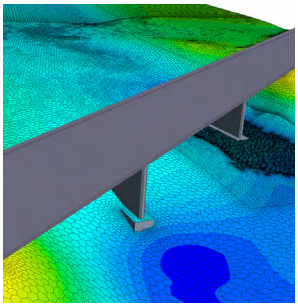
On-Ramp to Innovation
every day counts

U.S. Department of Transportation
Federal Highway Administration





Every Day Counts:

An Innovation Partnership With States

EDC-4 Progress Report #3

January–June 2018

Foreword




Every Day Counts (EDC) is a Federal Highway Administration program to advance a culture of innovation in the transportation community in partnership with public and private stakeholders. Through this State-based effort, FHWA coordinates rapid deployment of proven strategies and technologies to shorten the project delivery process, enhance roadway safety, reduce congestion, and improve environmental outcomes.

This report summarizes the June 2018 status of innovation deployment for the 11 innovations in the fourth round of EDC. The report is intended to be a resource for transportation stakeholders as they implement their innovation deployment plans and to encourage ongoing innovation in managing highway project delivery to better serve the Nation.

Quality Assurance Statement

The Federal Highway Administration provides high-quality information to serve government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

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"Every Day Counts inspires State and local governments to adopt cutting-edge technologies and practices in their ongoing quest to save lives, shorten project delivery, improve overall quality, and minimize cost to the taxpayer."

Brandye Hendrickson, FHWA Acting Administrator

Every Day Counts: An Innovation Partnership With States

Every Day Counts (EDC) is a Federal Highway Administration program that works in partnership with the **American Association of State Highway and Transportation Officials** and other transportation stakeholders to foster a culture of innovation. It focuses on accelerating project delivery and deploying proven innovations that facilitate greater efficiency at the State and local levels. Designed to complement other initiatives promoting innovative technologies and practices, EDC plays an important role in helping transportation agencies fulfill their obligation to the American people to deliver the greatest value for the tax dollars spent.

Every 2 years, FHWA works with State departments of transportation, local governments, tribes, private industry, and other stakeholders to identify a new set of innovative technologies and practices that merit widespread deployment through EDC. The selected innovations share common goals of shortening project delivery, enhancing the safety and durability of roads and bridges, cutting traffic congestion, and improving environmental sustainability. **EDC round four** (EDC-4), which promotes the adoption of 11 innovations in 2017 and 2018, builds on the success of previous deployment efforts.

View the "Mission Possible" video for a quick look at the 11 EDC-4 innovations..

After the process of selecting EDC innovations for each 2-year deployment cycle is completed, transportation leaders from across the country gather at regional summits to discuss the innovations and commit to finding opportunities to implement those that best fit the needs of their State transportation programs. After the summits, **State Transportation Innovation Councils** (STICs), which bring together public and private stakeholders, meet to evaluate innovations and spearhead their deployment. STICs are active in all 50 States, Washington, DC, Puerto Rico, the U.S. Virgin Islands, and Federal Lands Highway (FLH).

EDC's collaborative, State-based approach to deploying innovation enables States to determine which innovations will work best for them and their customers. Working through STICs, States can consider EDC innovations along with other recommendations from sources such as the AASHTO **Innovation Initiative** and the **second Strategic Highway Research Program** and adopt those that add value to their transportation programs.

FHWA's role in the EDC process is to provide national leadership in encouraging adoption of innovations that can improve the Nation's transportation system. The agency forms a multiagency deployment team for each EDC innovation to assist States in their implementation efforts. Using feedback from stakeholders obtained through communication opportunities such as the EDC summits, the teams offer technical assistance, training, and outreach to help the transportation community adopt innovations and make them standard practice.

> "The Every Day Counts program has been critical in helping States adopt proven innovations that add value to their highway programs and better serve the traveling public."
>
> *Bud Wright, AASHTO Executive Director*

FHWA also offers assistance through its **STIC Incentive** and **Accelerated Innovation Deployment (AID) Demonstration** programs to encourage and provide incentives for innovation deployment. The STIC Incentive program provides up to $100,000 a year per State to help STICs make innovations standard practice. The AID Demonstration program provides an incentive of up to $1 million to support the cost of deploying an innovation in any phase of a highway project. The program allocates up to $10 million a year in incentive funds.

The EDC program has had a significant positive impact on the transportation community's adoption of new technologies and processes. Since the program began, every State transportation agency has used 14 or more of the 43 EDC innovations, and some have adopted more than 30. Many of these innovations are now mainstream practices across the country. The 2015 **Fixing America's Surface Transportation Act** included EDC by name, directing FHWA to continue fostering a culture of innovation with stakeholders to deploy innovative practices and technologies.

View the "Power of the STIC" video series to learn how the **national STIC network**, **local agencies**, **State transportation departments**, **academia**, and **industry** collaborate to accelerate innovation deployment.

STIC Overview **Local Public Agencies** **DOTs** **Academia** **Industry**

See the **State Innovation Accomplishments map** for details on **AID Demonstration** and **STIC Incentive** projects, innovation deployment examples from articles and reports, and STIC network contacts.

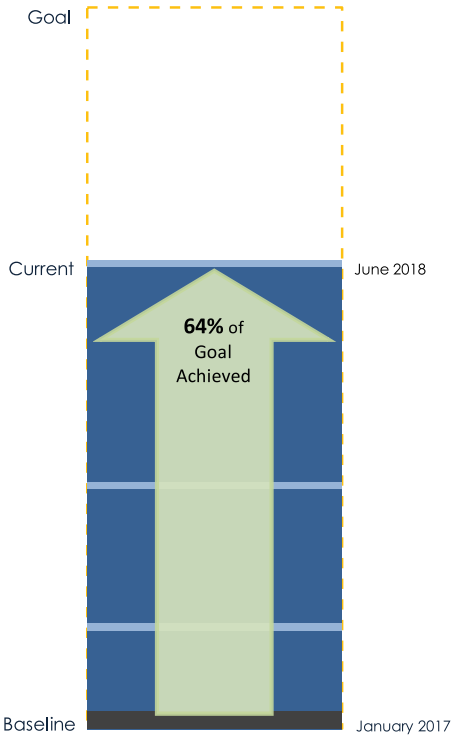
EDC-4 Innovation Implementation

Every 6 months, FHWA compiles a status report on the state of practice for the current round of EDC innovations. This section provides details on the 11 innovations in EDC-4 and includes maps and charts that show the progress made in advancing the technologies and practices by the end of June 2018.

The maps illustrate the innovation implementation stage in each State. The charts show the number of States that have demonstrated, assessed, or institutionalized the innovation. The charts also compare the June 2018 state of practice to the January 2017 baseline data and December 2018 goals set by States.

"State" is used as a general term that includes the State transportation department, metropolitan planning organizations, local governments, tribes, private industry, and other stakeholders in a State or territory. Information is provided for the 50 States, Washington, DC, Puerto Rico, the U.S. Virgin Islands, and FLH, a total of 54 entities.

The following table defines the innovation deployment stages displayed on the maps and charts.



Attainment of Demonstration, Assessment, or Institutionalized Implementation Across All Innovations and States
Progress Report #3

Innovation Implementation Stages

Not Implementing	The State is not using the innovation anywhere in the State and is not interested in pursuing the innovation.
Development Stage	The State is collecting guidance and best practices, building support with partners and stakeholders, and developing an implementation process.
Demonstration Stage	The State is testing and piloting the innovation.
Assessment Stage	The State is assessing the performance of and process for carrying out the innovation and making adjustments to prepare for full deployment.
Institutionalized	The State has adopted the innovation as a standard process or practice and uses it regularly on projects.

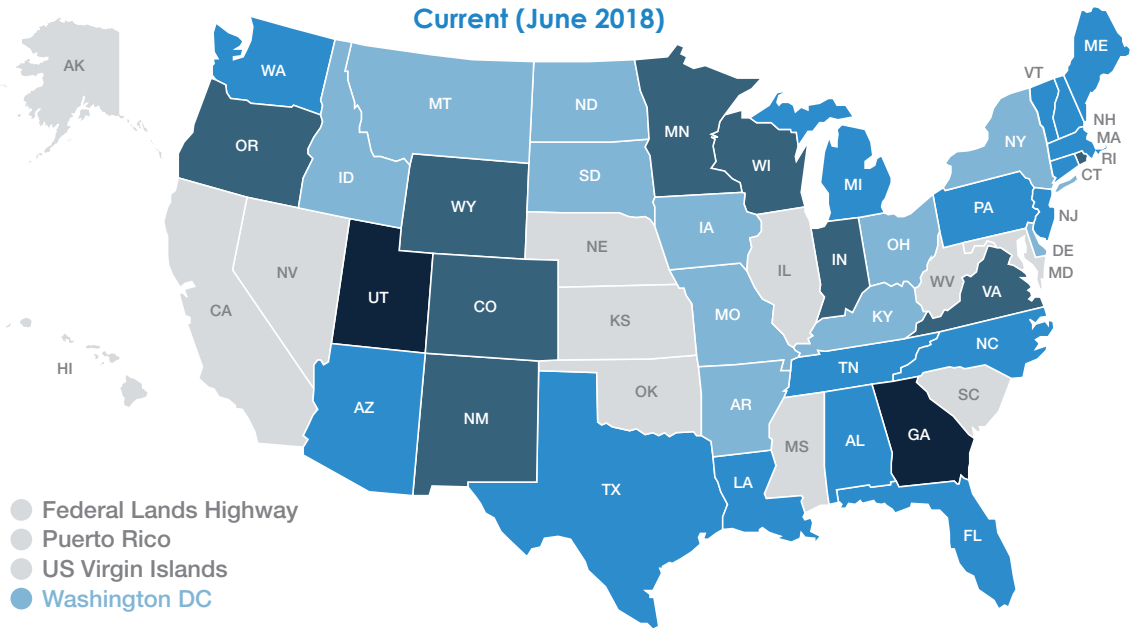
Automated Traffic Signal Performance Measures

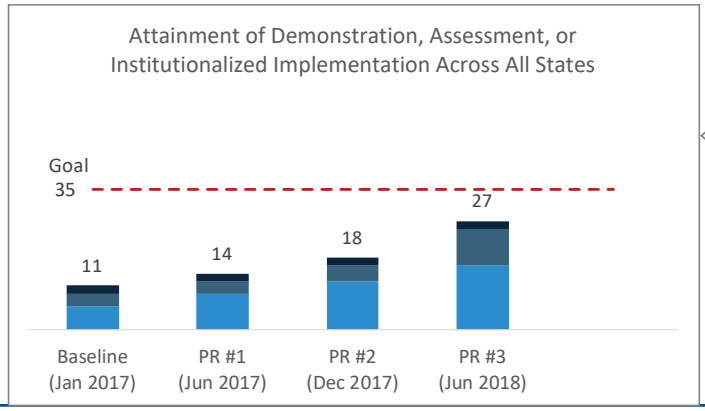
Automated traffic signal performance measures (ATSPMs) enable transportation agencies to incorporate objectives and performance-based approaches in traffic signal operations, maintenance, design, and management. Using ATSPMs can improve safety and customer service while cutting congestion and costs.

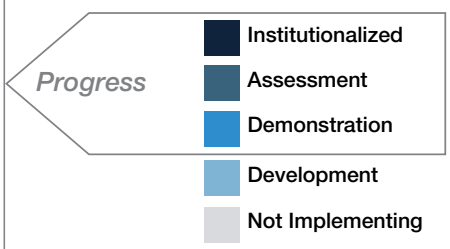
More than 330,000 traffic signals operate in the United States. Typically, agencies retime signals on a 3- to 5-year cycle at a cost of about $4,500 per intersection. For most signals, citizen complaints are the primary performance measure. The need to use software modeling to simulate performance and manually collected traffic data drives up retiming costs.

ATSPMs consist of a high-resolution data-logging capability added to existing traffic signal infrastructure and data analysis techniques. This cost-effective technology provides the information needed to manage traffic signal maintenance and operations in support of an agency's safety and mobility goals.

Using ATSPMs to enhance safety and customer service is generating interest across the country. Eleven States and Washington, DC, are developing implementation plans and learning more about this innovation. Twenty-five States are demonstrating and assessing the technology. Two States have made ATSPMs a standard practice.







Innovation Spotlight

Automated Traffic Signal Performance Measures

In **Connecticut**, the city of Danbury is using a proprietary ATSPM system for municipally owned traffic signals. Danbury connected 70 of its 80 traffic signals to the central control and monitoring system. The city uses the system to obtain real-time level of service information, as well as daily and weekly traffic flow profiles. The system has allowed the city to eliminate floating car runs – in which vehicles are driven the length of a corridor and the mean travel time is compute – as well as physical field monitoring and data collection along the installed corridor, resulting in significant cost savings. The system also enables easy identification of signal timing deficiencies and facilitates signal coordination.

In **Florida**, the city of Tallahassee expanded implementation of ATSPMs from an initial 22-signal installation to 40 signals. ATSPMs have produced several benefits, including a reduction in peak hour delays at a congested intersection and the discovery of a signal controller firmware bug. Seminole County implemented ATSPMs for its 383 signals in less than 2 years. The county reports that ATSPMs have reduced the need to conduct traffic counts, making data collection funding available for other initiatives.

