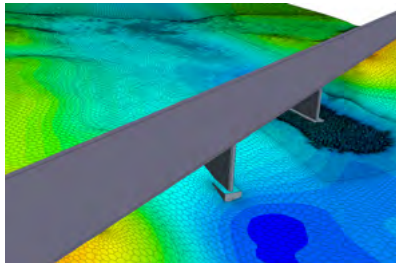


# Every Day Counts: An Innovation Partnership With States

*EDC-4 Summit Summary and Baseline Report*  
May 2017



every day counts 



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

# 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 describes the innovations FHWA is promoting in the program's fourth round in 2017 and 2018 and documents the fall 2016 summits held to launch EDC-4. The report outlines the deployment status at the beginning of 2017 and the goals transportation stakeholders have set to broaden their adoption by the end of 2018. The report is intended to be a resource for transportation stakeholders as they develop their deployment plans and to encourage ongoing innovation in managing transportation project delivery to better serve the Nation.



“If we innovate, we can make the best use of our resources. We can achieve the best impact for the public.”

*Edwin Sniffen,  
Hawaii Department of Transportation Highways  
Division Deputy Director*

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Acronyms and Abbreviations

“The momentum has picked up through the series of Every Day Counts initiatives. More people are getting involved and seeing the advantage.”

*Malcolm Dougherty,  
California Department of Transportation Director*

AASHTO ..... American Association of State Highway and Transportation Officials

AID Demonstration..... Accelerated Innovation Deployment Demonstration

ATSPMs..... automated traffic signal performance measures

CHANGE..... collaborative hydraulics: advancing to the next generation of engineering

DDSA..... data-driven safety analysis

DOT ..... department of transportation

EDC ..... Every Day Counts

EDC-1 ..... Every Day Counts round one

EDC-2..... Every Day Counts round two

EDC-3..... Every Day Counts round three

EDC-4..... Every Day Counts round four

FAST Act..... Fixing America's Surface Transportation Act

FHWA ..... Federal Highway Administration

FLA ..... Federal Lands Highway

NEPA ..... National Environmental Policy Act

STEP ..... safe transportation for every pedestrian

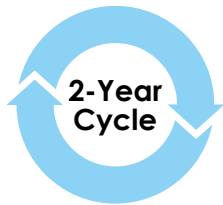
STIC ..... State Transportation Innovation Council

TIM..... traffic incident management

UHPC..... ultra-high performance concrete

# 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. The **fourth round of EDC** (EDC-4), which promotes the adoption of 11 innovations in 2017 and 2018, builds on the success of previous deployment efforts.

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, the **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.

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 multi-agency deployment team for each EDC innovation to assist States in

*"These are proven, market-ready innovations that are being implemented already in many places."*

*Walter Waidelich, Jr., FHWA Acting Deputy Administrator*

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.

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

on 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. Every State has used 10 or more of the 32 innovations promoted during the first three rounds of the program, and some have adopted more than 20. Several of those innovations are now mainstream practices in many States. 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 new innovative practices and technologies.



“Every Day Counts is a platform to accelerate the movement of innovations into the transportation community and how we do business.”

*Tony Furst, FHWA Chief Innovation Officer*

# EDC-4 Summits: Launching the Next Round of Innovation

A series of regional summits in the fall 2016 gave transportation professionals across the country a forum to learn about the EDC-4 innovations and share best practices on creating a culture of innovation in the transportation community. The purpose of the summits—held in California, Florida, Maryland, Minnesota, New York, Oregon, and Texas—was to disseminate information on the 11 technologies and processes FHWA is promoting in 2017 and 2018 so States could begin the process of identifying those that best fit the needs of their transportation programs.

## Making Informed Choices

The summits were held at seven locations around the country to foster synergy among regional transportation professionals and encourage collaboration on innovative practices. Interactive working sessions gave participants the opportunity to explore the EDC-4 innovations in detail and share lessons learned so they could make informed choices about which to implement. Participants also provided feedback on proposed strategies to implement the innovations so the deployment teams FHWA formed for each innovation could tailor their strategies to State needs.

“These summits are important because we can focus on areas FHWA has identified that other States are working on that our State might not be familiar with.”

*Janice Williams, Louisiana Department of Transportation and Development Chief Engineer*

Attending the EDC summits every other year offers District Department of Transportation staff members opportunities to learn about new approaches to improve how they deliver transportation programs to the public, said Director Leif Dormsjo. “Every time we participate, it gives our team new energy and perspectives on problems that other groups have looked at solving,” he said. “It really accelerates how we get things done.”

The EDC program encourages State transportation departments “to be innovative, to take risks, and to find new and better ways to do things. That’s why it’s important for DOTs as well as for taxpayers,” said Maryland Transportation Secretary Pete Rahn. “We are very interested in delivering practical transportation solutions for the traveling public. What that means for us is ‘How do we do it better, faster, and cheaper so we can save money, do a good job, and do more for our citizens?’”



“We’ve already implemented some of these innovations, but I’m learning about others that we can take back home.”

*Rudy Malfabon, Nevada Department of Transportation Director*

## Introducing EDC-4 Innovations

At each summit, FHWA speakers outlined the goals and benefits of EDC, reported on overall progress on earlier rounds of the EDC program, and introduced the fourth-round innovations:

- ▶ **Automated traffic signal performance measures (ATSPMs)** modernize traffic signal management by providing high-resolution data to actively manage performance and improve safety and customer service while cutting congestion and costs.
- ▶ 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.
- ▶ **Community connections** are performance management approaches for planning, designing, and building transportation projects that promote connectivity, revitalize communities, and improve public health and safety.
- ▶ **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.
- ▶ **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.
- ▶ **Integrating National Environmental Policy Act and permitting** processes enables concurrent, synchronized environmental and permitting reviews that save time and reduce costs for the agencies involved.
- ▶ **Pavement preservation (when, where, and how)** involves applying pavement preservation treatments at the right time on the right project with quality materials and construction, offering a critical investment strategy for optimizing infrastructure performance.
- ▶ **Road weather management—weather-savvy roads** integrates mobile observations and Pathfinder strategies in collaboration with the National Weather Service that can help agencies manage road systems and inform travelers ahead of and during adverse road weather conditions.
- ▶ **Safe transportation for every pedestrian (STEP)** features cost-effective countermeasures with known safety benefits that can reduce pedestrian fatalities at uncontrolled crossing locations and unsignalized intersections.
- ▶ **Ultra-high performance concrete (UHPC)** can be used to create the simple, strong, long-lasting connections needed for successful construction using prefabricated bridge elements.
- ▶ **Using data to improve traffic incident management (TIM)** focuses on increasing the amount, consistency, and quality of data collection to support development of performance measures for evaluating and improving traffic incident response programs.



“Every Day Counts provides the forum, it provides the tools, and it provides the expertise that we need to innovate in better ways.”

*Amy St. Peter, Maricopa Association of Governments Assistant Director*

## Building a Culture of Innovation

Each EDC-4 summit featured a town hall discussion in which transportation leaders examined how to make innovation adoption part of the everyday operation of their organizations and shared ways they strive to build a culture of innovation in their States. Participants in the Baltimore, MD, town hall agreed that the question was not if, but how agencies can become more innovative. “Our customer expectations are completely changed,” said David Kuhn, assistant commissioner of the New Jersey Department of Transportation. “The expectation today is that we cannot solve tomorrow’s transportation issues with yesterday’s solutions.”

Thomas Harman, director of the FHWA Center for Accelerating Innovation, which administers the EDC program, issued what he called a “2 percent challenge” to summit participants. “Two percent of a day is only half an hour,” he said. “If you can spend just 2 percent of a day once a week focusing on innovative

ideas, you can help advance the culture of innovation in your agency.”

After learning about the EDC-4 innovations, summit participants met in State caucuses to plan which EDC-4 innovations to pursue over the next 2 years to meet their unique program needs. They relayed their recommendations to the STICs in each State for further discussion and development of performance goals and implementation plans to get the selected innovations into practice.

State implementation plans for the EDC-4 innovations show that interest in all 11 technologies and practices is strong. Every State plans to try at least two innovations and many States are deploying multiple technologies and practices. Some innovations—including DDSA, e-Construction, STEP, pavement preservation, collaborative hydraulics, and using data to improve TIM—are being deployed in more than 40 States during this EDC cycle.



# EDC-4 Innovation Implementation

This section provides details on the 11 innovations FHWA is encouraging States to adopt during EDC-4. It includes maps and charts that show the progress expected in advancing the technologies and practices in 2017 and 2018.

The baseline maps illustrate the state of practice in January 2017, and the goal maps indicate the implementation stage States plan to achieve by December 2018. The bar charts also compare January 2017 baseline data and December 2018 goals set by States.

Every 6 months, FHWA will compile a report on the status of the state of practice to track the progress of EDC-4 innovation implementation. As States implement their innovation deployment plans, the number of States in the advanced implementation stages will increase while the number of States in the initial stages will decrease with each progress report.

