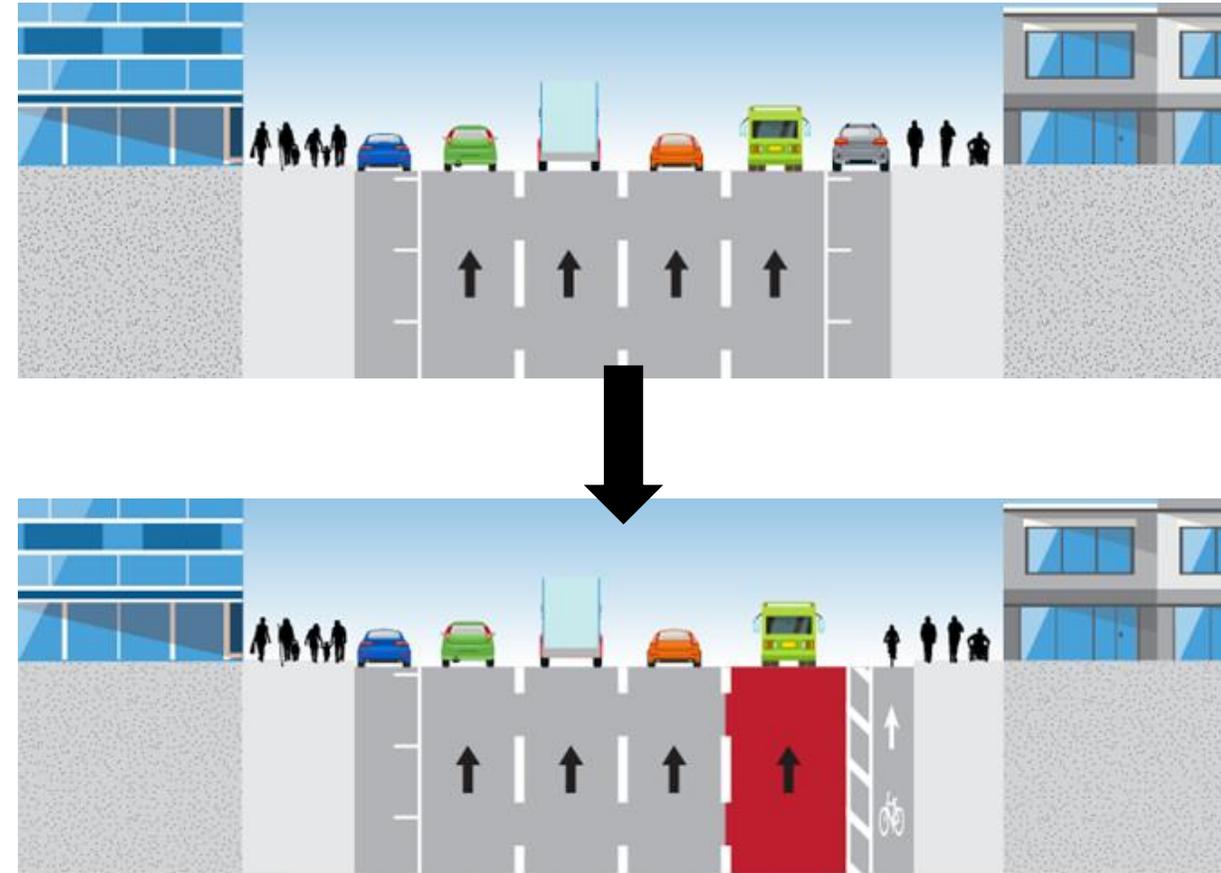
Focus

Nonfreeway arterial:

- ▶ Speed limits <55 mph.
- ▶ Within MPO boundaries.
- ▶ Small-town main arterial street.

Emphasis

- ▶ Complete pedestrian networks.
- ▶ Complete cycle networks.
- ▶ Accessible transit.



All figures source: FHWA.