The **Maine Department of Transportation** (MaineDOT) provided training to 54 staff members and consultants involved in the design, operation, or maintenance of traffic signals. The purpose of the training was to support improvements in field infrastructure reliability in preparation for ATSPM implementation. The training enabled participants to become certified in various areas, such as traffic signal design and engineering and traffic signal construction.

After installing an ATSPM system on Route 202, the **New Jersey Department of Transportation** (NJDOT) is evaluating the performance measures the system provides. NJDOT is promoting the institutionalization of ATSPMs throughout the State, with a focus on local agency participation. NJDOT held a local agency workshop to support development of a strategic approach to traffic signalization through performance-based management of traffic signal programs. The desired outcome is the widespread development of local agency traffic signal management plans.

The **North Carolina Department of Transportation** (NCDOT) piloted and evaluated several ATSPM hardware and software solutions. The agency study delved into various detector options—including open-source code and private sector products—along with their costs and benefits. NCDOT is developing a report on the study that is expected to be pivotal in advancing ATSPM implementation nationwide.

The **Oregon Department of Transportation** (ODOT) implemented ATSPMs on 29 signalized intersections, using Utah Department of Transportation open-source software as the primary means of generating performance measures. ODOT is developing a traffic signal management plan to provide a framework for using ATSPMs to support agency goals and objectives. The plan will provide support for the development of new design standards for ATSPMs. The agency's long-term approach for institutionalizing the use of performance measures is to ensure that all new traffic signal projects install advanced traffic controllers with ATSPMs as standard practice.

The Oregon Department of Transportation is developing a plan to use ATSPMs to support agency goals and objectives.

Credit: Oregon Department of Transportation

The **Pennsylvania Department of Transportation** (PennDOT) is advancing ATSPMs by collaborating with Indiana and other participants in Transportation Pooled Fund Study TPF-5(377) on Enhanced Traffic Signal Performance Measures. PennDOT is leading the development of tools to evaluate delay, reliability, variation, and environmental impacts using vehicle probe data. PennDOT is working with the University of Maryland to incorporate the tools into the Regional Integrated Transportation Information System application. PennDOT would like to close the gap between ATSPM data and probe data metrics so practitioners can use both at the same time.

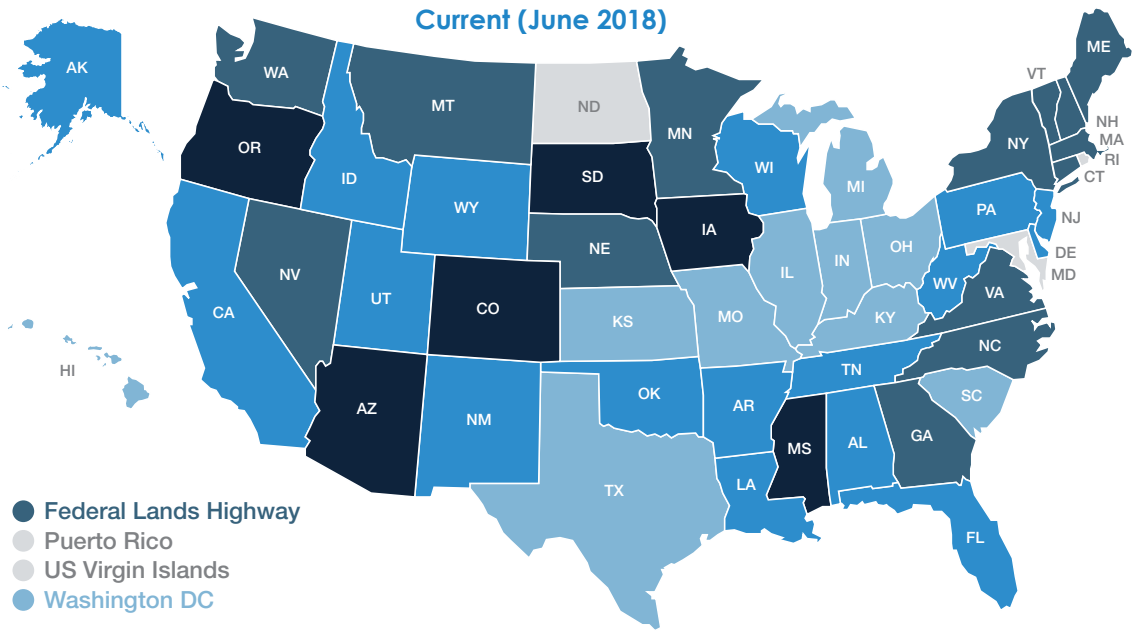
Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

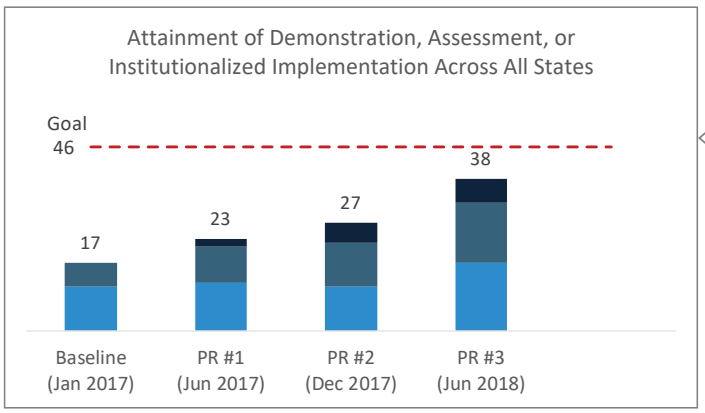
The effort on **collaborative hydraulics: advancing to the next generation of engineering** (CHANGE) uses hydraulic tools to improve understanding of complex interactions between river or coastal environments and transportation assets, enabling better design and more efficient project delivery.

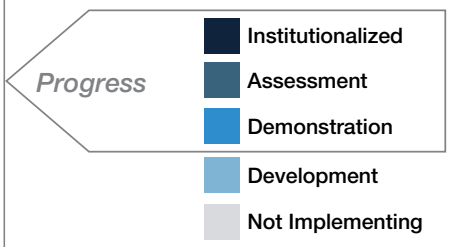
The next generation of hydraulic engineering tools provides planners and designers with data they can use to improve project quality. The technology can be used to illustrate patterns of flow discharge, water surface elevations, depth, velocity, and shear stress. The results allow for more accuracy in estimating flow conditions and paths, evaluating hydraulic considerations, and assessing extreme weather event scenarios.

These new hydraulic modeling tools represent a significant evolution in hydraulic modeling theory and practice, with potential for streamlining environmental, regulatory, engineering, and other aspects of project delivery. The results can improve the ability of highway agencies to design safer, more cost-effective, and resilient structures on waterways.

CHANGE is generating widespread interest among States. Ten States and Washington, DC, are developing implementation plans and learning more about this innovation. Thirty-one States and FLH are demonstrating and assessing hydraulic engineering tools. Six States have institutionalized hydraulic tools.







Innovation Spotlight

Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

To overcome limited staff availability for CHANGE implementation, the **Alaska Department of Transportation and Public Facilities** is collaborating with partner agencies and consultants to use two-dimensional (2D) hydraulic modeling tools for hydraulic and scour analyses on bridges. For example, Alaska DOT&PF initiated a cooperative agreement with the U.S. Geological Survey (USGS) to apply 2D hydraulic modeling on multiple bridge projects. This agreement streamlines the process for USGS to perform 2D hydraulic analyses of bridges, use the modeling results to determine the scour risk of structures, and communicate the results to Alaska DOT&PF. The process provides Alaska DOT&PF with the best available information to develop any needed action plans for its structures to ensure the safety of the traveling public.

The **Arizona Department of Transportation** (ADOT), which has institutionalized CHANGE, conducted several comparisons of 2D and one-dimensional (1D) modeling tools. Among the benefits of 2D modeling over 1D modeling tools ADOT found are more accurate representations of water surface elevations, velocities, and flooding extents; superior visualization of modeling results; and better linkage of 2D modeling tools with advanced surveying methods. With the successful completion of 2D modeling pilot projects and the development of new guidance, ADOT noted that agency leadership has a greater understanding that 2D hydraulic modeling tools are practicable, cost-effective, and superior to traditional tools and methods.

The **Illinois Department of Transportation** (IDOT) is making progress on its effort to integrate CHANGE into its program. IDOT and its industry partners are ramping up their knowledge of 2D hydraulic modeling. In addition to hosting the National Highway Institute's 2D hydraulic modeling course, IDOT used STIC Incentive funds to work with its consultants to provide multiple training and evaluation courses to better equip staff to apply 2D modeling tools.

MaineDOT, which is applying 2D hydraulic modeling on three projects, has found that using 2D modeling reduces the amount of guesswork needed to model complex flow conditions. Complex flow conditions often occur when multiple potential flow paths exist, bridge and culvert alignments are at an angle to the approaching flow, and other site-specific conditions generate turbulence and eddy formations. Bridge engineers at MaineDOT, similar to those at other State DOTs, assume bridge hydraulic modeling as a collateral duty, and using 2D models may facilitate the successful completion of their project work.

The **New Mexico Department of Transportation** (NMDOT) used 2D modeling in parallel with conventional 1D hydraulic models on multiple bridge replacement projects. NMDOT reports that the results from 2D hydraulic modeling appear to be more accurate and detailed than what 1D hydraulic models provide. The agency also found that a 2D hydraulic model can be developed faster and with more confidence than similar 1D models.

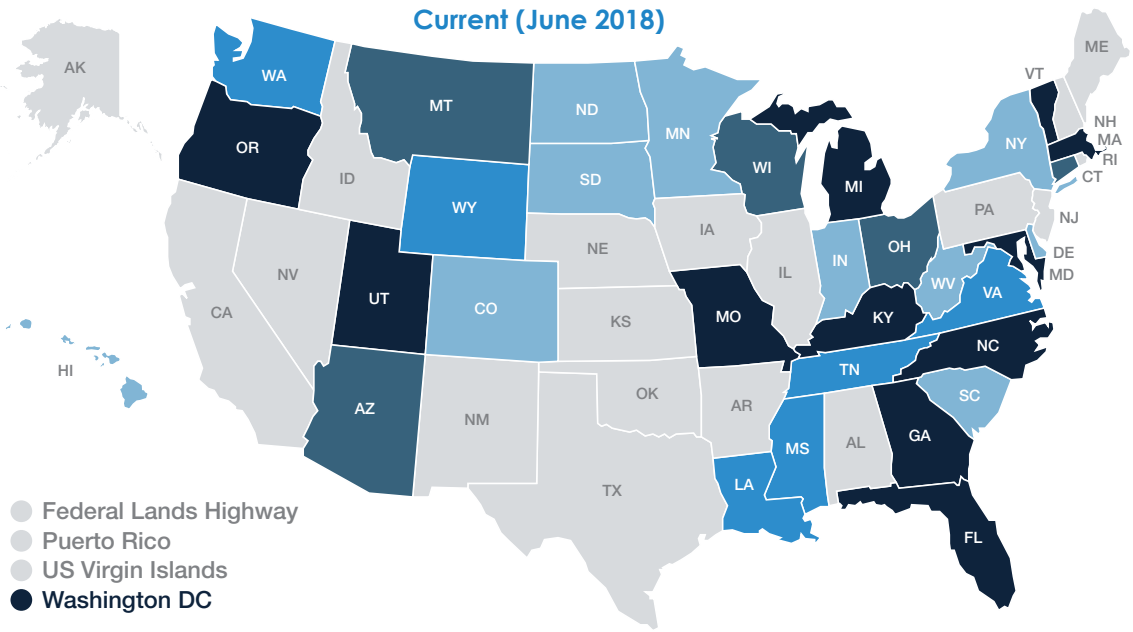
Community Connections

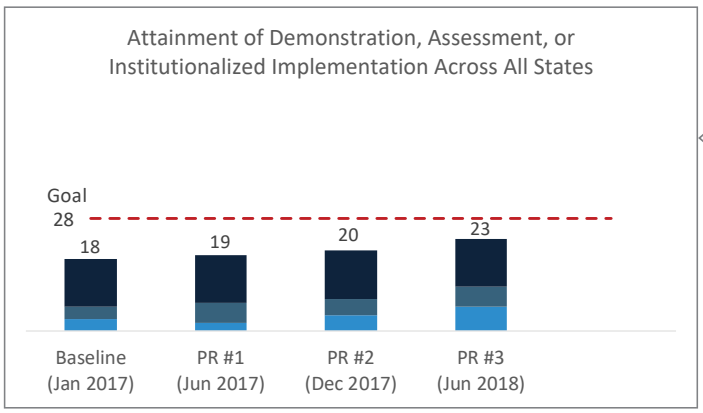
Community connections are performance management approaches for planning, designing, and building transportation projects that promote connectivity, revitalize communities, and improve public health and safety.

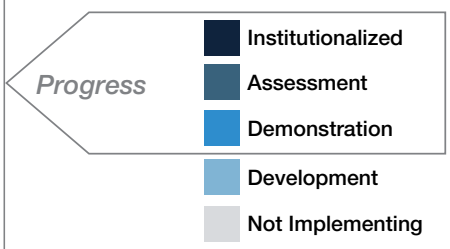
Transportation can play an important role in supporting community revitalization. Using performance-based management approaches can help transportation agencies develop highway retrofitting, rehabilitation, or removal options that turn aging infrastructure into opportunities for reestablishing community connections and cohesion.