"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 Federal Lands Highway (FLH), a total of 54 entities.

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

<b>Not Implementing</b>	The State is not currently using the innovation anywhere in the State and is not interested in pursuing the innovation.
<b>Development Stage</b>	The State is collecting guidance and best practices, building support with partners and stakeholders, and developing an implementation process.
<b>Demonstration Stage</b>	The State is testing and piloting the innovation.
<b>Assessment Stage</b>	The State is assessing the performance of and process for carrying out the innovation and making adjustments to prepare for full deployment.
<b>Institutionalized</b>	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.

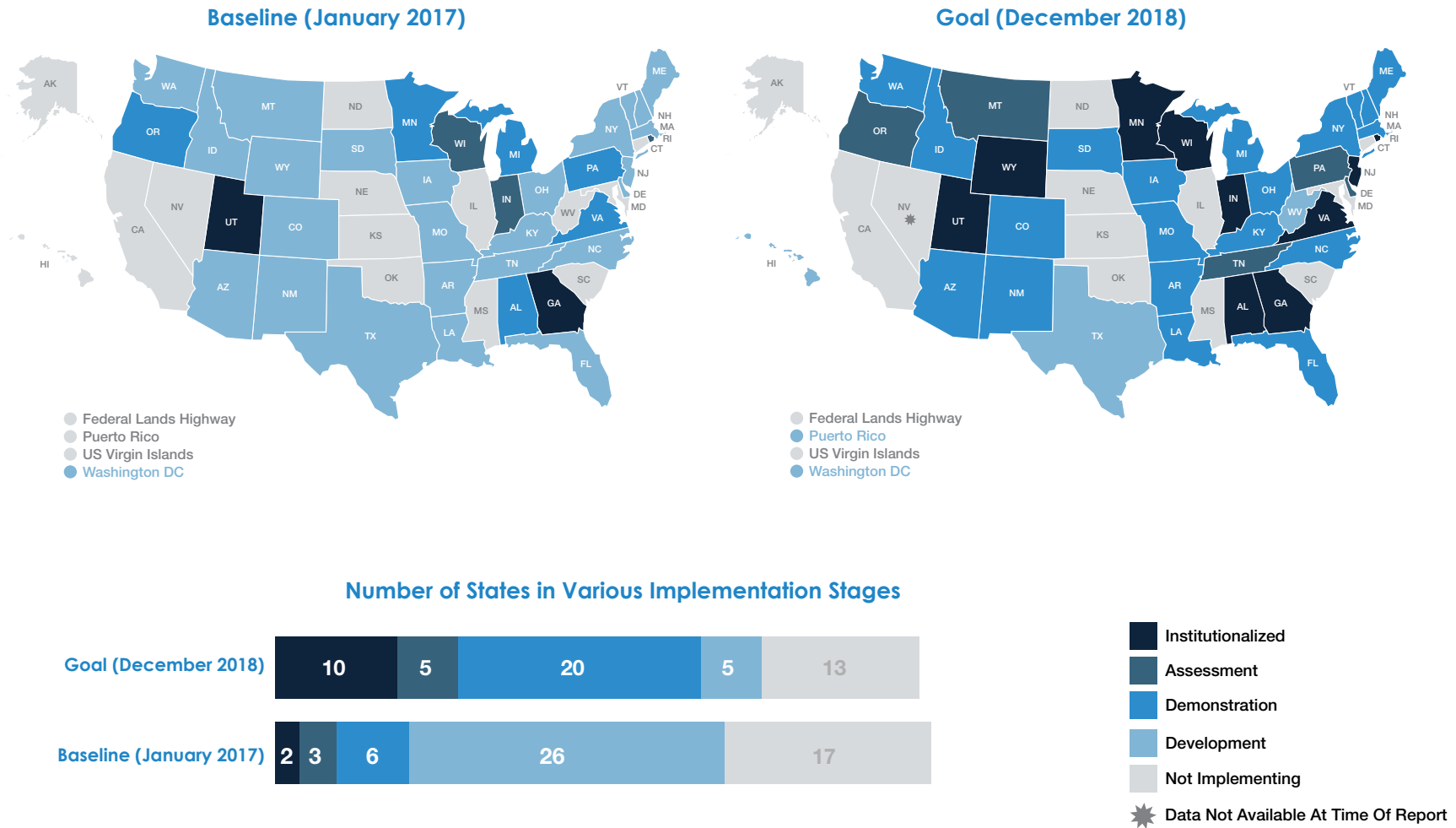


“With ATSPMs, we are able to do more with less and manage traffic more effectively 24/7. We have improved mobility by reducing the effort and time required to retime traffic signals.”

*Jamie Mackey, Utah Department of Transportation Statewide Signal Engineer*

# Automated Traffic Signal Performance Measures

Using ATSPMs to enhance safety and customer service is generating interest across the country. Twenty-five States plan to demonstrate and assess the technology in EDC-4. Another 10 States plan to make ATSPMs a standard practice.



## 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 transportation agencies to design safer, more cost-effective, and resilient structures on waterways.

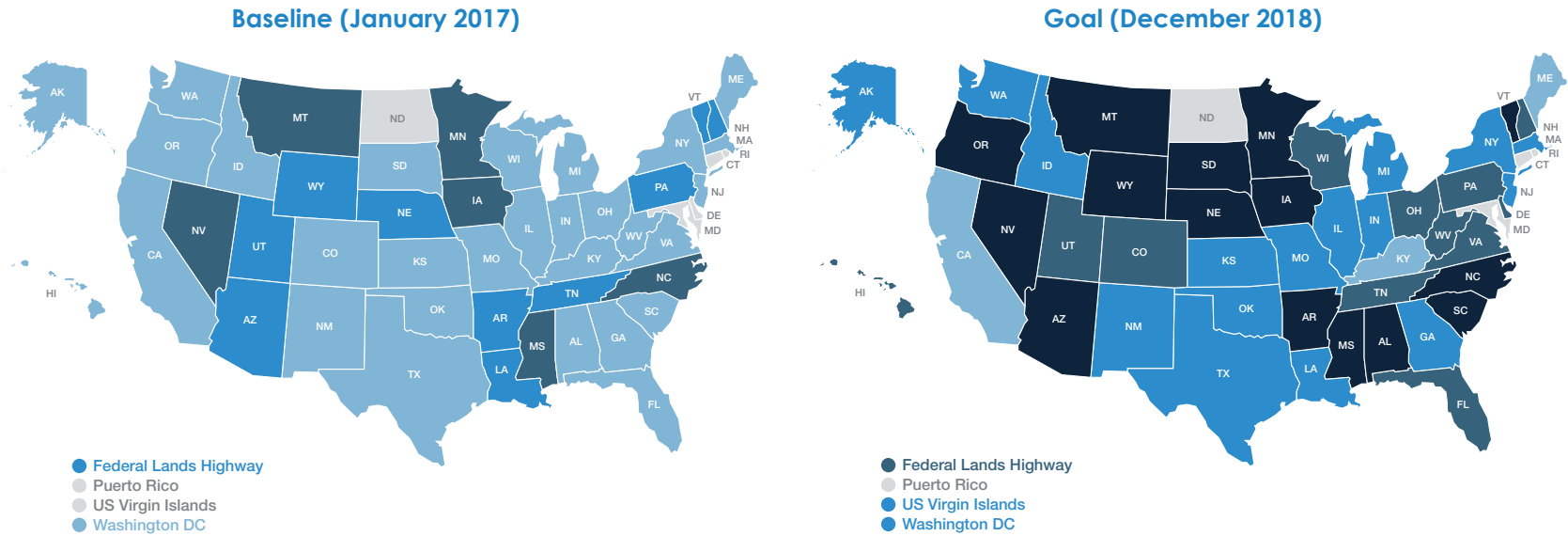
“It has changed how we attack our hydraulic designs. It’s making us more efficient and getting us a more accurate assessment of what’s going on hydraulically.”

*J.R. Taylor, Montana Department of Transportation Hydraulic Engineer*

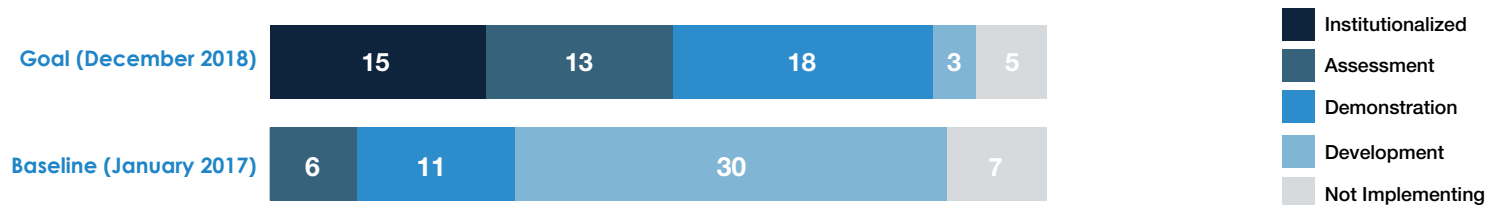


# Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)

CHANGE is generating widespread interest among States. Twenty-eight States, Washington, DC, FLH, and the U.S. Virgin Islands plan to demonstrate and assess hydraulic engineering tools in 2017 and 2018. Another 15 States plan to institutionalize hydraulic tools by the end of EDC-4.