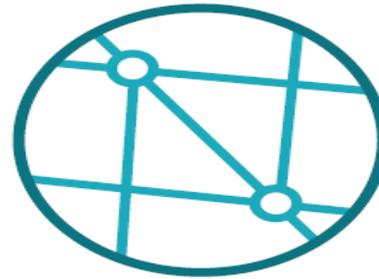
CS Create a Safe Network



Safety



Comfort

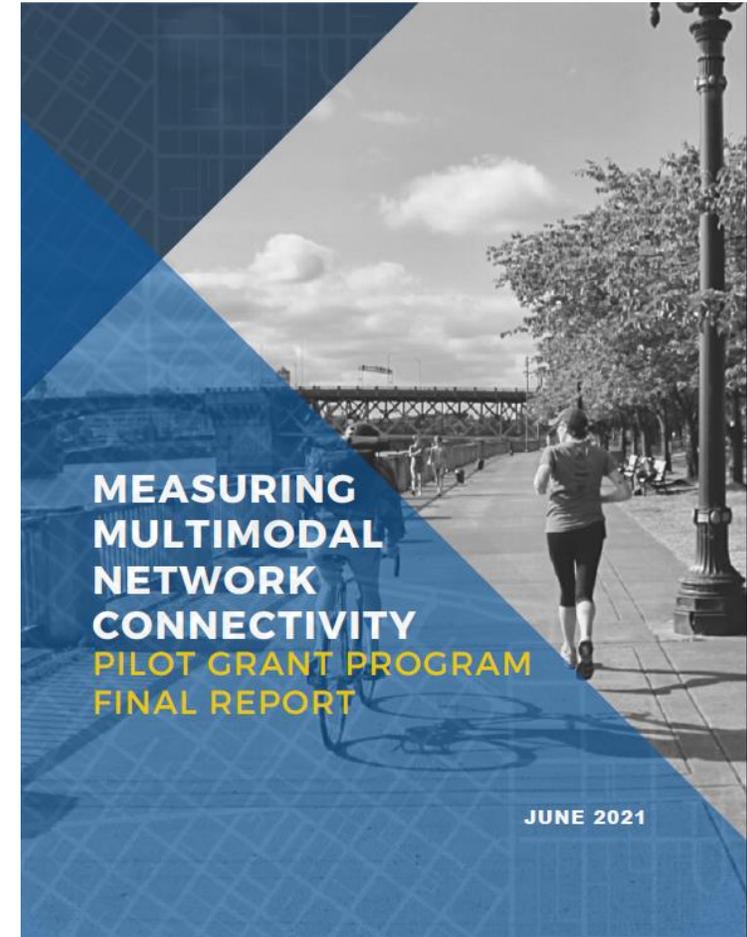


Connectivity

Resources:

Federal Highway Association. n.d. “Fostering Multimodal Connectivity Newsletter” (web page). <https://www.fhwa.dot.gov/livability/newsletter/>, last accessed November 18, 2021.

Federal Highway Association. n.d. “Guidebook for Measuring Multimodal Connectivity” (web page). https://www.fhwa.dot.gov/environment/bicycle_pedestrian/, last accessed November 18, 2021.



Source: FHWA.²



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²Federal Highway Administration (FHWA) Measuring Multimodal Network Connectivity Pilot Grant Program Final Report. 2021. Report No. FHWA-HEP-21-024. Washington, DC: FHWA.



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Summary Update of FHWA Activities



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FHWA's CS Strategies

- ▶ Update FHWA processes to make CS the default.
- ▶ Educate and train practitioners to elevate safety.
- ▶ Develop new measures of success.



FHWA CS Initiative Major Projects to Date

- ▶ Update FHWA processes:
 - ▷ **CS report to Congress—*issued*.**³
 - ▷ **Three enterprise activities—*dozens of trainings*.**
- ▶ Educate and train practitioners:
 - ▷ **Web portal and 101 documents—*published*.**
 - ▷ **CS assessment of States—*launched*.**
 - ▷ **Cost case studies—*underway*.**
- ▶ Measure CS success:
 - ▷ **Safety analysis—*underway*.**
 - ▷ **Data collection and modeling—*underway*.**





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Moving to a Complete Streets Design Model:

A Report to Congress on Opportunities and Challenges



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Moving to a Complete Streets Design Model: A Report to Congress on Opportunities and Challenges

- ▶ Data reviewed FHWA policies, rules, and procedures for impact on safety for all road users.
- ▶ Data identified the following:
 - ▷ Five opportunity areas and 10 underlying challenges.
 - ▷ Relevant documents.
 - ▷ Potential solutions for each area.
- ▶ Report posted at the following link:
<https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-03/Complete%20Streets%20Report%20to%20Congress.pdf>.⁴

FHWA Products That Promote Safety for All Users

- ▶ Connectivity.
- ▶ Accessibility.
- ▶ Equity.
- ▶ Performance management.
- ▶ Research and guidance.
- ▶ Funding for infrastructure investments.
- ▶ Design flexibility.