Strategies planners and designers can use to connect communities and retrofit transportation infrastructure include visualization tools, scenario planning techniques, public involvement techniques, context-sensitive solutions, and design and construction processes. The community connections framework and tools can help agencies identify gaps and work to ensure that all users have access to safe, reliable, affordable, and multimodal transportation networks.

Ten States are developing implementation plans and learning more about community connections. Eleven States are demonstrating and assessing community connections approaches to enhance their transportation networks. Eleven States and Washington, DC, have made community connections a standard practice.







Innovation Spotlight

Community Connections

To prepare for increases in Arizona's older adult population, **ADOT** launched Age-Friendly Arizona, a network of municipalities, nonprofit agencies, faith-based entities, community groups, and residents. The network identifies opportunities to integrate people aged 60 and older into their communities with people of all ages. The network draws its data and direction from extensive community engagement to identify community assets and needs. This information enables decision makers to develop pilot projects aimed at providing older adults with more choices about where and how they live with connections to their communities. The network recently analyzed car-sharing solutions to meet paratransit needs for older adults.

The **Hawaii Department of Transportation** (HDOT) partnered with Smart Growth America (SGA) to improve the department's business processes for transportation planning, design, construction, operations, and maintenance. HDOT and SGA identified ways to make HDOT's planning and decision-making processes more practical and multimodal and improve performance-based outcomes. HDOT and SGA are now working on project prioritization guidelines to address safety, system preservation, community access, congestion, and environmental impacts for all modes of travel while reducing costs.

The **Indiana Department of Transportation** (INDOT) is implementing community connections through active transportation programs. INDOT hosted a workshop on incorporating on-road bicycle networks into resurfacing projects, enabling pavement and design engineers to learn efficient, cost-effective ways to install bicycle facilities during roadway maintenance activities. INDOT partnered with Bicycle Indiana, Health By Design, and the Indiana State Department of Health on Indiana's 2018 Bike and Walk Summit, which focused on advancing access, safety, connectivity, and fun for people who walk, bike, and ride transit.

The **Louisiana Department of Transportation and Development** (DOTD), hosted the community connections for Interstate 10 peer exchange to develop a framework for stakeholder and public engagement and incorporate community connections elements into the Baton Rouge I-10 project. The peer exchange provided Louisiana DOTD and other stakeholders with an opportunity to discuss public engagement strategies and community connections principles with national peers. Louisiana DOTD will hold public meetings for the I-10 project to enable the public to review and comment on community connections elements discussed in the peer exchange.

The **New York State Department of Transportation** (NYSDOT) is developing a method to use geographic information system technology to capture information on and analyze community connections or reconnections provided by projects. NYSDOT is testing the method using the most recent applications for funding under the Transportation Alternatives and Congestion Mitigation and Air Quality Improvement Programs. The programs support bicycle, pedestrian, multiuse path, and nonmotorized transportation-related projects, as well as projects to reduce congestion and improve air quality.

The **Virginia Department of Transportation** is exploring ways to enhance community connections through investments in bicycle and pedestrian programs. The Virginia Transportation Research Council is studying the feasibility of developing a pedestrian and bicycle count program to measure trends in facility use, enhance understanding of crash data, and help prioritize future improvements.

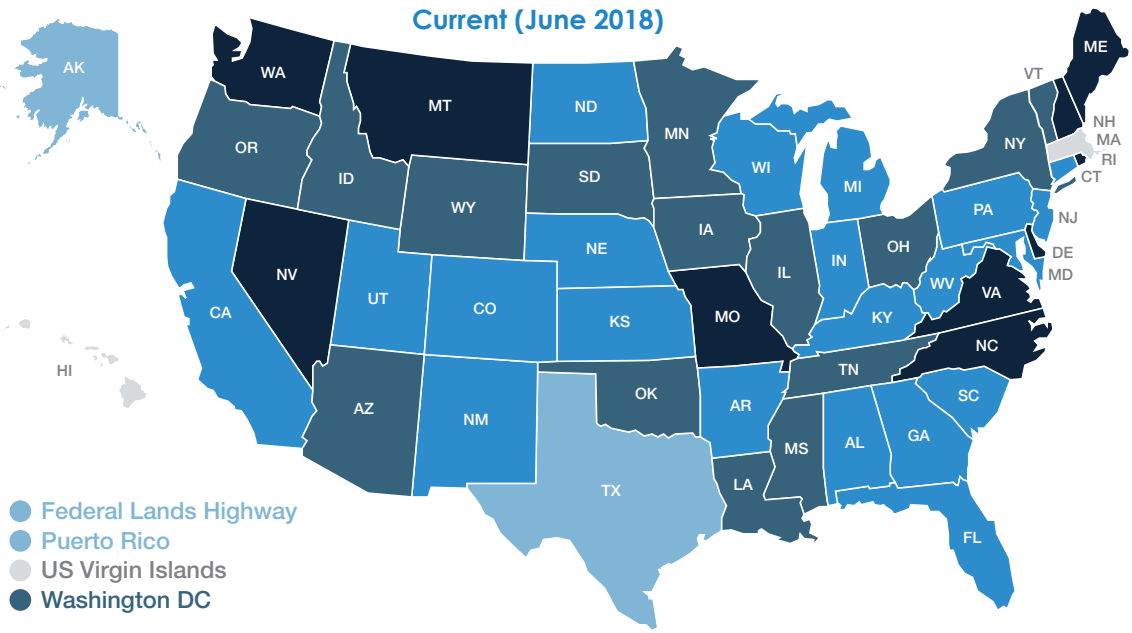
Data-Driven Safety Analysis

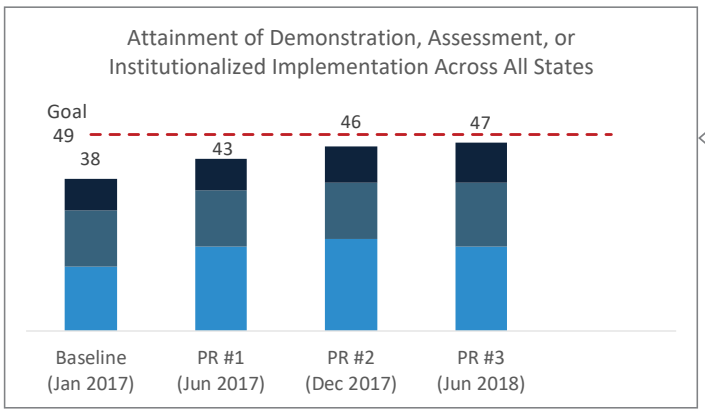
Data-driven safety analysis (DDSA) uses tools to analyze crash and roadway data to predict the safety impacts of highway projects, enabling agencies to target investments with more confidence and reduce severe crashes on roads.

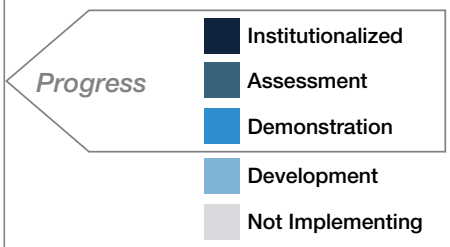
Traditional crash and roadway analysis methods rely mostly on subjective or limited quantitative measures of safety performance. DDSA employs new, evidence-based models that provide agencies with the means to quantify safety impacts. In EDC-4, FHWA continues to help States incorporate DDSA into processes and policies, but a new focus is on assisting local agencies in gaining proficiency with DDSA tools.

DDSA includes two approaches that agencies can implement individually or in combination. Predictive analysis helps identify roadway sites with the greatest potential for improvement and quantify the expected safety performance of project alternatives. Systemic analysis uses crash and roadway data to identify roadway features that correlate with particular crash types.

Interest in using DDSA to enhance safety and reduce roadway crashes continues to grow. Two States, FLH, and Puerto Rico are developing implementation plans and learning more about this innovation. Thirty-six States and Washington, DC, are demonstrating and assessing DDSA tools to target safety investments. Ten States have made DDSA a standard practice.







Innovation Spotlight

Data-Driven Safety Analysis

The **Colorado Department of Transportation** (CDOT) and local agencies attended a local road safety plan (LRSP) peer exchange hosted by the National Association of County Engineers and FHWA in Wisconsin. Several local agencies in Colorado have completed or are developing LRSPs. CDOT plans to make LRSPs and systemic safety projects part of the State's **Highway Safety Improvement Program** (HSIP) for local agencies and to revise the State HSIP manual to include these elements.

The **Connecticut Department of Transportation** (CTDOT) is developing a roadway database that complies with the **Model Inventory of Roadway Elements** (MIRE) that can be used for advanced DDSA. CTDOT completed an intersection inventory with fully applicable MIRE attribution for all State road intersections and integrated the information into the agency's location reference system. Data collected on about 10,000 state-to-local intersections are now going through quality control review.

The **Delaware Local Technical Assistance Program** (LTAP) partnered with the Maryland, Virginia, and West Virginia LTAPs to conduct a multistate DDSA peer exchange in Delaware. The exchange enabled about 50 transportation practitioners to share information and lessons learned on using DDSA to quantify safety impacts and better target investment of resources.

The **Georgia Department of Transportation** (GDOT) is implementing the **Intersection Control Evaluation (ICE) policy** it adopted in 2017. The ICE policy covers procedures for objective evaluation of intersection alternatives during the project development process. To accompany the policy, GDOT developed a comprehensive ICE tool and provided training for engineering consultants, local governments, and GDOT personnel.

The **Kentucky Transportation Cabinet** (KYTC) developed a list of planning-level crash modification factors that will be used to provide input on the safety criteria portion of the State's project development prioritization methodology. Known as SHIFT, or Strategic Highway Investment Formula for Tomorrow, the methodology uses data to enable KYTC to assess and compare the benefits of planned projects.

The **Michigan Department of Transportation** (MDOT) developed an implementation plan to integrate DDSA into routine agency processes. The plan includes a safety tool matrix to assist MDOT staff in determining the appropriate level of safety analysis to conduct and what safety analysis tools to use for particular projects. The plan calls for developing and providing project managers with safety performance information such as a level of safety service map, crash thresholds, and distribution of crash type.

In **New York**, data and analysis tools to perform DDSA are limited at the local level, but NYSDOT developed a robust DDSA process for the State transportation system. To assist local agencies, NYSDOT is replacing the current safety management system with a new one called CLEAR (Crash Location Engineering and Analysis Repository). CLEAR will provide tools for local governments to perform DDSA in a similar manner as the State. NYSDOT held workshops for local agencies to review CLEAR systems requirements as well as the overall safety program.

In **Pennsylvania**, PennDOT is updating its District Highway Safety Guidance Manual and Safety Predictive Analysis Methods Manual, which includes the processing of design exceptions. PennDOT's updated design exception policy requires a more rigorous AASHTO **Highway Safety Manual** analysis, replacing the old process of providing historical crash data summaries and rates.

e-Construction and Partnering: A Vision for the Future

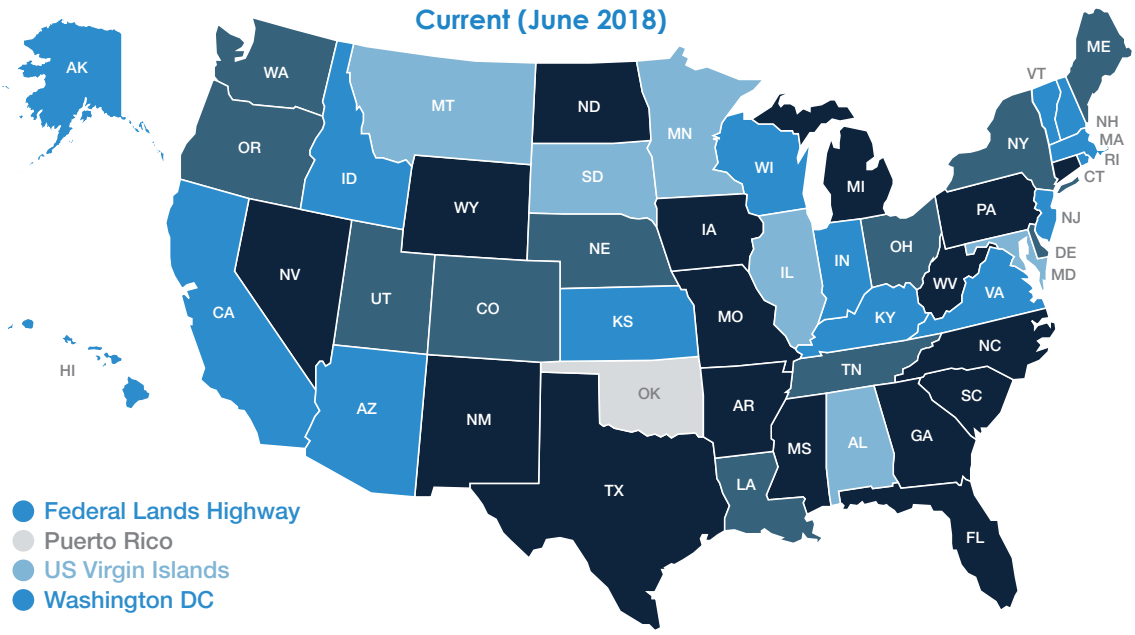
e-Construction and partnering: a vision for the future involves using paperless technologies to enhance partnering among stakeholders on construction projects, improving communication and workflows while streamlining project delivery.