Number of States in Various Implementation Stages



## 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 EDC-4 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.

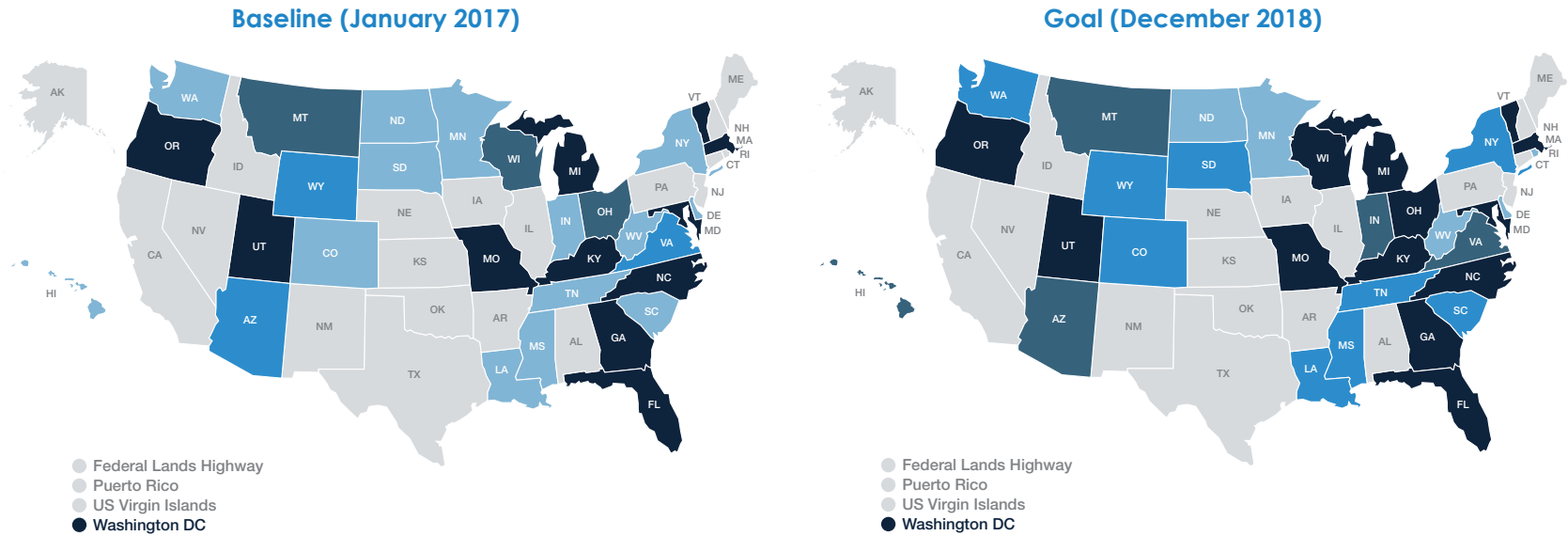


“Community connections is about reconnecting communities that had been historically divided by highway infrastructure. We’re trying to bring people in early in the planning process so we can hear their views about transportation.”

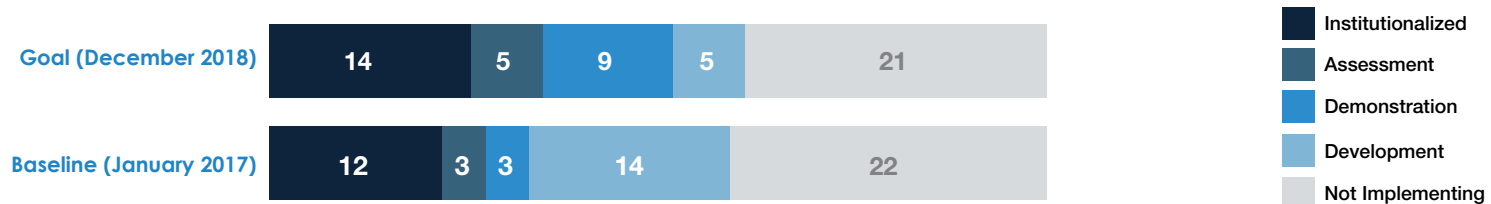
*Gloria Shepherd, FHWA Associate Administrator for Planning, Environment, and Realty*

# Community Connections

During EDC-4, 14 States plan to demonstrate and assess community connections approaches to enhance their transportation networks. Another 13 States and Washington, DC, plan to make community connections a standard practice.



## Number of States in Various Implementation Stages





## 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, also an EDC-3 innovation, employs new, evidence-based models that provide agencies with the means to quantify safety impacts. In EDC-4, FHWA will continue to help States incorporate DDSA into processes and policies, but a new focus will be 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 high-risk roadway features that correlate with particular crash types.

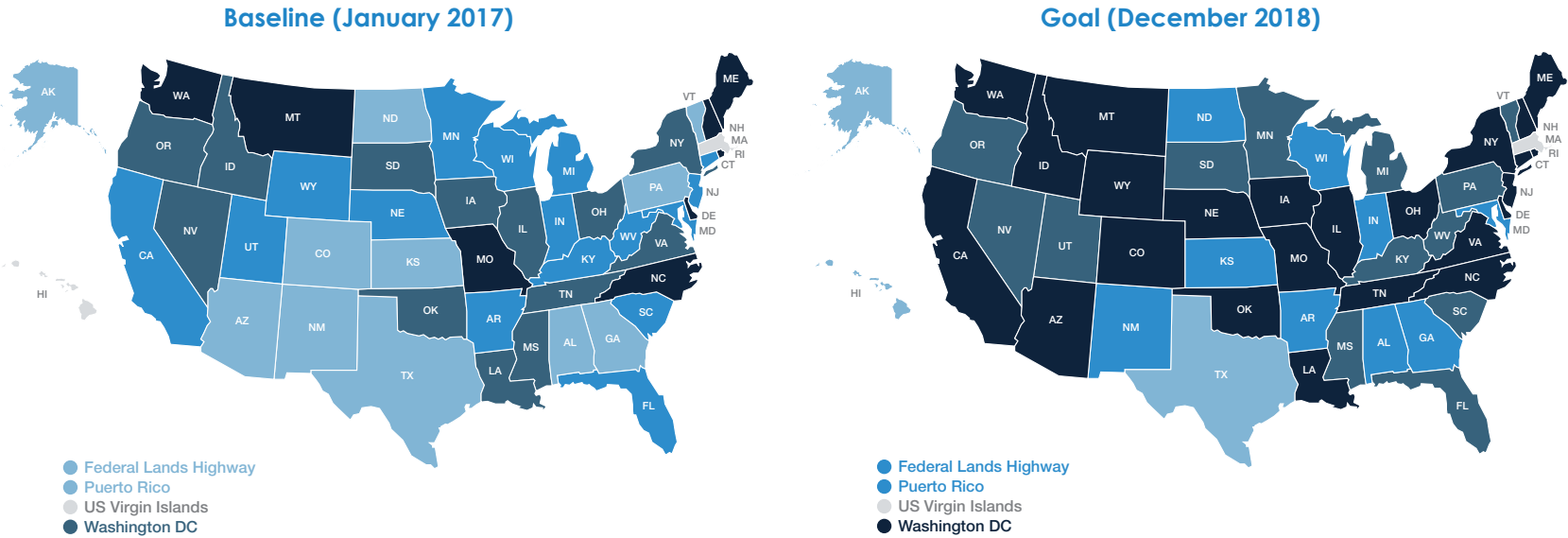


“For EDC-4, we’d like to increase the number of local agencies that gain proficiency with DDSA tools and, in turn, help them qualify for Highway Safety Improvement Program funding.”

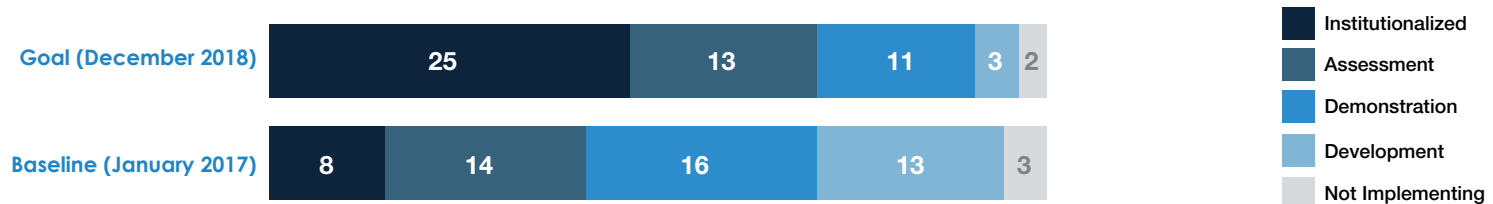
*Jerry Roche, FHWA Transportation Safety Engineer*

# Data-Driven Safety Analysis

Interest in using DDSA to enhance safety and reduce roadway crashes continues to grow. Twenty-two States, FLH, and Puerto Rico plan to demonstrate and assess DDSA tools in EDC-4 to target safety investments. Another 24 States and Washington, DC, plan to make DDSA a standard practice by the end of 2018.