All images source: FHWA.



Opportunities for CS at FHWA

- A. Improve data collection and analysis to advance safety for all road users.
- B. Support rigorous safety assessment during project planning and design.
- C. Accelerate adoption of standards and guidance that promote safety and accessibility for all users and support innovation in design.
- D. Reinforce the primacy of safety for all users in interpretation of design standards guidelines and project review processes.
- E. Make CS FHWA's default approach for funding and designing non-access controlled roadways.





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Opportunity A: Improve Data Collection and Analysis Activities



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Improve data collection and analysis to advance safety for all road users—challenges:

- ▶ Data to support a data-driven project selection process needs to be improved.
- ▶ Measures of performance to support decisionmakers in addressing all transportation modes should be improved.



CS Safety Analysis

- ▶ Leverage ongoing FHWA and National Cooperative Highway Research Program projects developing crash modification factor (CMF) expressions for the *Highway Safety Manual*.⁵
- ▶ Assess the available CMFs, availability of data, and design potential approaches for conducting the safety assessment.



Source: FHWA.⁶



Source: FHWA.⁷

⁵American Association of State Highway and Transportation Officials. n.d. "Highway Safety Manual" (web page). <http://www.highwaysafetymanual.org/Pages/default.aspx>, last accessed November 19, 2021.

⁶Federal Highway Administration. n.d. "Roadway Safety Data Program" (web page). <https://safety.fhwa.dot.gov/rsdp/ddsa.aspx>, last accessed November 24, 2021.

⁷Federal Highway Administration. n.d. "Local Safety Road Plans" (web page). https://safety.fhwa.dot.gov/provencountermeasures/local_roads.cfm, last accessed November 24, 2021.

CS Safety Analysis

Notional outcomes:

- ▶ Create lists of candidate CMFs and crash modification functions (applications of multiple CMFs) for the CS safety analysis.
- ▶ Recommend the optimized alternative method and procedure for combining multiple CMFs and CMF functions from the CS safety analysis.
- ▶ Include suggested next steps: Applicability of the method to safety performance functions:
 - ▷ Additional features/design domain of case study.
 - ▷ Lists of CMFs that need development for CS safety analysis.



Improve Data Collection and Analysis— Solutions

Improve network and usage data to better inform development of CS:

- ▶ Walking and biking data collection—provide clearer guidance on measures of performance for projects supporting safety for all users. (FHWA Office of Planning, Environment, and Realty).
- ▶ CS safety analysis (FHWA Office of Safety and Operations R&D).
- ▶ CS barrier effect research (FHWA Office of Policy and Governmental Affairs).
- ▶ Pedestrian/bike data collection costs (FHWA Office of Safety and Operations R&D).





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Opportunity B: Support Rigorous Safety Assessment



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Support Rigorous Safety Assessment Across All Project Types—Challenges

- ▶ The safety and environmental benefits of CS need to be properly weighted in projects designed to reduce congestion.
 - ▷ Many Federal transportation funding programs do not include requirements to conduct specific safety analyses.