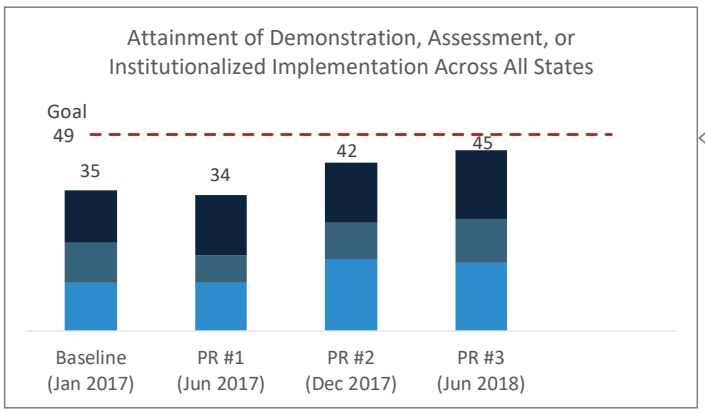
e-Construction is the creation, review, approval, distribution, and storage of highway construction documents in a paperless environment. It uses readily available technologies to improve construction document management. It saves time by decreasing the delays inherent in paper-based project administration. It also saves paper, printing, and document storage and transmission costs.

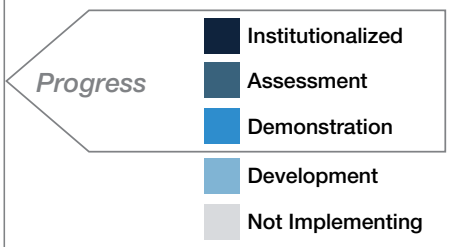
Construction partnering is a project management practice in which transportation agencies, contractors, and other stakeholders create a team relationship of mutual trust and enhanced communication. Partnering builds connections among stakeholders to improve outcomes and complete quality projects that are focused on safety and built on time and within within budget.

e-Construction

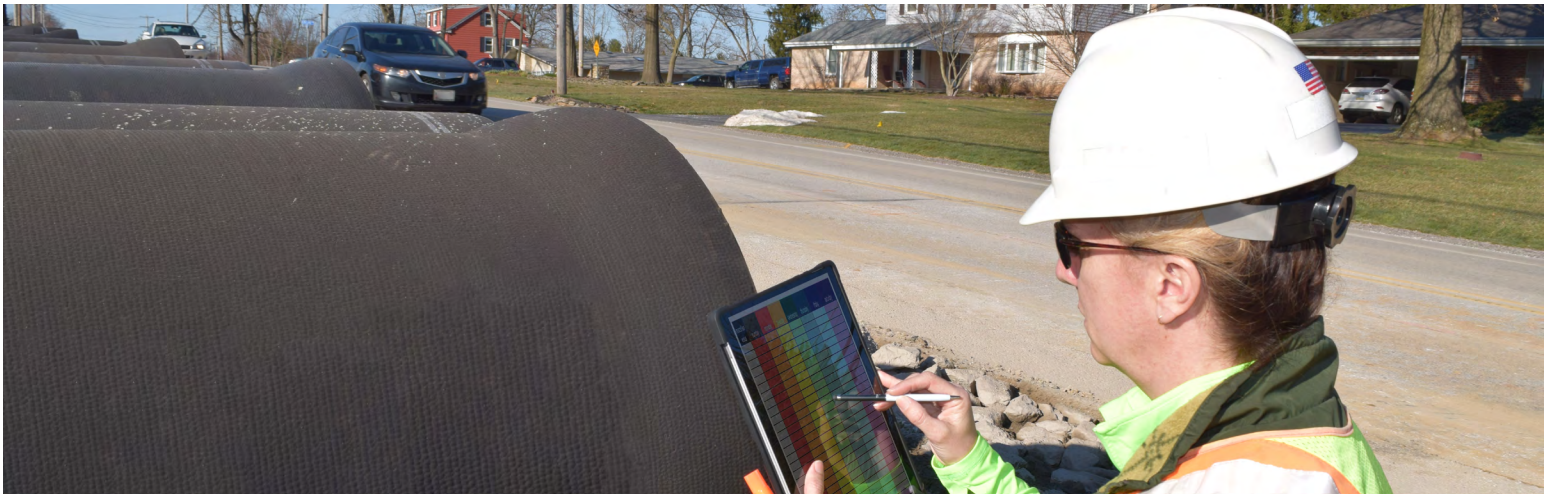
Applying a paperless approach to project document management continues to attract interest. Six States and the U.S. Virgin Islands are developing implementation plans and learning more about this innovation. Twenty-six States, FLH, and Washington, DC, are demonstrating and assessing e-Construction tools and processes. Seventeen States use e-Construction as a standard practice.





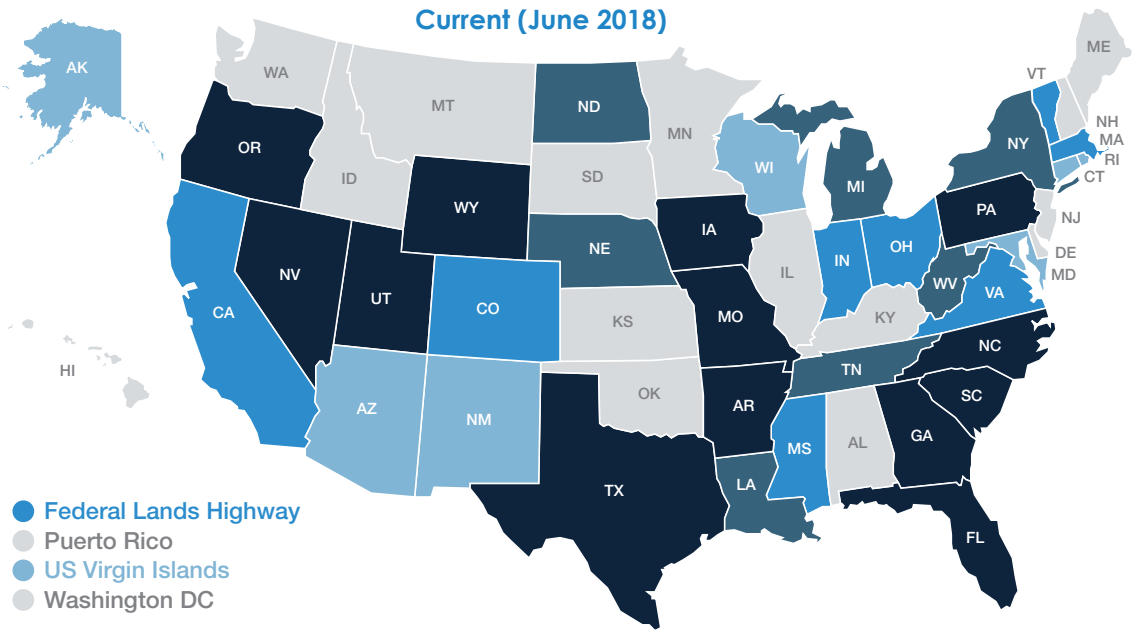


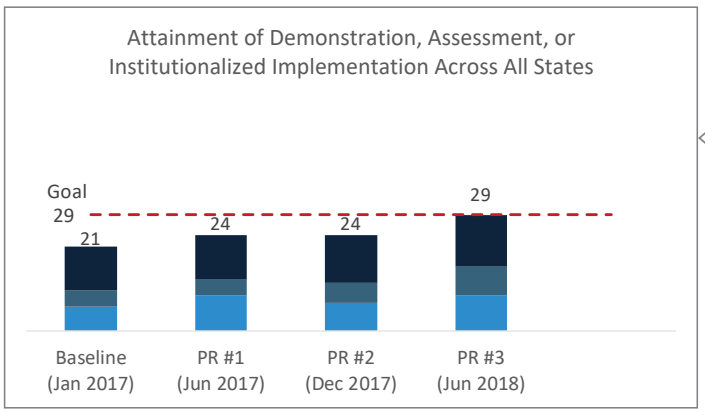
Innovation Spotlight

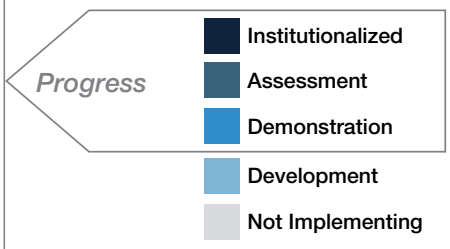


e-Construction and Partnering

Seven States and the U.S. Virgin Islands are developing implementation plans and learning more about e-Construction and partnering. Fifteen States and FLH are demonstrating and assessing paperless technologies to improve partnering among stakeholders on construction projects. Thirteen States have made e-Construction and partnering a standard practice in project delivery.







Innovation Spotlight

e-Construction and Partnering: A Vision for the Future

In **Arizona**, ADOT created a matrix that details the types of plan sheets and data formats used for projects. Contractors use this data for automated machine guidance and survey layout. ADOT has produced computer-aided design documents for users of various design software products and learned the file formats that work best for contractors for machine guidance and survey layout.

The **Arkansas Department of Transportation** (ArDOT) is deploying tablets with mobile data connections for field inspectors. Inspectors use the devices in conjunction with electronic project documentation software and other e-Construction technologies to improve efficiency and communication in the field. ArDOT made workflows in its paperless contracting system transparent, enabling ArDOT project staff and contractors to see the status of all submittals and approvals. Virtually all documents from the contract through project closeout are now electronic.

The **California Department of Transportation** (Caltrans) developed an application that allows for electronic submittal and administration of contractor claims and is testing it on 20 construction projects. Caltrans expects this process improvement to provide greater transparency, accountability, and performance measurement of the claims process on projects. On two projects that use e-Construction tools, Caltrans is using web-based surveys and quarterly facilitated partnering meetings to evaluate communication successes and weaknesses.

In **Colorado**, CDOT drafted a specification that will require partnering on all construction projects. CDOT is also developing tools such as an escalation matrix and an issue tracking form to improve partnering efforts.

The **Idaho Transportation Department** (ITD) institutionalized the use of project collaboration software for project-level electronic document management. ITD shared the software with the Local Highway Technical Assistance Council and local agencies and encouraged them to use it on Federal-aid projects. Traditionally, project documents were reviewed and approved by email, but ITD has started using a PDF viewer as a platform for plan reviews, comments, and revisions.

In **Pennsylvania**, PennDOT has institutionalized its Project Collaboration Center. This customized collaboration and document management software system allows contractors to submit documents to PennDOT electronically for review and approval in a secure environment. The system includes file sharing, photo sharing, and construction-related training. PennDOT provided training on using the system for department staff, consultants, and contractors.

The **Rhode Island Department of Transportation** (RIDOT) is conducting a pilot on seven construction projects to use tablets in the field to collect information and create daily activity reports. The projects include new bridge construction, bridge replacements, roadway drainage and paving, and guardrail installation. This new reporting process increases the amount of usable data collected and incorporates photos, notes, and videos directly into daily activity reports. RIDOT also uses a PDF viewer to make documents such as plans, specifications, and shop drawings available in the field on tablets.

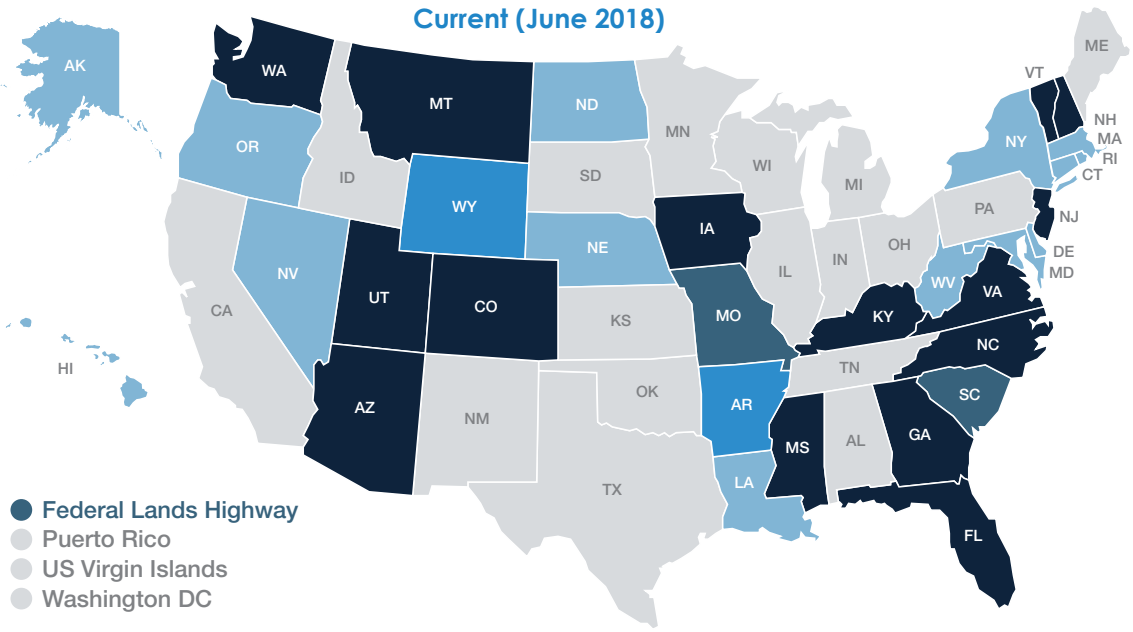
Integrating National Environmental Policy Act and Permitting

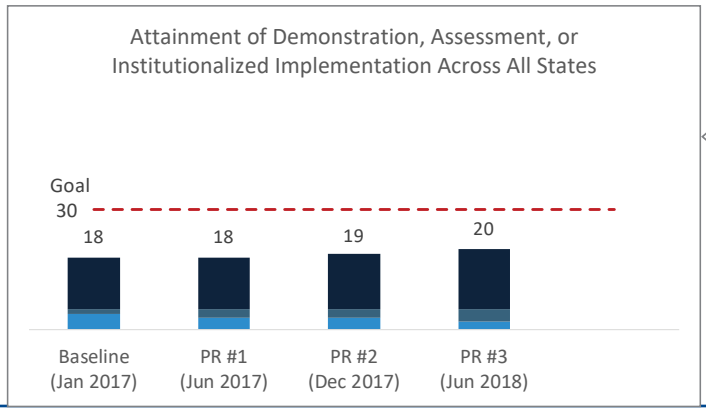
Integrating National Environmental Policy Act (NEPA) and permitting processes enables concurrent, synchronized environmental and permitting reviews that save time and reduce costs for the agencies involved.