## Number of States in Various Implementation Stages



## 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, also an EDC-3 innovation, is the creation, review, approval, distribution, and storage of 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 built on time and within budget, focused on safety, and profitable for contractors.

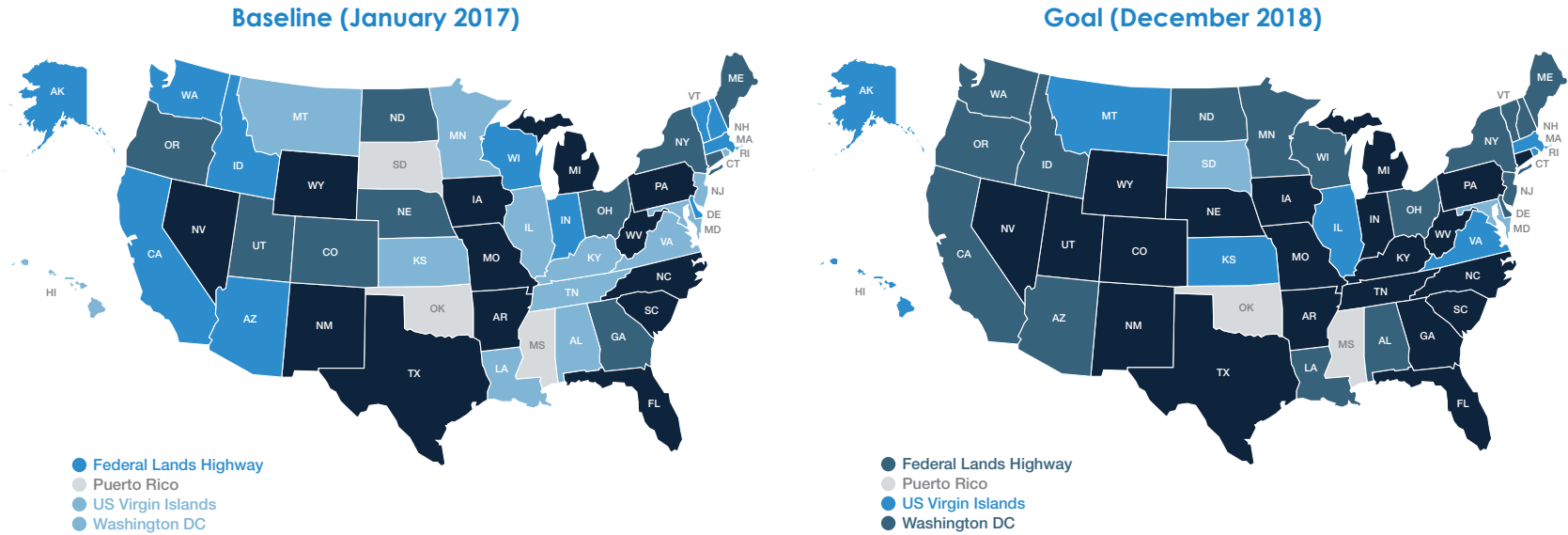
*“There’s a synergy between e-Construction and partnering. When you want to have good partnering, you have to have good processes and collaboration and transparent work flows.”*

*John Haynes, FHWA Research and Innovation Program Manager*

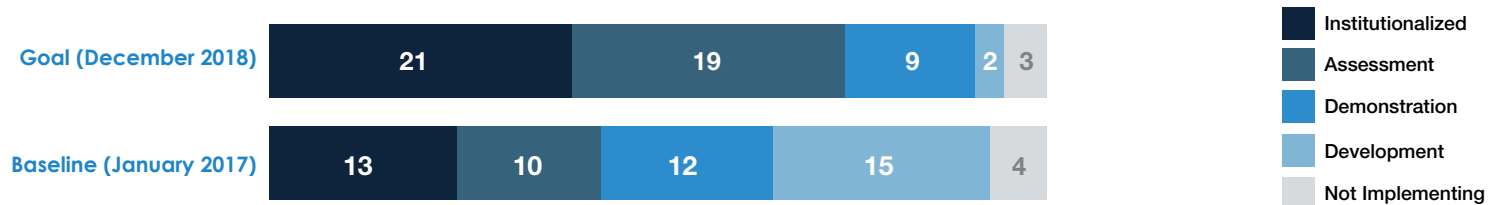


# e-Construction

Applying a paperless approach to project document management continues to attract interest. Twenty-five States, Washington, DC, the U.S. Virgin Islands, and FLH plan to demonstrate and assess e-Construction tools and processes in EDC-4. Another 21 States expect to make e-Construction a standard practice.

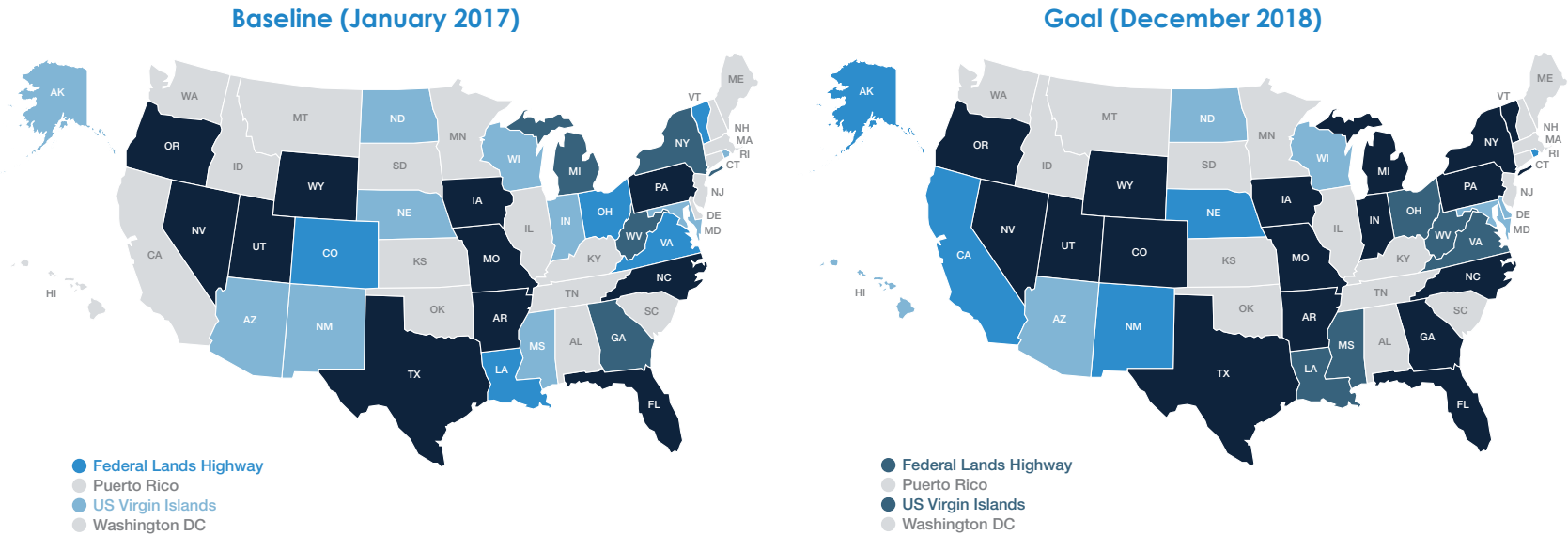


Number of States in Various Implementation Stages

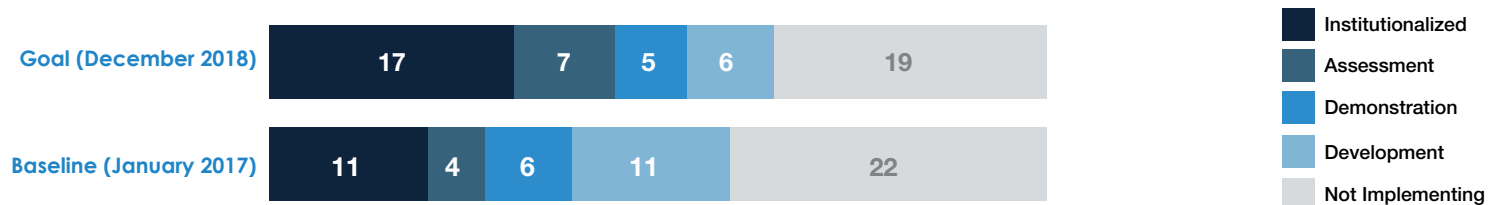


# e-Construction and Partnering

In EDC-4, 10 States, the U.S. Virgin Islands, and FLH plan to demonstrate and assess paperless technologies to improve partnering among stakeholders on construction projects. Another 17 States plan to make e-Construction and partnering a standard practice in project delivery.