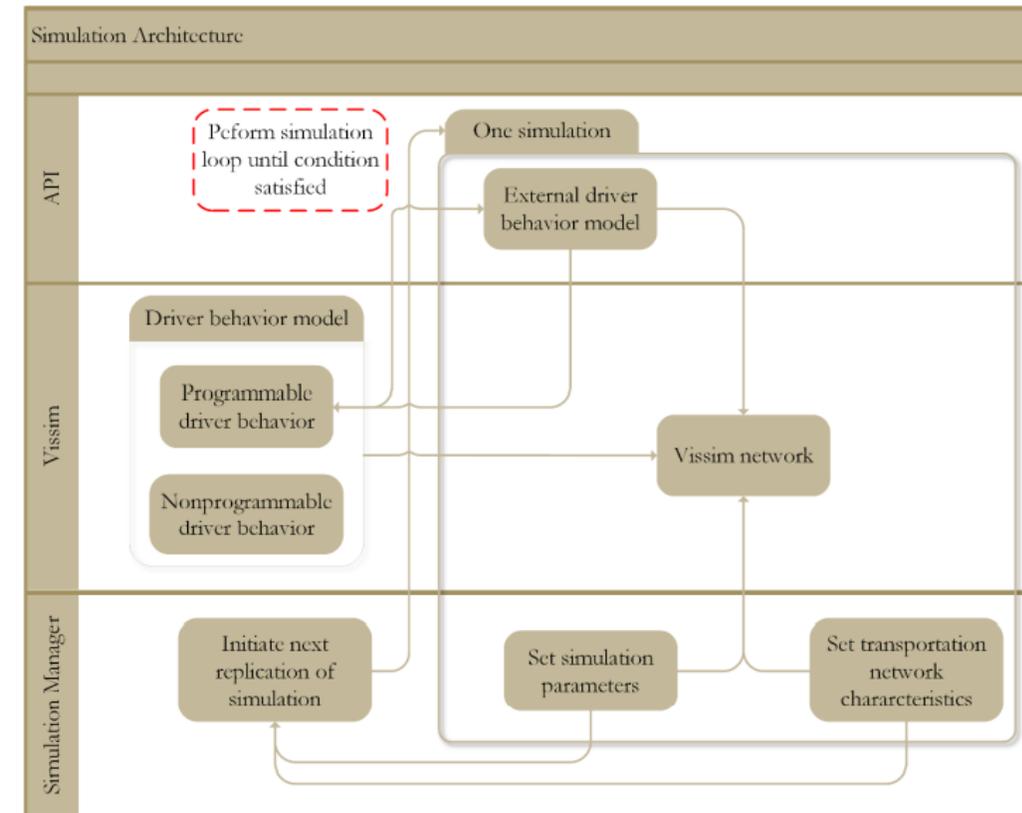
CS Modeling

- ▶ Assess current capabilities and gaps for forecasting CS effects on performance measures.
- ▶ Consider methodologies in the *Highway Safety Manual*, *Highway Capacity Manual*, and other widely applied tools.^{8,9}

⁸American Association of State Highway and Transportation Officials. n.d. "Highway Safety Manual" (web page). <http://www.highwaysafetymanual.org/Pages/default.aspx>, last accessed November 19, 2021.

⁹Transportation Research Board. 2016. *Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/24798>, last accessed November 19, 2021.

Source: FHWA.¹⁰



API = Application Programming Interface.

¹⁰Ma J., Y. Guo, and Z. Huang. 2021. *Developing Analysis, Modeling, and Simulation Tools for Connected and Automated Vehicle Applications: A Case Study for I-66 in Virginia*. Report No. FHWA-HRT-21-050. Washington, DC: Federal Highway Administration.



Possible Future Modeling Activities

- ▶ Use an interim set of best practices and evaluate CS using available modeling and analysis tools.
- ▶ Build a system dynamics model:
 - ▷ Will offer a framework for understanding complex intermodal interactions along CS and across a range of neighborhoods/communities.
 - ▷ Will support the development of new models and analysis tools.
- ▶ Develop a longer term research agenda and consider intermodal shifts and transportation demand shifts over time due to CS.



Support Rigorous Safety Assessment— Solutions

- ▶ Find ways to increase the assessment of safety outcomes across all types of Federal-aid projects to improve safety performance:
 - ▷ Consult with partners on next steps.
 - ▷ Establish operations primer (FHWA Office of Operations).
 - ▷ Conduct policy impact research (Policy-FY23).
- ▶ Provide additional technical assistance and guidance that supports CS implementation—operations primer (Office of Operations).





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Opportunity C: Accelerate Adoption of Standards and Guidance



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Accelerate Adoption of Standards and Guidance that Promote Safety and Innovation—Challenges

- ▶ Federally recognized standards should enable more context-sensitive design solutions for safety.
- ▶ Design document updates do not always keep pace with innovative practices.
- ▶ Federal standards should be updated to improve accessibility for pedestrians with disabilities.



Accelerate Adoption of Standards and Guidance—Solutions

- ▶ Consider updates to FHWA products to better consider safety for all users:
 - ▷ MUTCD update (Office of Operations).
 - ▷ Alternate roadway design guidelines (Office of Infrastructure).
 - ▷ Speed management program (Office of Safety/Office of Operations).
- ▶ Expedite U.S. Department of Transportation (USDOT) adoption of final accessibility guidelines—Public Right of Way Accessibility Guidelines standard (Office of Civil Rights).¹¹
- ▶ Enhance Americans with Disabilities Act stewardship and oversight activities—transition plan handbook research (Office of Civil Rights).
- ▶ Partner with universities and related organizations to develop education and training programs that provide accurate and complete information on roadway design standards and practices.