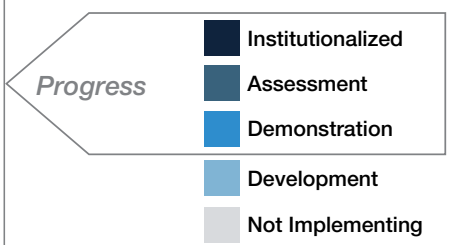
Integrating NEPA and permitting processes allows the various environmental reviews and permitting procedures required for Federal-Aid Highway Program projects to be performed at the same time rather than sequentially. The resulting synchronization provides for more effective and efficient regulatory reviews, leading to projects with reduced impacts on the environment as well as time and money savings.

The EDC-4 effort focuses on outreach, training, and technical assistance to help transportation departments integrate NEPA and permitting processes. The effort features proven best practices, data management, and tools for navigating environmental assessments and environmental impact statements needed for transportation projects. It also offers assistance on using FHWA's online collaboration tool, eNEPA, to support timely and consistent coordination among agencies to complete necessary permitting processes.

Fourteen States are developing implementation plans and learning more about integrating NEPA and permitting. Four States and FLH are demonstrating and assessing tools to integrate NEPA and permitting processes. Fifteen States have made it a standard practice to integrate NEPA and permitting processes on projects.







Innovation Spotlight

Integrating National Environmental Policy Act and Permitting

In **Georgia**, agencies are collaborating on development of a programmatic agreement to streamline project reviews under Section 106 of the National Historic Preservation Act. GDOT is working with the FHWA Georgia Division, U.S. Army Corps of Engineers (USACE) Savannah District, Georgia State Historic Preservation Office, and Advisory Council on Historic Preservation to codify the relationships of the stakeholder agencies in the programmatic agreement and to set up a similar framework with USACE on State-funded projects. The agreement will accelerate interagency coordination, expediting project delivery during environmental review.

In **Idaho**, ITD and the USACE Walla Walla District held a wetland mitigation workshop to explore mitigation banking, in-lieu fees, and other approaches to compensatory mitigation. Two in-lieu fee providers shared their mitigation methodologies and successes in other States. At the end of the workshop, the agencies decided to consider an in-lieu fee program and statewide umbrella banking instrument, set up an Idaho Mitigation Working Group, organize an in-lieu fee provider symposium, and apply for an Environmental Protection Agency **Wetland Program Development** grant.

Typically, NEPA and Clean Water Act Section 404 (NEPA/404) merger agreements are applied when transportation projects require compensatory mitigation for impacts to wetlands and streams, but States are developing a new application. The **South Carolina** and **Illinois** DOTs are leading efforts to develop NEPA/404 merger agreements for both environmental assessments and categorical exclusion-level projects. Benefits of these agreements include increased trust between transportation and regulatory agencies and shorter project delivery timeframes, often with more reliable environmental outcomes.

Pavement Preservation (When, Where, and How)

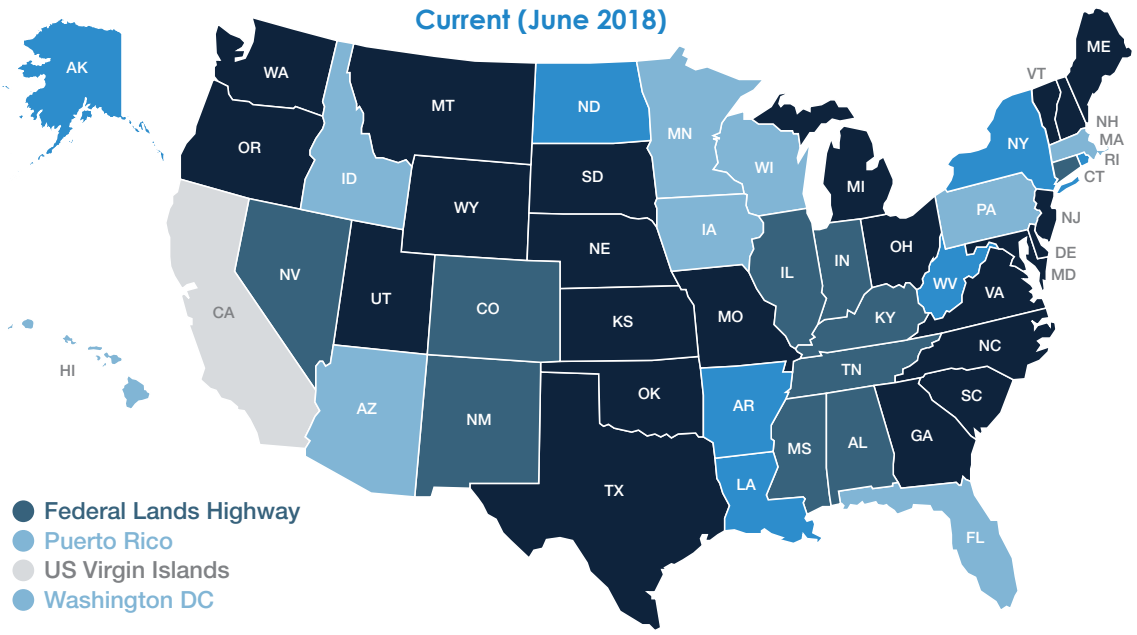
Pavement preservation (when, where, and how) involves applying a pavement preservation treatment at the right time on the right project with quality materials and construction, offering a critical investment strategy for optimizing infrastructure performance. Pavement preservation practices provide a cost-effective approach to extending the service life of pavements and achieving smoother, safer roads with fewer costly repairs.

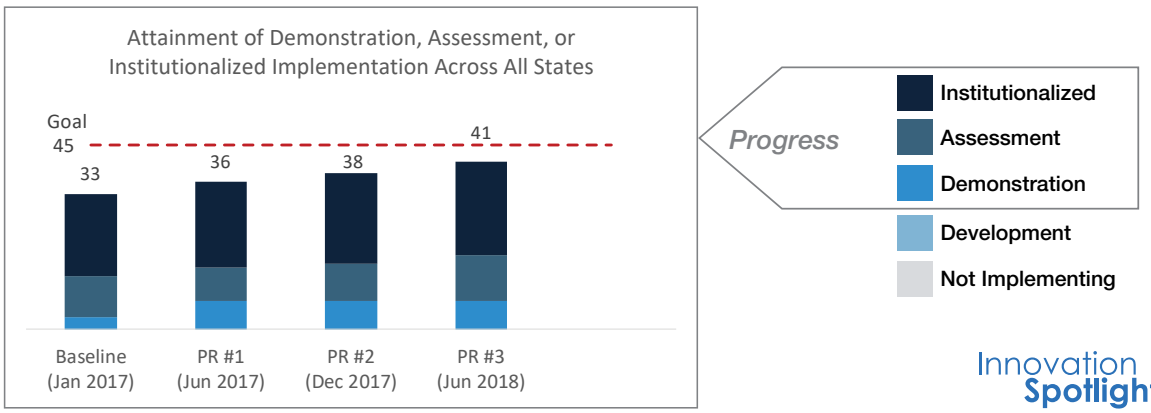
In EDC-4, the "when and where" component of pavement preservation supports preservation of highway investments by managing pavements proactively. Whole-life planning defines expectations for the long term and provides more stability to the cost of operating and maintaining highway pavements. Identifying preservation strategies at the network level reduces the need for frequent or unplanned reconstruction.

The "how" component of pavement preservation promotes quality construction and materials practices, including treatment options that apply to flexible and rigid pavements. Successful construction practices contribute to improved pavement performance, providing smoother, safer roads and delaying the need for rehabilitation.

Pavement Preservation: When and Where

Nine States, Puerto Rico, and Washington, DC, are developing implementation plans and learning more about when and where to apply pavement preservation treatments. Seventeen States and FLH are demonstrating and assessing the when and where component of pavement preservation. Twenty-three States have made it a standard practice to manage pavements proactively to preserve highway investments.

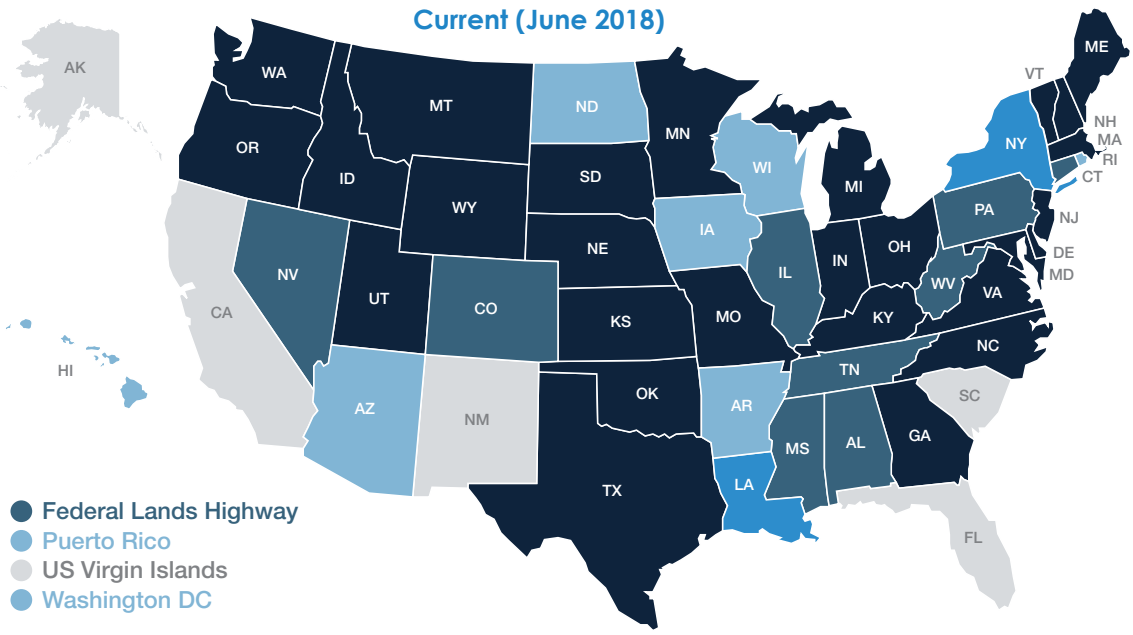


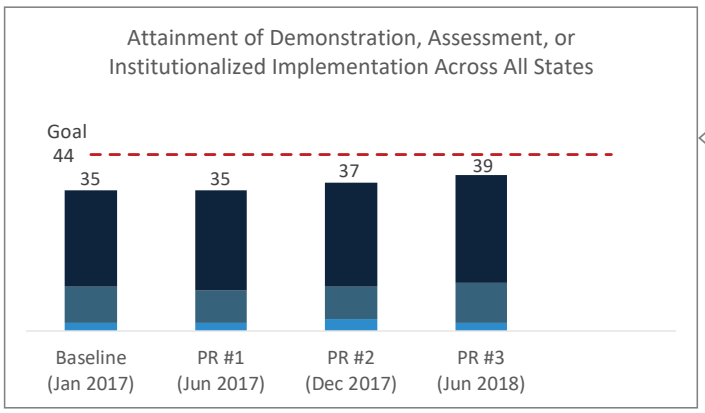


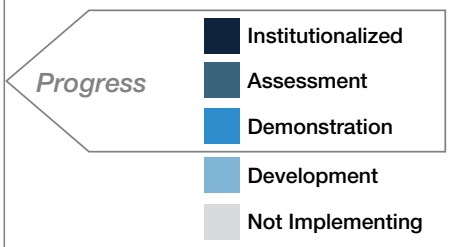
Innovation Spotlight

Pavement Preservation: How

Seven States, Puerto Rico, and Washington, DC, are developing implementation plans and learning more about how to apply pavement preservation treatments. Eleven States and FLH are demonstrating and assessing the how component of pavement preservation. Twenty-seven States have institutionalized the use of quality construction and materials practices to preserve pavements.







Innovation Spotlight

Pavement Preservation (When, Where, and How)

The **Alabama Department of Transportation** (ALDOT) completed its first microsurfacing project on Interstate 59 between Tuscaloosa and Meridian. ALDOT also conducted its first round of statewide training on pavement preservation. The agency's training strategy includes providing case studies on success stories such as the I-59 project in which inventory, historical data, performance, and maintenance history were used to improve the overall system. ALDOT is now in its second phase of pavement preservation training, which focuses on choosing pavement preservation projects and treatments and timing of projects. The interactive classes enable participants to work with data and processes specific to their regions.