Number of States in Various Implementation Stages



## 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.

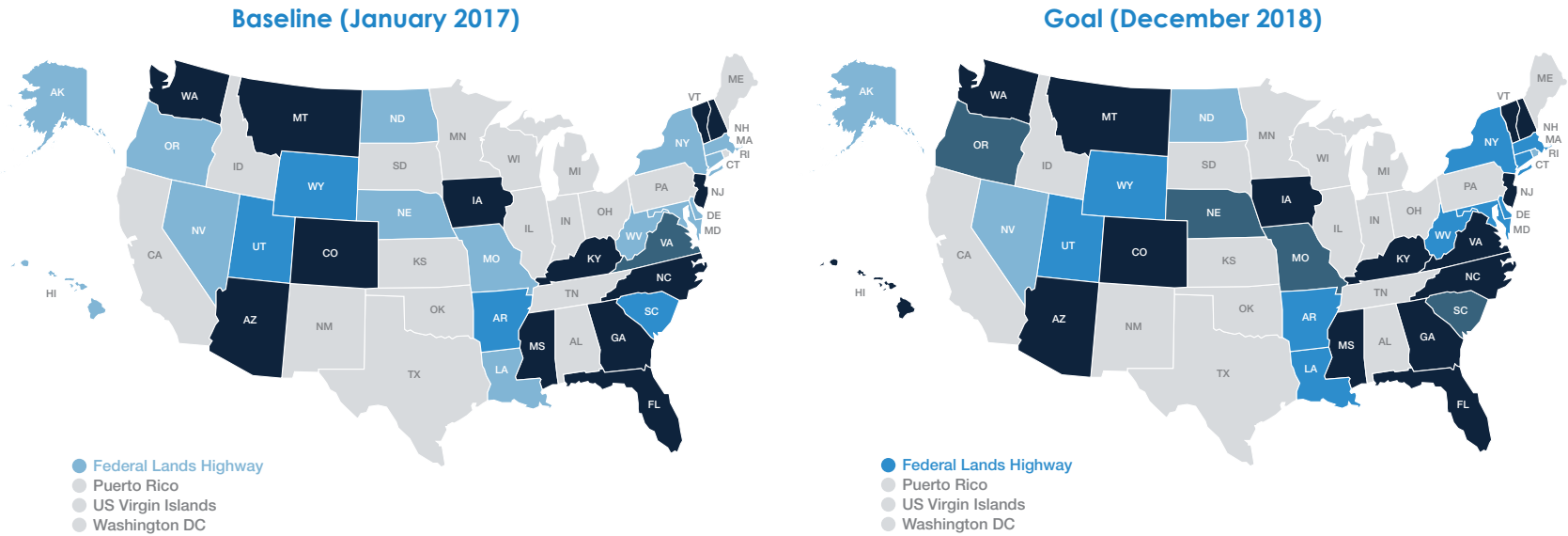


“Part of integrating NEPA and permitting is to reduce redundancy so we're not doing the same thing over and over again.”

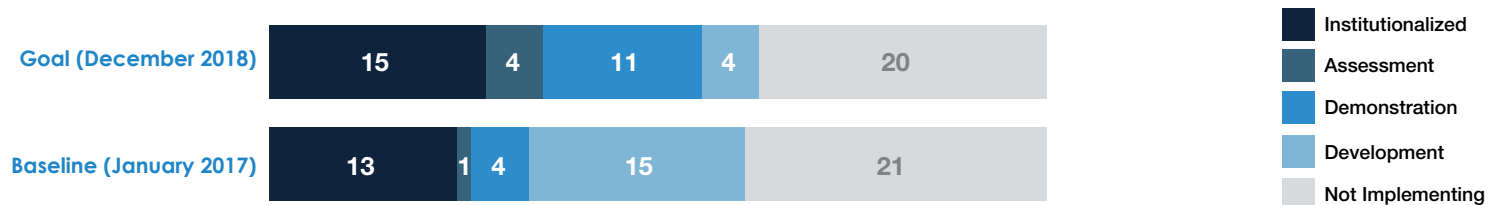
*LaTonya Gilliam, Delaware Department of Transportation  
Environmental Stewardship Program Manager*

# Integrating National Environmental Policy Act and Permitting

Fourteen States and FLH plan to demonstrate and assess tools to integrate NEPA and permitting processes in EDC-4. Another 15 plan to make it a standard practice to integrate NEPA and permitting processes on projects.



## Number of States in Various Implementation Stages



## 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.



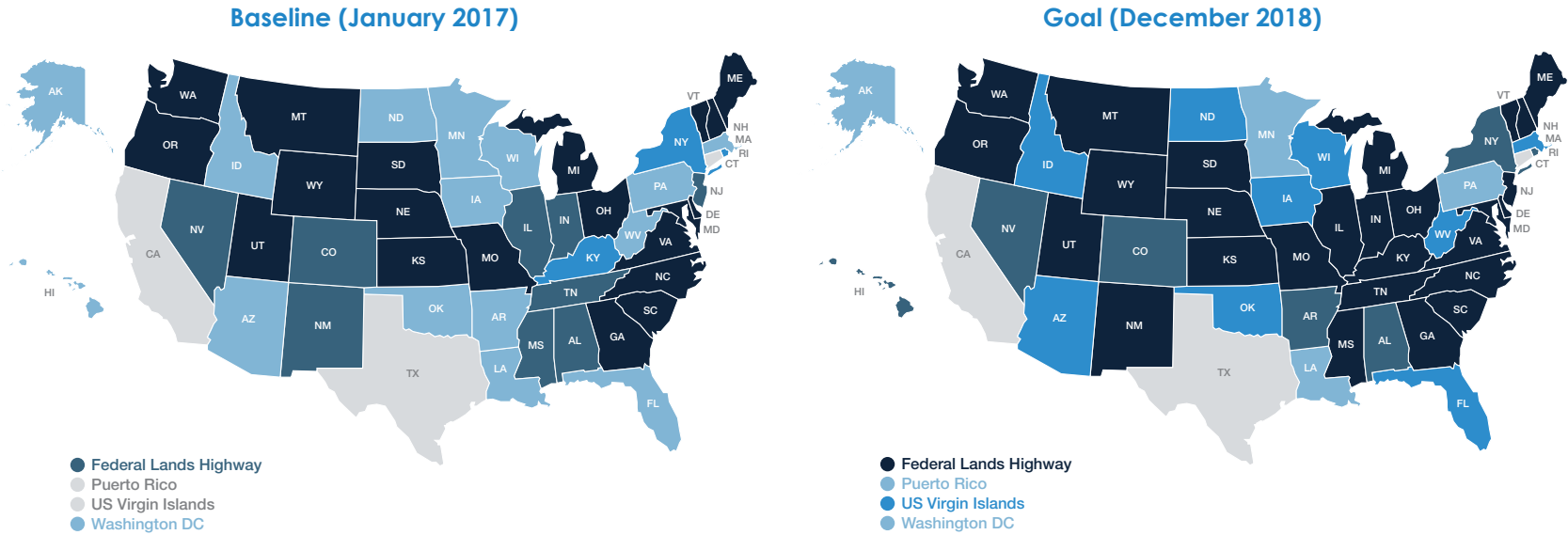
“Pavement preservation helps us with asset management planning. The benefits are helping people understand how the impact of the decisions they make today relate to the condition of pavements over the long term.”

*Machelle Watkins, Missouri Department of Transportation Planning Director*

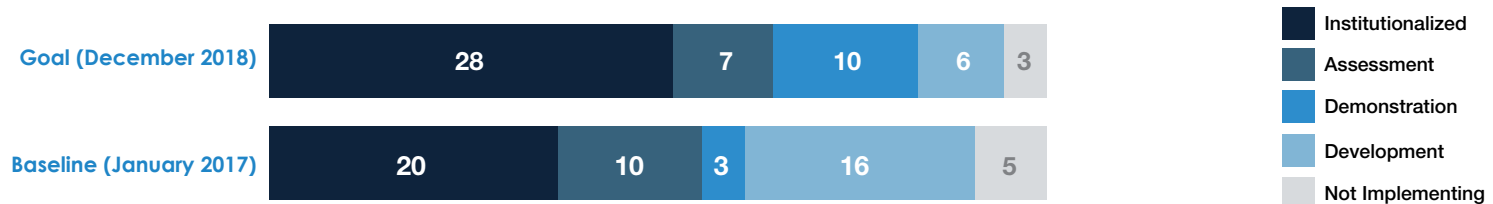


# Pavement Preservation: When and Where

In EDC-4, 16 States and the U.S. Virgin Islands plan to demonstrate and assess the “when and where” component of pavement preservation. Another 27 States and FLH expect to make it a standard practice to manage pavements proactively to preserve highway investments.