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Opportunity D: Reinforce the Primacy of Safety for All Users



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Reinforce the Primacy of Safety for All Users in Interpretation of Standards, Guidelines, and Review—Challenges

- ▶ Different interpretations of FHWA rules can lead to inconsistency or missed opportunities in addressing safety for all users.
- ▶ On-road transit and access to it should be better integrated into roadway safety planning, design, and operation.



CS Costs Case Studies (In Progress)

Goal: Document the construction costs of a diverse group of CS projects located on:

- ▶ Urban and suburban *arterials* (nonfreeway) within the boundaries of MPOs and with posted speed limits less than 55 mph.
- ▶ Rural *arterials* that serve as main streets in smaller communities.



CS Costs Case Studies (In Progress)

Deliverables:

- ▶ Review and assessment report.
- ▶ Identification of potential projects.
- ▶ Information to support State and local agencies on the development of their own case studies.
- ▶ Case studies (up to 12):
 - ▶ Four case studies in Phase 1.
 - ▶ Up to 8 additional case studies in Phase 2.



Some Basic Project Information (If Known)

Project Name (Example)	State	Project Type (select): <i>New Construction, Reconstruction, Maintenance, Resurfacing</i>	Functional Class (Arterial only)	Roadway Context: <i>Urban Core, Urban, Suburban, Rural</i>	Cost: (Can be approx.)	Contact Information:
State Road 21 (South Lawrence Blvd.) Improvements, Keystone Heights, FL	FL	Resurfacing	Arterial	Rural	\$1,800,000	Joe Contact (555) 223-4567 joe.contact@email.com

Reinforce the Primacy of Safety for All Users—Solutions

- ▶ Encourage planning for complete and connected multimodal networks at the statewide and regional level:
 - ▷ CS web portal and communications products (Office of Safety).
 - ▷ National Highway Institute training course (Transportation Workforce Development and Technology Deployment).
- ▶ Provide professional capacity building and training to FHWA personnel and other practitioners on the imperative to provide safety for all users:
 - ▷ Costs case studies (Office of Infrastructure R&D).
 - ▷ Training and technical assistance for States and locals (Office of Innovation Implementation - Resource Center) (FY23).



Reinforce the Primacy of Safety for All Users—Solutions

Increase interagency coordination on CS:

- ▶ Flexible funding project (Federal Transit Administration (FTA)).
- ▶ Additional FTA activities (proposed).





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Opportunity E: Make Complete Streets FHWA's Default Approach



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Make CS FHWA's Default Approach for Funding and Designing Nonaccess-Controlled Roadways—Challenges

- ▶ USDOT guidance currently provides insufficient detail on statutory requirements to consider all modes.
- ▶ Agencies should systematically change policies, rules, and procedures to fully implement a CS design model.



National CS Assessment (NCSA)

Key project activities:

- ▶ National NCSA webinar—provides an overview of the NCSA project, highlights notable practices, and provides a description of the survey for the States.
- ▶ NCSA survey—contacts 52 State DOTs to define the national baseline of CS practice.
- ▶ National Complete Streets Baseline Report—internal FHWA report.
- ▶ At-a-Glance NCSA Report—a public-facing report on general findings of NCSA.



NCSA

Project status (March 2022):

- ▶ NCSA project is scheduled to be completed within 1 yr from the Notice to Proceed, which was in February 2022.
- ▶ Current status—kickoff meeting occurred on February 24, 2022.
 - ▷ Met the AECOM and Complete Streets Coalition team.
 - ▷ Reviewed schedule and deliverables.

Next major steps:

- ▶ Finalize project management plan.
- ▶ Finalize technical resource plan and set first meeting.
- ▶ Work on Paperwork Reduction Act process for survey.



Make CS FHWA's Default Approach— Solutions (Ongoing)

- ▶ Provide additional technical support and guidance focused on promoting safety for all users.
National CS State assessments (Office of Environment, Planning, and Realty)
- ▶ Continue to evaluate aspects of CS and document progress and needed policy, guidance, and program improvements.
Advanced Technologies for Climate Solutions Strategies in CS Environment (Office of Safety and Operations R&D)



Make CS FHWA's Default Approach— Solutions (Proposed)

- ▶ Provide more guidance on process and requirements to consider all modes:
 - ▷ CS BIL implementation coordination (Office of Policy and Governmental Affairs).
 - ▷ VRU assessment guidance (Office of Safety and Operations R&D).
- ▶ Make regulatory changes, guidance changes, process changes, or a combination that eliminate(s) barriers as outlined in the report.
Complete Streets FY 2023–26 workplan/roadmap (all offices).



Questions?



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