The Alabama Department of Transportation used microsurfacing for the first time on a project on Interstate 59.

Credit: Alabama Department of Transportation

In **Illinois**, IDOT implemented a requirement that 5 percent of its fiscal year 2019 budget be dedicated to preservation projects. Staff from IDOT, local agencies, metropolitan planning organizations, and private industry participated in an FHWA workshop on pavement preventive maintenance concepts, treatments, and strategies. IDOT is integrating pavement preservation into its asset management efforts and revising pavement preservation guidance for treatment selection for inclusion in the agency's design manual.

In **Kentucky**, KYTC is moving toward the assessment stage on whole-life costing for its pavement preservation treatments. The agency now applies whole-life costing on a network level for its parkway system, considering and implementing different treatment options to enhance pavement performance. KYTC is using a Pavement Sustainability Ratio (PSR) to assess progress toward obtaining a consistent level of performance for its pavement preservation treatments. The PSR compares the life-extending benefits of all treatments applied to the network each year to the total number of miles in the network.

Pavement preservation is helping the Texas Department of Transportation provide travelers with a smooth, quiet driving experience.

The **Texas Department of Transportation** (TxDOT) constructed a **Next Generation Concrete Surface** (NGCS) on Interstate 10 near Houston. Developed by Purdue University and installed in 16 States, NGCS is a pavement preservation treatment that combines grinding and grooving. TxDOT's Houston District is placing about 3 million square yards of NGCS to provide a smooth and quiet driving experience, making it the largest user of this technology in the world.

The **West Virginia Department of Transportation** (WVDOT) is using STIC Incentive funds to implement a scrub seal program. WVDOT is arranging statewide training to demonstrate how to properly apply scrub seals, a cost-effective technique that uses mechanized brooms to force asphalt emulsion into cracks to ensure voids are sealed. WVDOT held its first pavement preservation conference, enabling agency staff from throughout the State to learn about asphalt and concrete pavement preservation treatments.

Road Weather Management—Weather-Savvy Roads

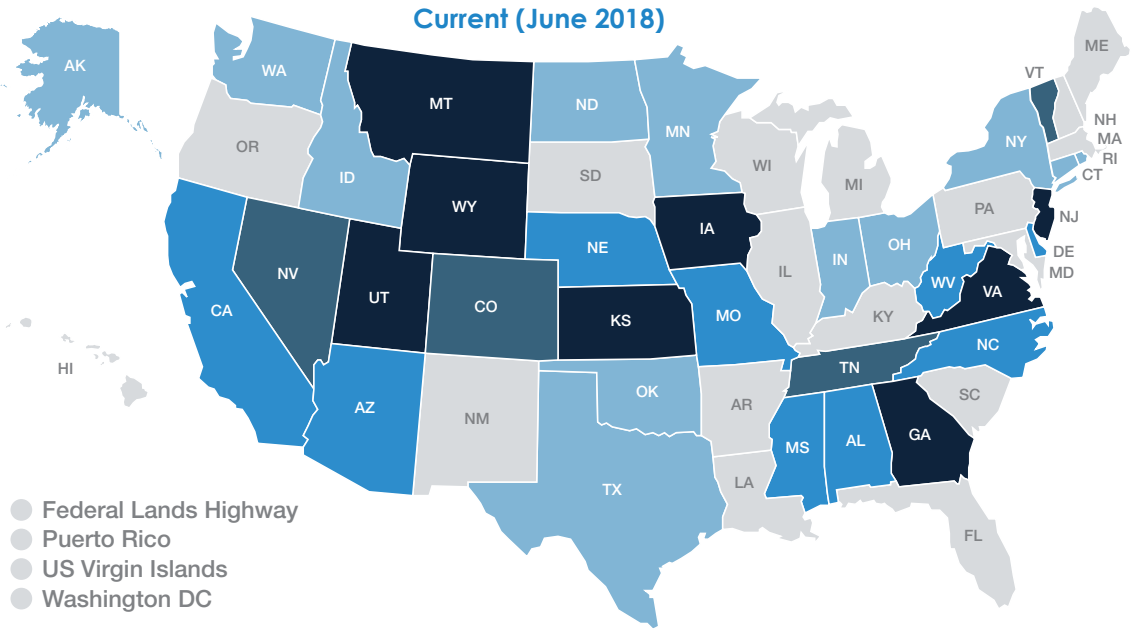
Road weather management—weather-savvy roads integrates mobile observations and Pathfinder strategies that can help agencies manage road systems and inform travelers ahead of and during adverse road weather conditions. Twenty-two percent of all vehicle crashes in the past decade were weather-related. On average, these crashes resulted in about 6,000 deaths a year. Adverse weather causes about 25 percent of nonrecurring traffic delays, and weather-related delays add about $3.4 billion a year to freight costs.

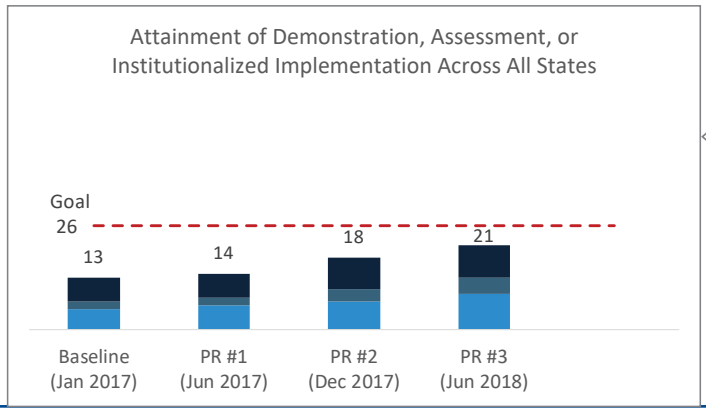
The Pathfinder process enables transportation departments, the National Weather Service (NWS), and private weather service providers to collaborate on clear, consistent road weather messaging. It provides the foundation for coordination across agencies to develop cohesive weather impact information that helps drivers make better travel decisions. Ultimately, it saves lives, protects property, and minimizes the impact of weather events.

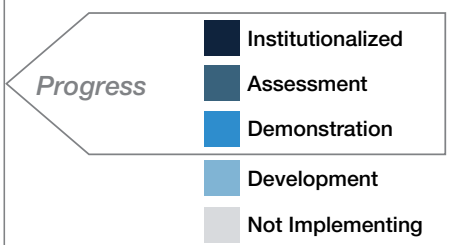
Integrating mobile observations (IMO) is a cost-effective way to gather information on weather and road conditions using existing fleet vehicles. Vehicle-based technologies provide agencies with data to manage transportation systems before the negative impacts of road weather occur. Maintaining a high level of service on roads can reduce crashes and keep traffic moving smoothly.

Road Weather Management: Pathfinder

Twelve States are developing implementation plans and learning more about the **Pathfinder** process. Thirteen States are demonstrating and assessing the Pathfinder process to collaborate on clear, consistent road weather messaging to help drivers make better travel decisions. Eight States have institutionalized the process.



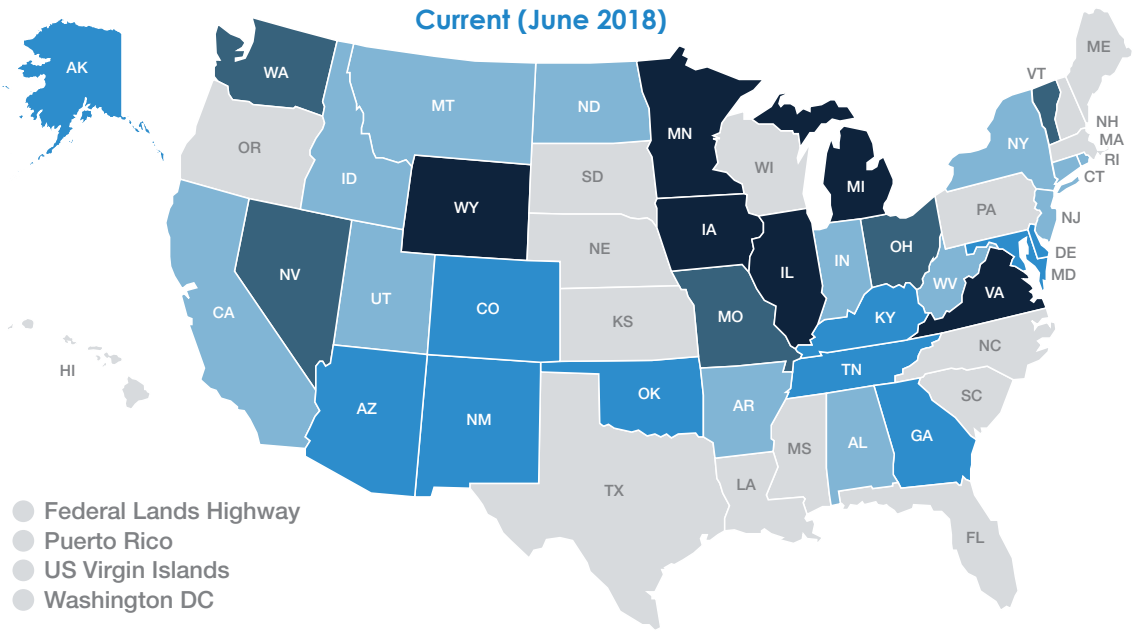


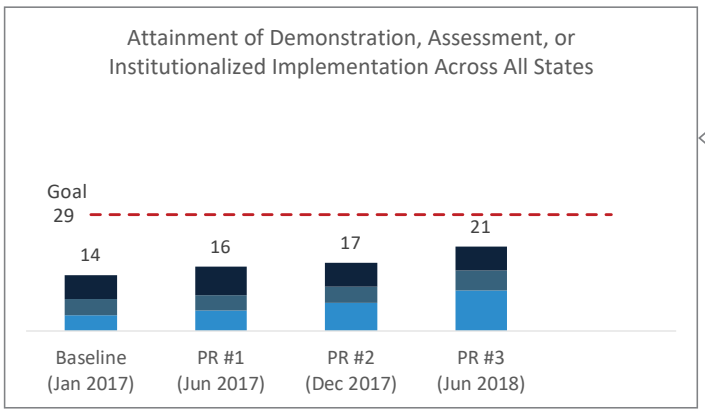


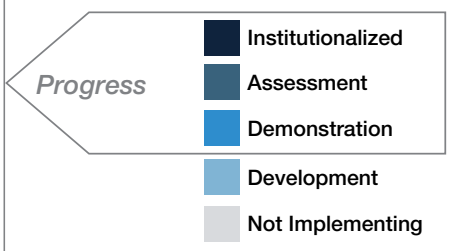
Innovation Spotlight

Road Weather Management: Integrating Mobile Observations

Thirteen States are developing implementation plans and learning more about using IMO in their road weather management processes. Agencies in 15 States are demonstrating and assessing vehicle-based technologies to gather data to use to mitigate the negative impacts of road weather. Six States have made IMO a standard practice.







Innovation Spotlight

Road Weather Management—Weather-Savvy Roads

In the spirit of the Pathfinder initiative, the **Alaska DOT&PF** and NWS are committed to improving communication between the two agencies and to working on providing unified weather messaging to the traveling public. NWS staff traveled to Alaska DOT&PF maintenance camps to improve their understanding of what maintenance and operations staff need from NWS. Discussions on potential Pathfinder implementation have improved the relationship between the two agencies and have resulted in more interpersonal communication and more ways of communicating, including text, radio, and chat room.

In **Connecticut**, CTDOT is participating in weather-savvy roads activities, including meeting with early adopters in Michigan, Minnesota, and Nevada to gather information and lessons learned for inclusion in its planned IMO deployment. CTDOT is nearing the end of the process to obtain contract proposals to implement IMO statewide.

Before EDC-4 began, about 10 percent of State snowplows in **Kentucky** were outfitted with automatic vehicle location (AVL) technology and 25 percent of maintenance vehicles included road weather sensors. KYTC continues to invest in AVL equipment on snow- and ice-removal equipment, with a goal of over 80 percent implementation for the 2018–2019 winter. KYTC is working with its intelligent transportation system and real-time data team and external partners to further integrate IMO data into the agency's information and decision-support systems. As a result, KYTC will have significantly more mobile observation data to use for decision making.

The **Nebraska Department of Transportation** (NDOT) collaborated with FHWA on a Pathfinder pilot workshop for key stakeholders, including the Nebraska State Patrol, NWS, Nebraska Emergency Management, and University of Nebraska. The workshop focused on raising awareness of Pathfinder and defining the pilot to be implemented later this year. Participants discussed the collection, dissemination, and use of road weather information to create consistent, impact-based messages for road users before and during adverse weather events. Participants identified action items to formalize processes, define weather event impacts on roadways, organize stakeholder collaboration, and improve public messaging before the pilot deployment.

The Nebraska Department of Transportation is partnering with stakeholders on a Pathfinder pilot to provide consistent road weather messaging to travelers.

Credit: Nebraska Department of Transportation

In **Washington**, WSDOT completed a connected vehicle-enabled weather responsive traffic management project that focused on leveraging mobile fleet data to provide improved messaging to the traveling public via a third-party partner. As a result of the project, more than 2 million data records were provided. While the data continue to be made available to the public, WSDOT is further refining its weather sensors and data reporting. WSDOT is also implementing an AVL system on its 500-truck fleet. This includes refining mobile sensors and enhancing the ability to track and report snow removal activities. These improvements will better inform WSDOT about real-time conditions and enable better decision making.