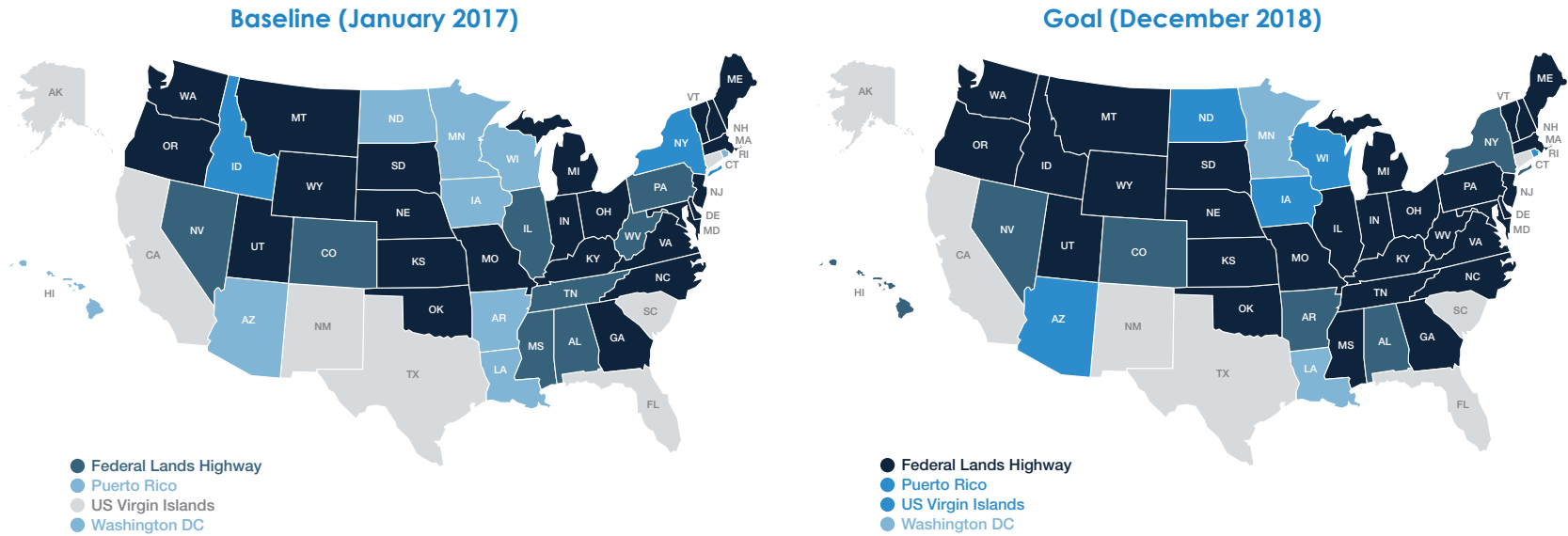


## Number of States in Various Implementation Stages

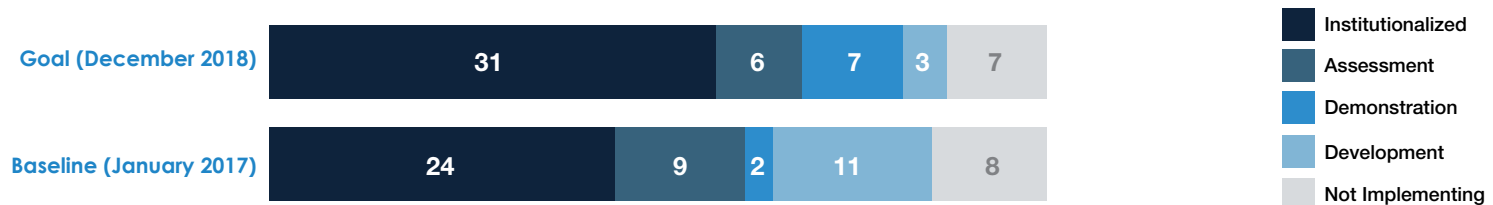


# Pavement Preservation: How

Eleven States, Puerto Rico, and the U.S. Virgin Islands plan to demonstrate and assess the “how” component of pavement preservation in EDC-4. Another 30 States and FLH plan to institutionalize the use of quality construction and materials practices to preserve pavements.



## Number of States in Various Implementation Stages



## 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, 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 and property and minimizes the impact of weather events.

Integrating mobile observations is a cost-effective way to gather 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.

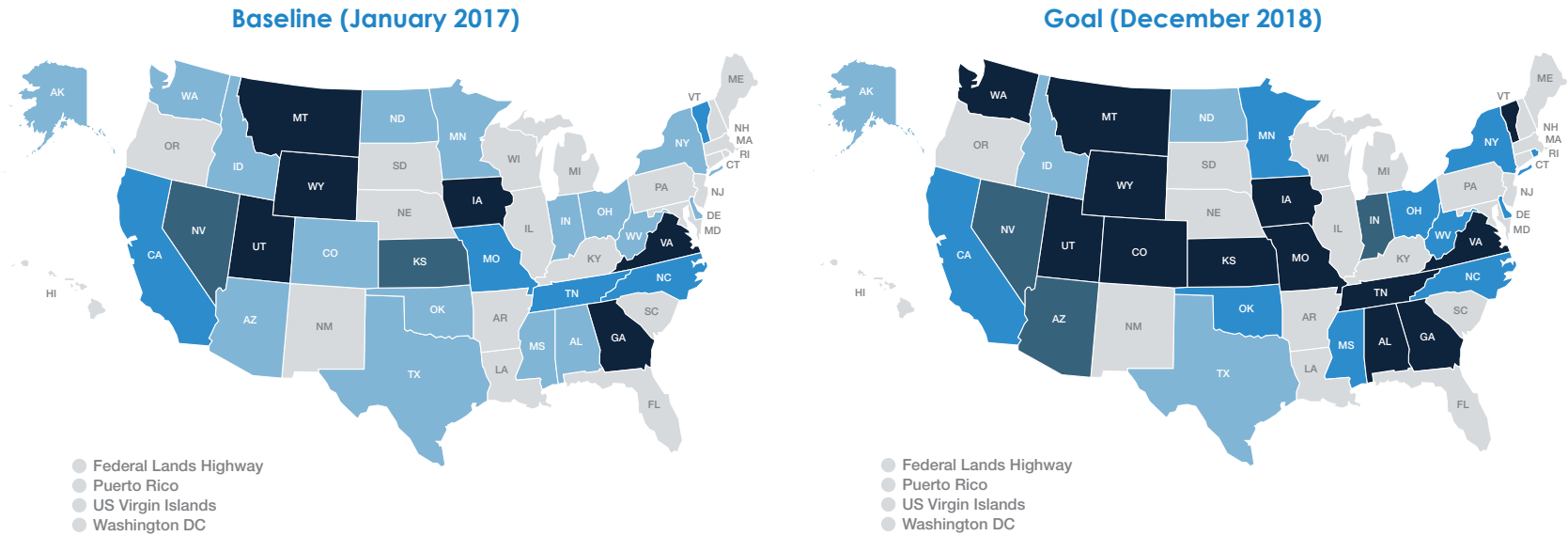


“Pathfinder is all about making sure people understand the hazards on the roads and making sure they make the best decisions to protect themselves and their family.”

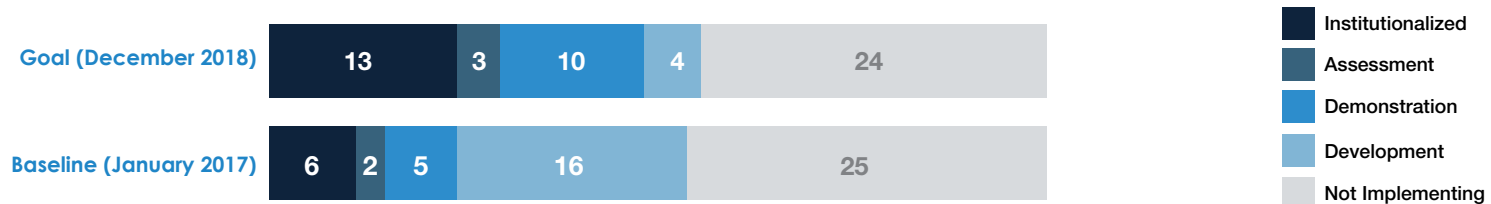
*Andrew Stern, National Weather Service Analyze, Forecast, and Support Office Director*

# Road Weather Management: Pathfinder

In EDC-4, 13 States plan to demonstrate and assess the Pathfinder process to collaborate on clear, consistent road weather messaging to help drivers make better travel decisions. Another 13 States expect to institutionalize the process.

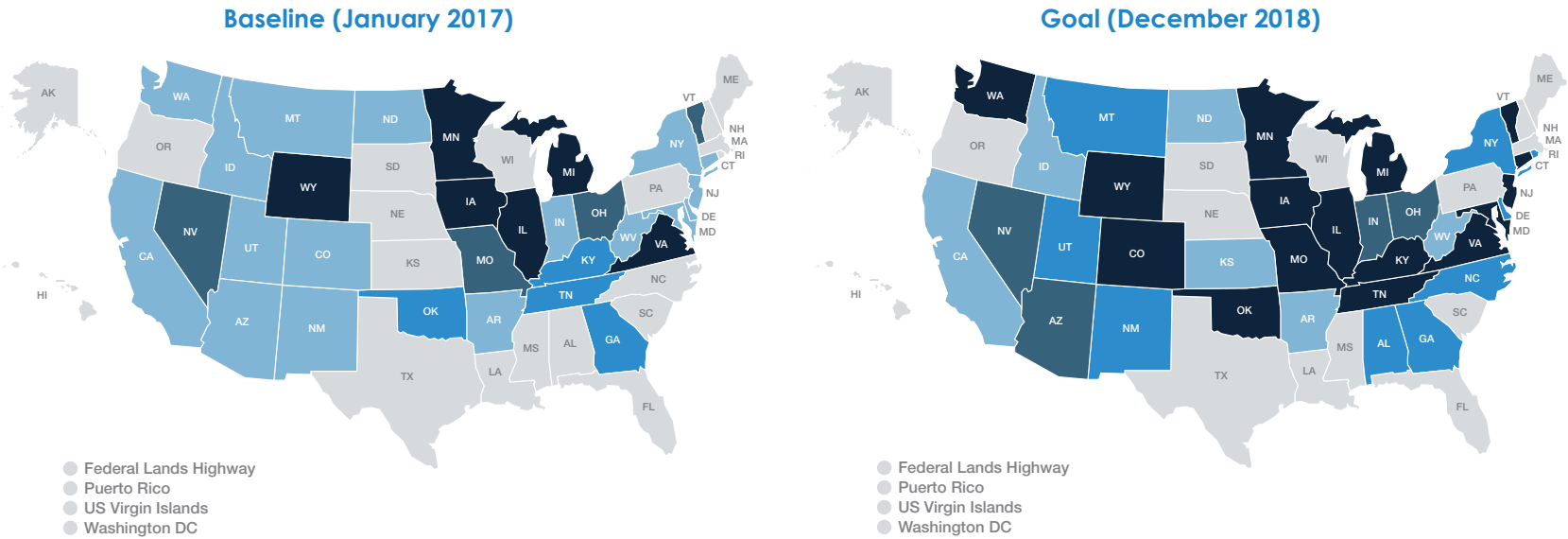


**Number of States in Various Implementation Stages**

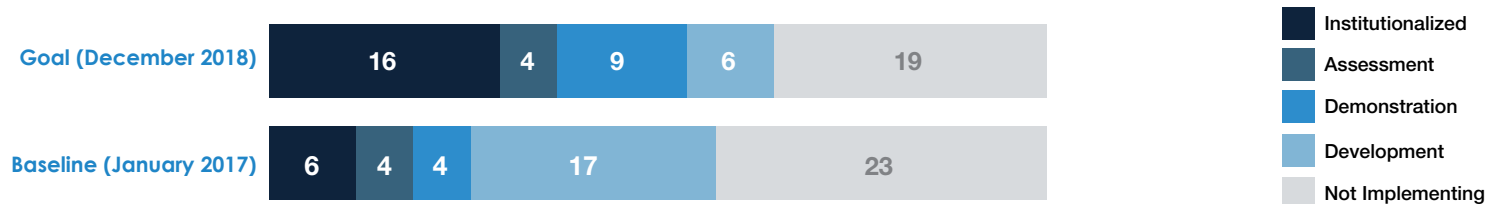


# Road Weather Management: Integrating Mobile Observations

Agencies in 13 States plan to demonstrate and assess vehicle-based technologies during EDC-4 to gather data to use to mitigate the negative impacts of road weather. Another 16 States plan to make integrating mobile observations a standard practice.



## Number of States in Various Implementation Stages



## 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 17.5 percent of all traffic fatalities. More than 66 percent of pedestrian fatalities occur at nonintersection locations such as midblock areas, and about 16 percent happen at intersections with no signals or stop signs.

The 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**, also an EDC-3 innovation, reconfigure a roadway cross-section to safely accommodate all users.

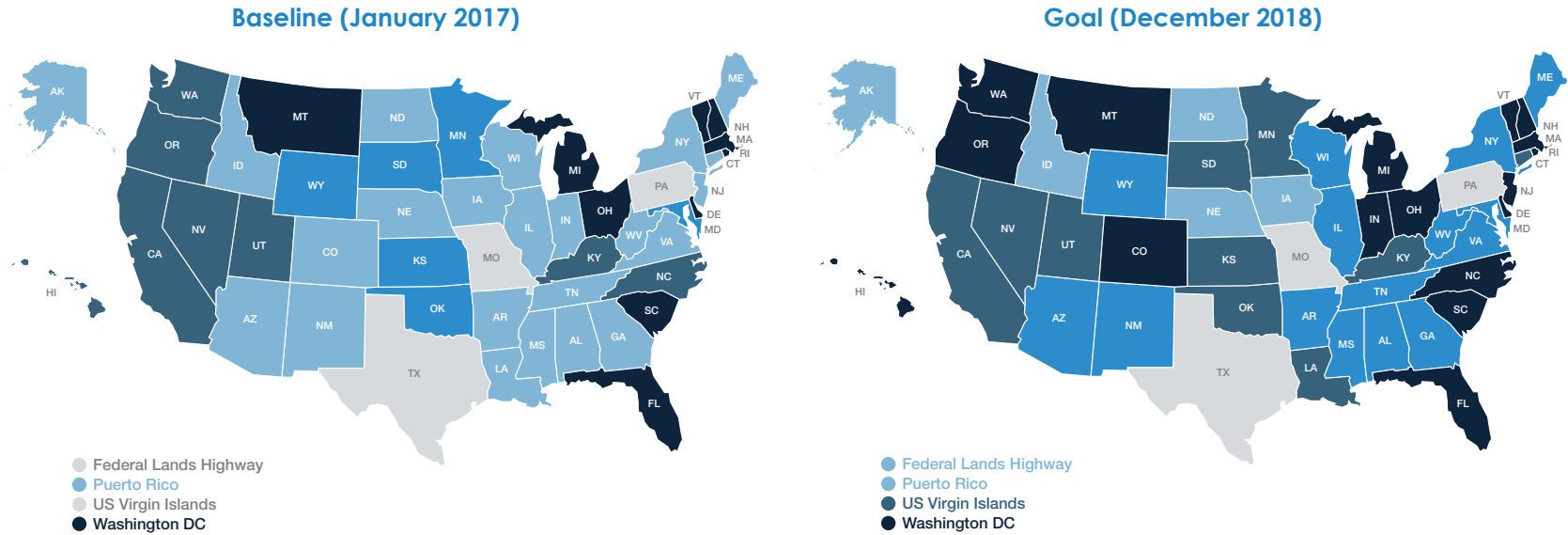


“We want to help provide safer crossings, but also improve connectivity of the pedestrian network since walking is the oldest form of transportation.”

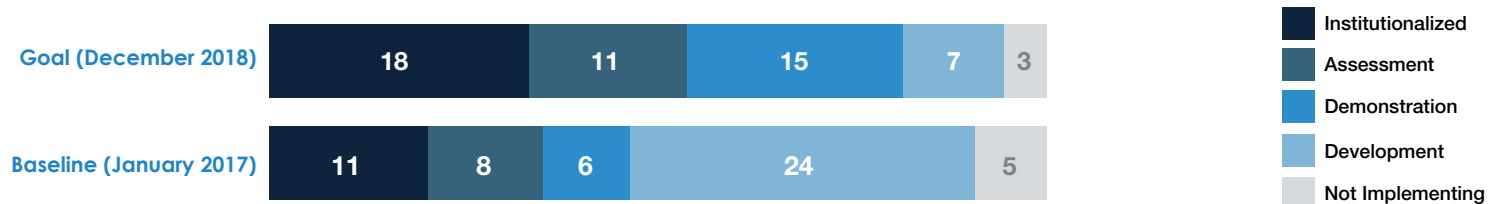
*Peter Eun, FHWA Transportation Safety Engineer*

# Safe Transportation for Every Pedestrian (STEP)

The STEP program is expected to expand the use of safety countermeasures to reduce pedestrian fatalities. Twenty-five States and the U.S. Virgin Islands plan to demonstrate and assess STEP countermeasures. Another 17 States and Washington, DC, expect to institutionalize STEP countermeasures by the end of EDC-4.



## Number of States in Various Implementation Stages



## 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. UHPC, also an EDC-3 innovation, is a steel fiber-reinforced, portland cement-based composite material that delivers performance far exceeding conventional concrete.

Prefabricated bridge elements, 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 prefabricated bridge elements simpler and more effective.