In **West Virginia**, WVDOT and the State's four NWS forecast offices have begun Pathfinder implementation. At a planning meeting, the agencies discussed expected precipitation types and amounts by geographic area and temperature changes that can result in precipitation. The group identified preliminary criteria for when and how to collaborate. Based on the lack of severe weather events last winter, the group determined that lower thresholds were necessary to ensure Pathfinder activities were conducted when needed to provide the most value to road users during less severe but impactful events. Working with its NWS partners enables WVDOT to make more informed decisions and present more coordinated, uniform information to road users.

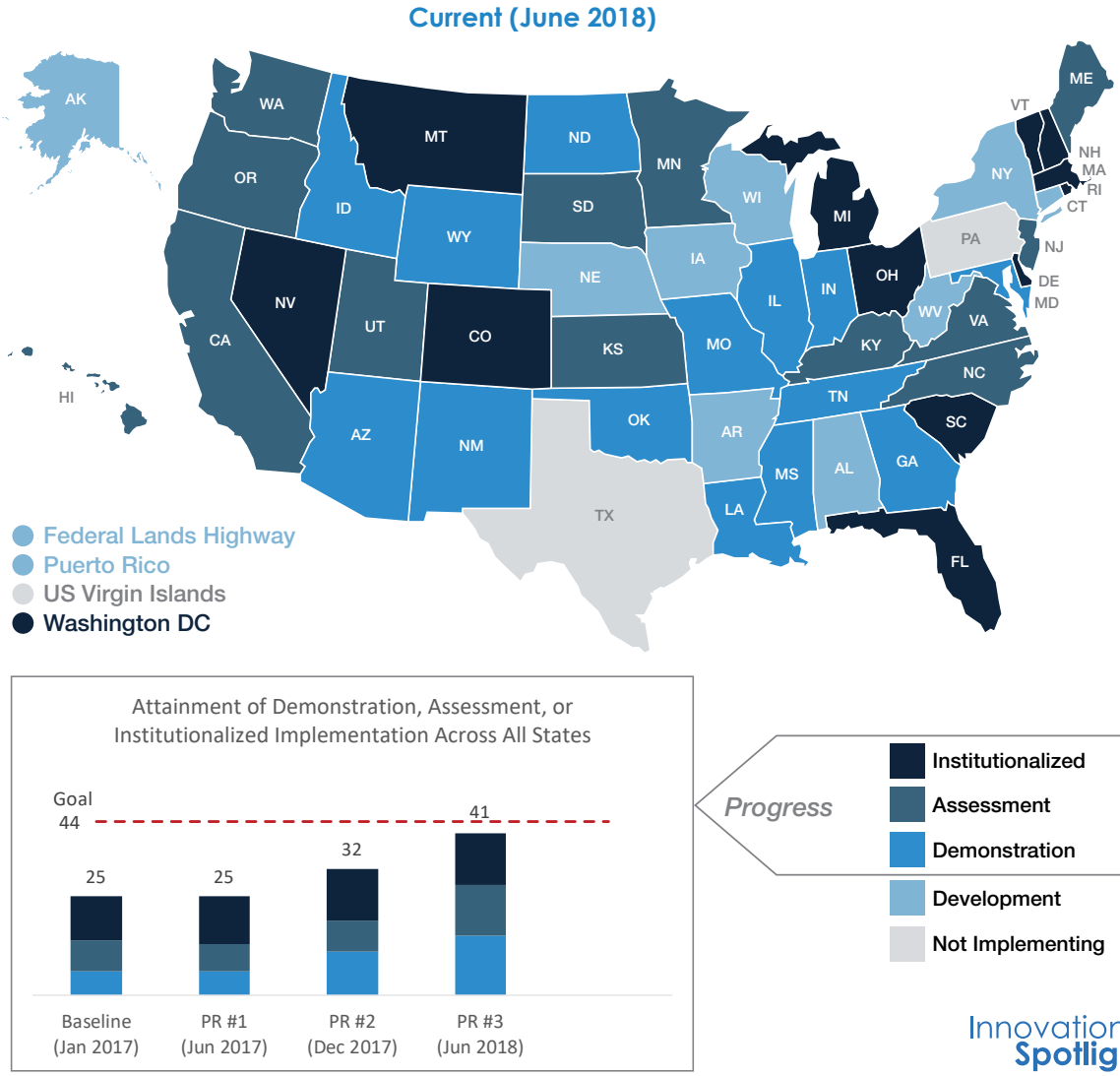
Safe Transportation for Every Pedestrian (STEP)

Safe transportation for every pedestrian (STEP) features proven, cost-effective countermeasures that can reduce pedestrian fatalities at uncontrolled crossing locations and unsignalized intersections. Pedestrians account for more than 16 percent of all traffic fatalities. More than 72 percent of pedestrian fatalities occur at nonintersection locations such as midblock areas.

The EDC-4 STEP program includes **five safety countermeasures**:

- **Crosswalk visibility enhancements**, such as crosswalk lighting and enhanced signing and marking, help drivers detect pedestrians.
- **Raised crosswalks** are a traffic calming technique that can reduce vehicle speeds and encourage drivers to yield to pedestrians.
- **Pedestrian refuge islands** provide a safer place for pedestrians to stop at the midpoint of the road before crossing the remaining distance.
- **Pedestrian hybrid beacons** provide pedestrian-activated stop control in areas where pedestrian volumes are not high enough to warrant a traffic signal.
- **Road diets** reconfigure a roadway cross-section to safely accommodate all users.

The STEP program is expanding the use of safety countermeasures to reduce pedestrian fatalities. Eight States, FLH, and Puerto Rico are in the beginning stages of implementation. Twenty-eight States are demonstrating and assessing STEP countermeasures. Twelve States and Washington, DC, have institutionalized STEP countermeasures.



Innovation Spotlight

Safe Transportation for Every Pedestrian (STEP)

FHWA released an update of the "**Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations**" that includes information on the **rectangular rapid-flashing beacon** (RRFB) countermeasure. RRFBs are active (user-actuated) or passive (automated detection) amber LEDs that use an irregular flash pattern at midblock or uncontrolled crossing locations, significantly increasing driver yielding behavior. Since publication of the first version of the guide in January 2018, FHWA has led several nationwide webinars and conference sessions on how agencies can use the guide to identify countermeasure options based on roadway conditions and safety issues.

Knowing how to determine good crossing locations and which countermeasures to use enables highway agencies and other organizations to increase pedestrian safety.

The STEP deployment team met with agencies in **23 States** to identify how they could enhance policies to help advance implementation of the STEP countermeasures. Each State completed a draft or final action plan report summarizing recommendations or opportunities.

FHWA led a STEP peer exchange in **Oklahoma** that included participants from Arizona, Arkansas, Kansas, Louisiana, Massachusetts, New Mexico, Oklahoma, and Tennessee. Local and State agency staff made presentations on successful and challenging installations of the STEP countermeasures.

ArDOT staff participated in a tour of Tennessee safety countermeasure installation locations as part of a STEP-facilitated scan tour. The scan tour provided an opportunity to exchange information on how STEP countermeasures can be implemented successfully.

In **Connecticut**, CTDOT completed a pedestrian signing and pavement marking project in its four districts and expanded the effort to locally owned and maintained roads. This project will improve more than 1,500 pedestrian-crossing locations throughout the local road network. This work builds on the CTDOT asset inventory of all uncontrolled pedestrian crossing locations in the State.

MaineDOT held eight crosswalk and sidewalk safety workshops for local project administration engineers and planners through the Maine Local Roads Center, the State's LTAP. MaineDOT is informing local agencies about its updated engineering guidance on crosswalks and road diets to identify appropriate locations for STEP countermeasures.

Several agencies in **Minnesota** are advancing implementation of STEP countermeasures. The city of Winona is moving forward on a road diet on a four-lane undivided segment of Broadway Street, and Minneapolis is designing raised intersections in association with the Blue Line light rail project. The Minnesota Department of Transportation (MnDOT) is updating its road diet **website** to include local examples.

The **Nevada Department of Transportation** (NDOT) completed a Pedestrian Crosswalk Guide and complete streets policy. NDOT is also updating its pedestrian crossing location inventory to help identify safety improvements needed in the future.

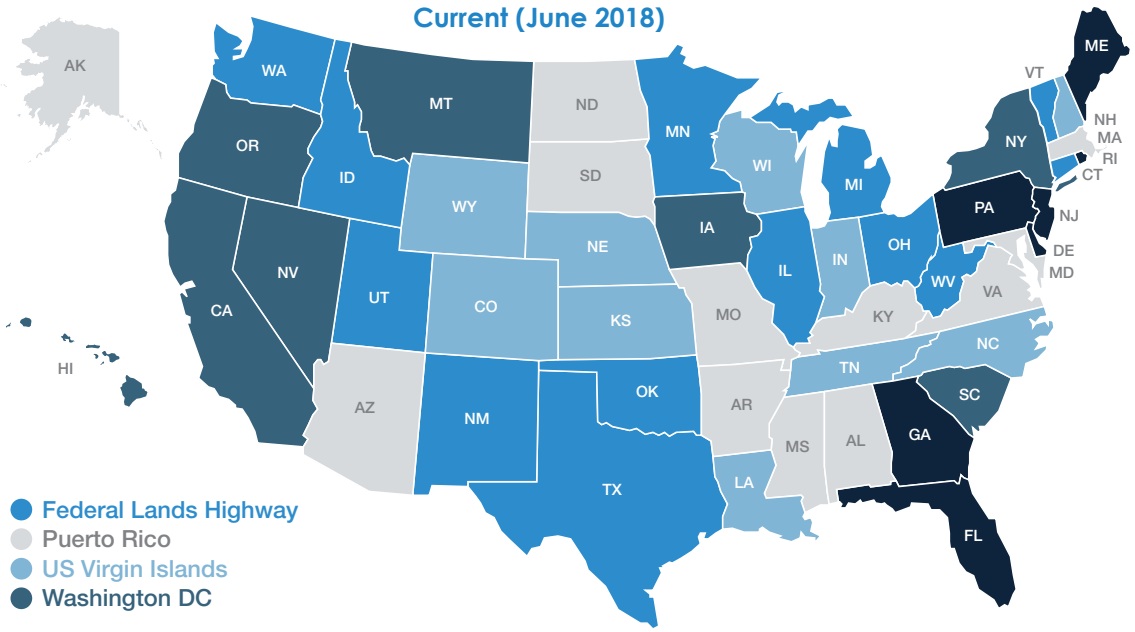
Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements

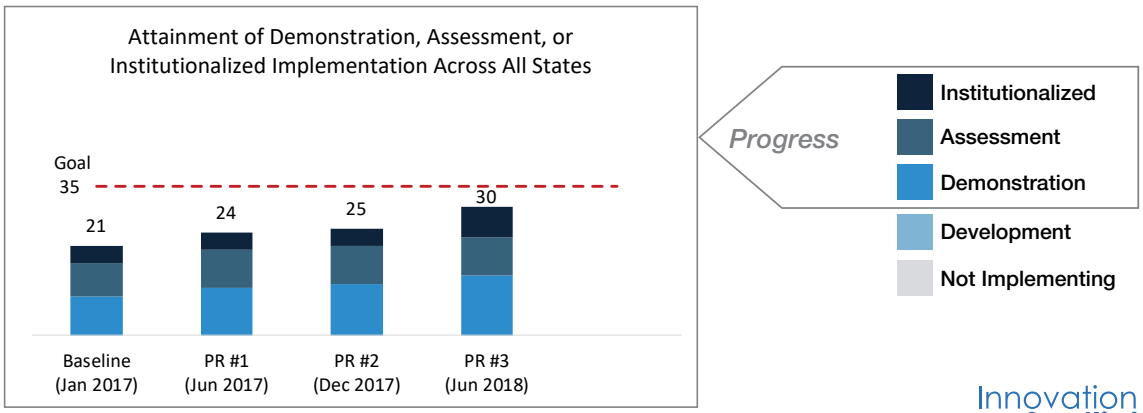
Ultra-high performance concrete (UHPC) can be used to create the simple, strong, long-lasting connections needed for successful construction using prefabricated bridge elements (PBEs). UHPC is a steel fiber-reinforced, portland cement-based composite material that delivers performance far exceeding conventional concrete.

PBEs, structural components that are built offsite and brought to the project location for installation, shorten onsite construction time, enhance safety, and offer superior durability. Field-cast UHPC has emerged as a solution for creating connections between prefabricated components with better long-term performance than typical connection designs.

UHPC allows for small, simple-to-construct connections that require less concrete and do not require post-tensioning. The mechanical properties of UHPC allow for redesign of common connection details in ways that promote ease and speed of construction. This makes using PBEs simpler and more effective.

Ten States and the U.S. Virgin Islands are developing implementation plans and learning more about the use of UHPC connections. Twenty-one States, FLH, and Washington, DC, are demonstrating and assessing the use of UHPC connections in bridge-building processes. Seven States have made UHPC connections a standard practice on bridge projects that use PBEs.