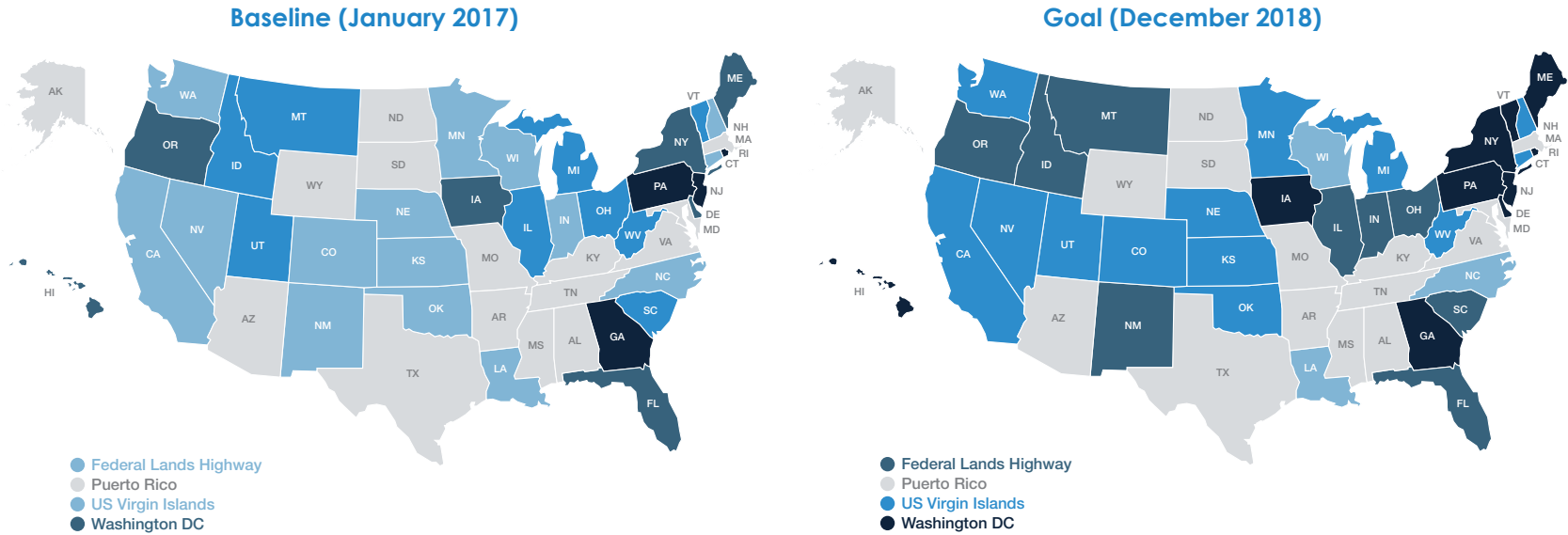
“UHPC is the next generation of concrete. It's a new tool in the toolbox that lets us build bridges differently so they'll give us the performance we demand.”

*Benjamin Graybeal, FHWA Bridge Engineering Research Team Leader*

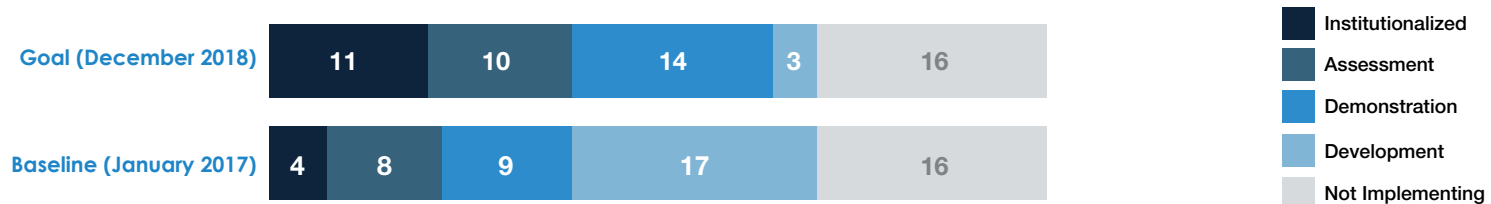


# Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements

Twenty-two States, the U.S. Virgin Islands, and FLH expect to demonstrate and assess the use of UHPC connections in bridge-building processes. Another 10 States and Washington, DC, plan to make UHPC connections a standard practice on bridge projects that use prefabricated elements.



Number of States in Various Implementation Stages



## 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. TIM programs to coordinate response among agencies are reducing the duration and impact of incidents.

In EDC-4, 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: length of time travel lanes are closed, length of time emergency responders are on an incident scene, and number of secondary crashes. Better data collection enables agencies to demonstrate program effectiveness through quantified safety and economic benefits and improve program performance, resource management, and planning.

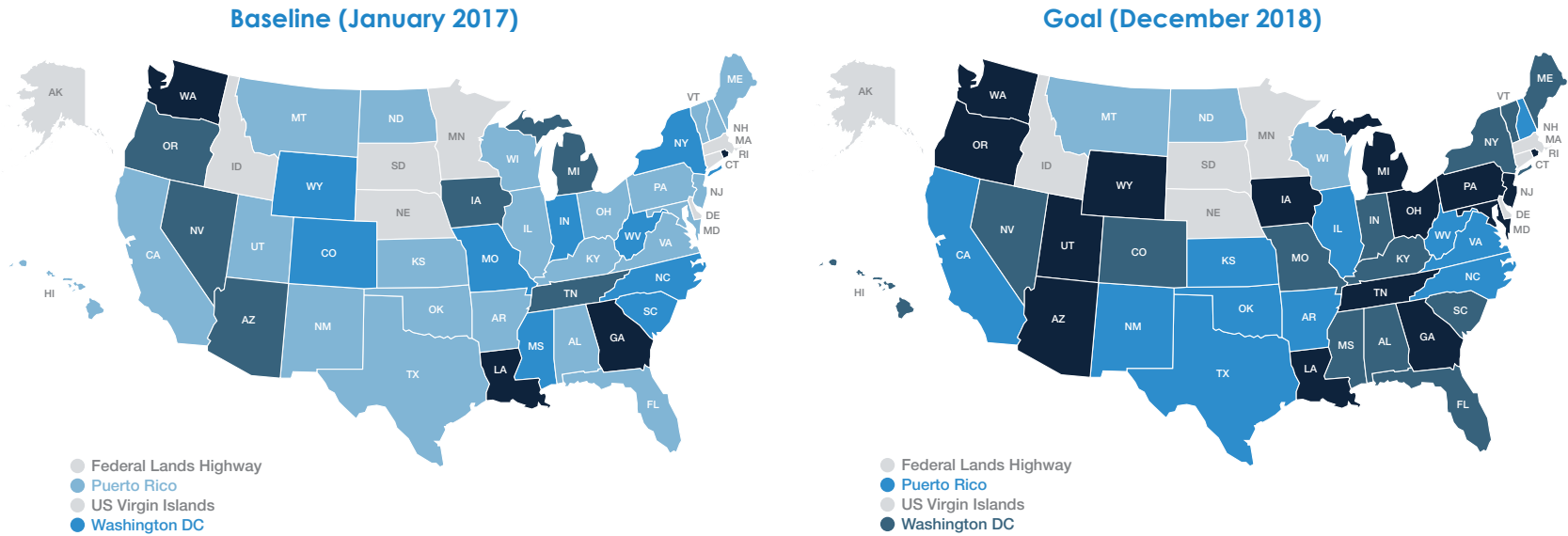


“It’s a low-cost, high-impact solution that can affect responders in all disciplines, raise accountability and standards of training, and increase safety for responders and the commuters we serve.”

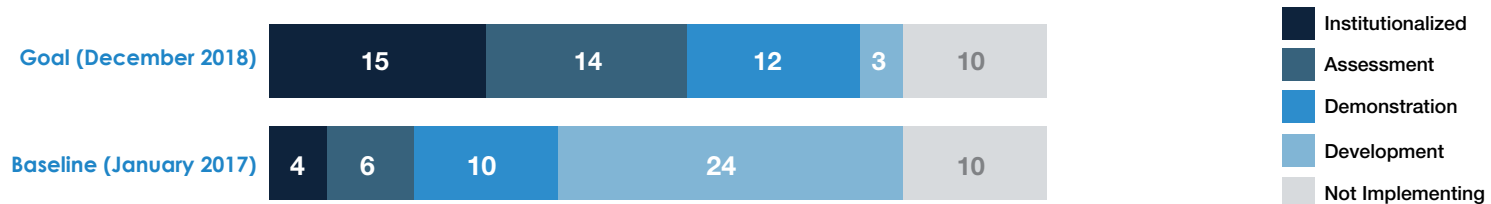
*Sgt. John Paul Cartier, Arizona State Trooper*

# Using Data to Improve Traffic Incident Management

Using data to improve TIM is expected to spread across the country in EDC-4. Twenty-four States, Washington, DC, and Puerto Rico plan to demonstrate and assess technologies to collect data and adopt TIM performance measures to evaluate and improve their TIM programs. Another 15 expect to make using data to improve TIM a standard practice by the end of EDC-4.



Number of States in Various Implementation Stages





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