Innovation Spotlight

Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements

Caltrans selected UHPC to connect precast columns to precast bent caps on two accelerated bridge construction (ABC) projects. The Laurel Street Bridge over Interstate 780 in Solano County is open to traffic, and the Route 46 Bridge over Route 99 in Kern County is under construction. Caltrans used STIC Incentive funds to support development of a training package and coordinated outreach effort on methods and benefits of ABC, including UHPC for PBEs. The outreach effort reached about 500 transportation professionals in California.

HDOT completed its first bridge with UHPC connections on the island of Hawaii. UHPC was used to connect the precast deck panels on the superstructure replacement of the Umauma Stream Bridge, a historic structure that sits 261 feet above the streambed on steel railroad trestles built in 1910. The deteriorating steel girders and concrete deck were replaced with new steel girders and precast deck panels. The precast deck panels were used to speed construction, and UHPC was chosen to simplify the deck panel connections and provide greater durability than conventional concrete.

ITD has rapidly become one of the more frequent users of UHPC connections for PBEs. ITD constructed the first Idaho bridge using UHPC connections in 2016 and completed five more in 2017. The agency has more than 12 bridges that use UHPC connections in design or construction in 2018. UHPC was chosen to connect precast deck bulb-tee girders on three completed bridges and one in the design phase. The remaining projects were bridge replacements that involved using UHPC for connections between precast voided slab beam elements.

In **Minnesota**, MnDOT is completing the design of its first—and the State's second—project using UHPC connections. The Interstate 694 bridges over Interstate 94 in Woodbury will be replaced with new precast concrete girders and precast deck panels. The proposed construction includes using the existing southbound I-694 bridge as a detour during construction by sliding it into the median. Precast deck panels were selected to speed construction, and UHPC was chosen to improve the strength, simplicity, and durability of the deck panel connections. The design includes the first use in the country of a hidden pocket detail for the connection between precast deck panels and precast concrete girders.

In **Nebraska**, NDOT is completing construction of its second bridge using UHPC connections. The Middle Logan Creek Bridge between Belden and Laurel is being replaced with all precast abutments, girders, approach slabs, and bridge deck panels. UHPC is being used for the transverse connections between the deck panels. NDOT chose PBEs to speed construction and meet the project goal of limiting the road closure for construction to less than 45 days. The project includes a unique detail for the girder-to-deck-panel connection that employs threaded rods projecting from the girders instead of stirrups.

The Nebraska Department of Transportation chose UHPC to make the transverse connections between precast concrete deck panels on the Belden-Laurel bridge replacement.

Credit: Nebraska Department of Transportation

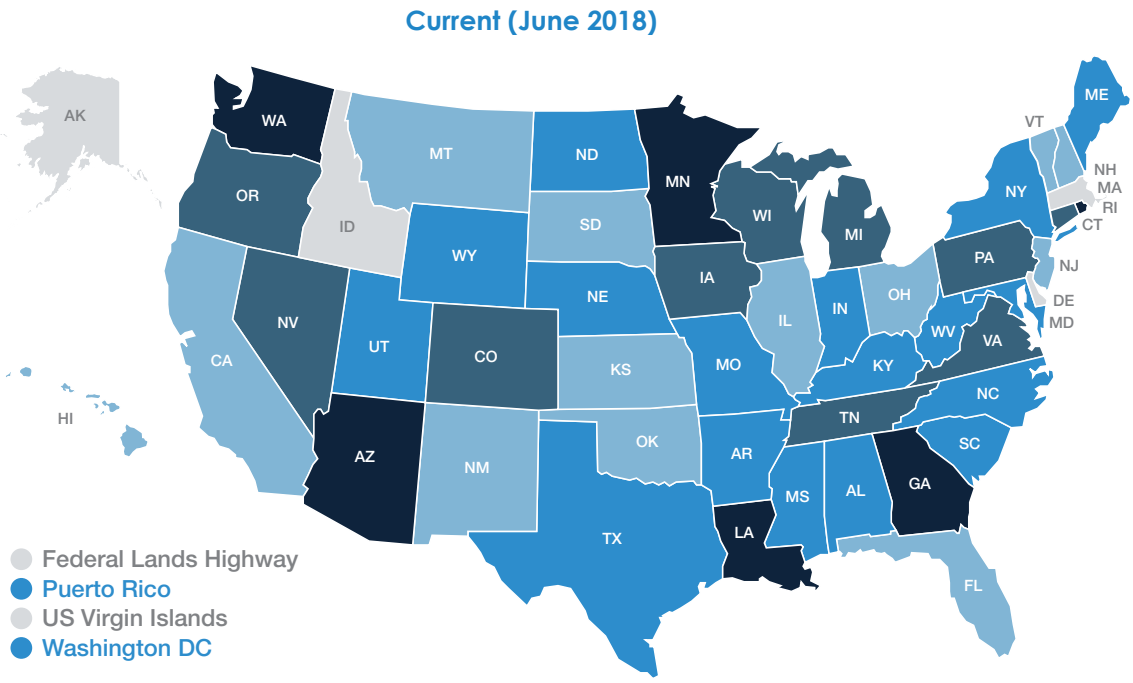
Using Data to Improve Traffic Incident Management

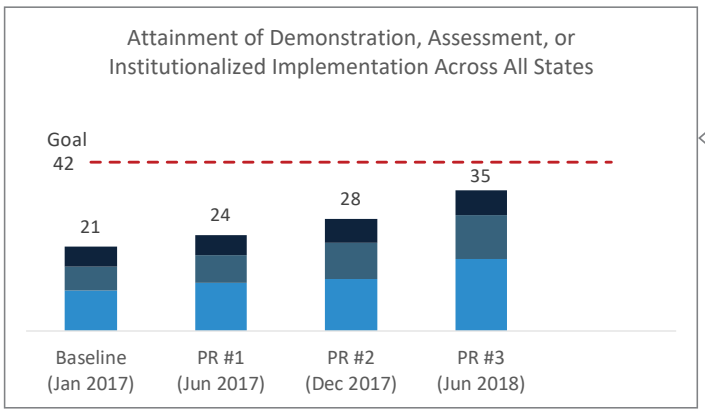
Using data to improve traffic incident management (TIM) focuses on increasing the amount, consistency, and quality of data collection to support the development of performance measures for evaluating and improving traffic incident response programs.

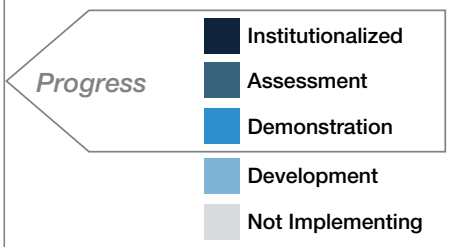
Traffic incidents put travelers' and emergency responders' lives at risk and cause a quarter of all traffic delays. Resulting congestion can lead to secondary crashes. To improve safety and reduce incident durations, dozens of TIM Programs organized throughout the country enable more effective coordination among responder agencies.

FHWA is promoting the use of low-cost, off-the-shelf technologies to collect data to help agencies enhance TIM programs. FHWA is also encouraging adoption of three key TIM performance measures: roadway clearance time, incident clearance time, and number of secondary crashes. With better data, agencies can quantify program performance, demonstrate program effectiveness, and improve planning and resource management.

Thirteen States are learning more, have plans, and are preparing to use data to improve TIM. Twenty-seven States, Puerto Rico, and Washington, DC, are demonstrating and assessing approaches and/or technologies to collect data and adopt TIM performance measures to evaluate and improve their TIM programs. Six States have made using data to improve TIM a standard practice.







Innovation Spotlight

Using Data to Improve Traffic Incident Management

The **Puerto Rico Highway and Transportation Authority** (PRHTA) used STIC Incentive funds to acquire networking equipment needed to install SunGuide® advanced traffic management system software at its traffic management center (TMC). By using SunGuide, PRHTA leverages many years of development and refinement of the software by the Florida Department of Transportation, making the investment more cost effective than starting from scratch.

Texas is using Houston Traffic Management Center incident data and Bluetooth® traffic data that relay speeds of traffic on roadway segments for secondary crash analysis. The data are also used to identify when the roadway returns to normal flow.

Three States are focusing on analysis of TIM data. **Arkansas** is reviewing new secondary crash data elements to verify the quality of data and identify training needs. **Kentucky** is analyzing Waze and HERE data along with TMC data to improve incident detection. **Utah** is combining roadway sensor speed data, probe speed data, and highway patrol computer-aided dispatch data to explore relationships between the number of TIM teams and the user cost savings to optimize TIM team deployment.

Four states have begun reporting TIM performance measures through web-based dashboards, quarterly reports, and other TIM reporting. **Mississippi** created a custom reporting tool to merge crash and TMC data for incident clearance time estimation. **Pennsylvania** created its inaugural TIM report and is expanding the report to include TIM performance measures. **Connecticut** created the AlgoReports tool to pull TIM performance measures from TMC data. **Florida** created a TIM data dashboard that graphically presents all three TIM performance measures.

Two states have successfully applied TIM performance measures to support decision making and improve TIM. **Tennessee** is using TIM data to augment content for its live training facility. **Arizona's Department of Public Safety** now includes roadway clearance time in its 28-day CompStat management reviews to promote accountability.

TIM data collection continues to expand. Through modification of their State crash reports, 16 States now collect at least one TIM performance measure (**Alaska, Arizona, Florida, Georgia, Idaho, Iowa, Kentucky, Maine, Maryland, Mississippi, Nevada, Ohio, Pennsylvania, Tennessee, Virginia,** and **Wyoming**). Two States have begun to collect more detailed incident data (**Arizona** and **Tennessee**), and two States have begun training law enforcement officers on the use of the TIM fields on the crash form (**Iowa** and **Nevada**). Through improvements in TMC training and software, six States are improving data collection, transforming previously qualitative and inconsistent reporting to quantitative reporting (**Indiana, New Hampshire, Ohio, South Carolina, Tennessee,** and **Texas**). Through the development of a mobile application and software, two States are collecting and integrating safety service patrol data (**Puerto Rico** and **Texas**).

ACRONYMS AND ABBREVIATIONS

1D ..... one-dimensional
2D ..... two-dimensional
3D ..... three-dimensional
AASHTO ..... American Association of State Highway and Transportation Officials
ABC ..... accelerated bridge construction
ADOT ..... Arizona Department of Transportation
AID Demonstration ..... Accelerated Innovation Deployment Demonstration
Alaska DOT&PF ..... Alaska Department of Transportation and Public Facilities
ALDOT ..... Alabama Department of Transportation
ArDOT ..... Arkansas Department of Transportation
ATSPM ..... automated traffic signal performance measure
AVL ..... automatic vehicle location
Caltrans ..... California Department of Transportation
CDOT ..... Colorado Department of Transportation
CHANGE ..... collaborative hydraulics: advancing to the next generation of engineering
CTDOT ..... Connecticut Department of Transportation
DDSA ..... data-driven safety analysis
DOT ..... department of transportation
EDC ..... Every Day Counts
EDC-4 ..... Every Day Counts round four
FHWA ..... Federal Highway Administration
FLH ..... Federal Lands Highway
GDOT ..... Georgia Department of Transportation
HDOT ..... Hawaii Department of Transportation
HSIP ..... Highway Safety Improvement Program
ICE ..... intersection control evaluation
IDOT ..... Illinois Department of Transportation
INDOT ..... Indiana Department of Transportation
IMO ..... integrating mobile observations
ITD ..... Idaho Transportation Department
KYTC ..... Kentucky Transportation Cabinet
Louisiana DOTD ..... Louisiana Department of Transportation and Development
LRSP ..... local road safety plan
LTAP ..... Local Technical Assistance Program
MaineDOT ..... Maine Department of Transportation
MDOT ..... Michigan Department of Transportation
MIRE ..... Model Inventory of Roadway Elements
MnDOT ..... Minnesota Department of Transportation

NCDOT ..... North Carolina Department of Transportation
NDOT ..... Nebraska Department of Transportation
NDOT ..... Nevada Department of Transportation
NGCS ..... Next Generation Concrete Surface
NMDOT ..... New Mexico Department of Transportation
NEPA ..... National Environmental Policy Act
NEPA/404 ..... National Environmental Policy Act and Clean Water Act Section 404
NJDOT ..... New Jersey Department of Transportation
NWS ..... National Weather Service
NYSDOT ..... New York State Department of Transportation
ODOT ..... Oregon Department of Transportation
PBE ..... prefabricated bridge element
PennDOT ..... Pennsylvania Department of Transportation
PRHTA ..... Puerto Rico Highway and Transportation Authority
PSR ..... Pavement Sustainability Ratio
RIDOT ..... Rhode Island Department of Transportation
RRFB ..... rectangular rapid-flashing beacon
SGA ..... Smart Growth America
STEP ..... safe transportation for every pedestrian
STIC ..... State Transportation Innovation Council
TIM ..... traffic incident management
TMC ..... traffic management center
TxDOT ..... Texas Department of Transportation
UHPC ..... ultra-high performance concrete
USACE ..... U.S. Army Corps of Engineers
USGS ..... U.S. Geological Survey
WSDOT ..... Washington State Department of Transportation
WVDOT ..... West Virginia Department of Transportation

"We call EDC the 'on-ramp to innovation' because we're always looking for newer, better ways to keep Americans safe while they drive and save time in project delivery as well as taxpayers' money."

Brandye Hendrickson, FHWA Acting Administrator

U.S. Department of Transportation
Federal Highway Administration