

# 20 Years of Creative Problem Solving

*If you have a challenge, the FHWA Resource Center has a team of experts to help you tackle it.*



by Clark Merrefield and Judith Johnson

The FHWA Resource Center can help State and local agencies implement solutions for a wide range of transportation issues. Here, Alaska DOT staff take part in one of the specialized ADA training classes provided by civil rights experts from the Resource Center, Designing Pedestrian Facilities for Accessibility. Class participants were provided with first-hand experience navigating Juneau, AK, streets blindfolded and using canes, to better understand the challenges faced by disabled users.

Today's transportation challenges are complex and rapidly evolving—from deploying vehicle automation technology to combating distracted driving. To address them, the Federal Highway Administration's Resource Center turns to more than 100 experts

across 10 teams to deploy new technologies and innovations. The center's work helps to keep roads safer, operating efficiently, and contributing to the Nation's economy. Transportation agencies at all levels of government rely on the Resource Center's creative workforce to help

tackle challenges in 18 disciplines such as infrastructure design, realty, finance, and project management.

The Resource Center offers what it calls "just-in-time training and technical assistance." Recognized disciplinary experts train transportation professionals at State departments of transportation, other Federal agencies, metropolitan planning organizations, local public agencies, Tribal governments, highway associations, private industry, and academia. Technical specialists across the Resource Center teams bring new ideas, solve problems, facilitate meetings, mediate disputes, deliver courses, promote innovation, and champion change.

In 2016, the Resource Center trained more than 51,000 customers—28,000 in person and 23,000 virtually—through courses its staff developed and taught, often partnering with the National Highway Institute, an affiliate unit in the FHWA Office of Technical Services.

The Resource Center was founded in 1998 to support and advise FHWA division offices in delivering programs to State departments of transportation, metropolitan planning organizations, and other partners. The center was originally four separate, regional centers, which merged in 2003, making it more efficient. Experts address issues from a corporate perspective and respond to customer needs regardless of location. Over the past two decades, the center has earned the confidence of transportation professionals by making valuable contributions to advancing transportation technologies and solutions.

## Keys to Success: Service and Expertise

Patrick Hasson, who has been with the Resource Center since it was founded, remembers the center's early doubters. "It was a big change, this new organization within FHWA," says Hasson, who leads the Resource

Center Safety and Design team. "The Resource Center was far different from anything we had done, and I had many people say I would be out of a job in a year. The big thing that's lived on is the focus on customer service. That has become our culture and it drives a lot of the way we approach things."

Each year, Resource Center team members respond to thousands of service requests from across the country. Transportation professionals looking for knowledge beyond currently available training contact the center's team managers with specific challenges.

"We're here to help deliver programs and solve challenges," says Lisa Randall, Resource Center Freight and Transportation Performance Management team manager. "That divisions and States and localities feel willing to call us—I think shows, more than almost anything, the success of the center."

When the Resource Center receives a request for assistance, technical team managers assemble the right team of experts, collaborate to design solutions based on proven or emerging practices, work with customers to deploy solutions, and provide ongoing technical assistance and training to guarantee long-term success.

"We're knowledge brokers," says Amy Lucero, FHWA's chief technical services officer, who oversees the Office of Technical Services, including the Resource Center. "In many cases, we're the ones transferring expert knowledge to States that have complex projects, and in support of our division offices. We have that hands-on expertise, and you get expert folks throughout the country."

The Resource Center has survived for two decades in part because its experts have worked to build relationships with FHWA division staff and with State and local agencies.

Kathryn Weisner, a specialist on the Resource Center's Construction and Project Management team, uses a tablet to enter inspection data and photos in a daily report from a bridge construction site in York, PA. The Resource Center offers training and technical assistance across a wide variety of disciplines.

Resource Center specialist Brian Betlyon delivers a transportation performance management (TPM) course on target setting. The TPM, Asset Management, and Freight team serves as FHWA's overall coordination point for all TPM activities, as well as the lead within the Resource Center on cross-cutting TPM topics and requirements.



Resource Center staff are in a unique position to step back and apply deep technical knowledge with a holistic view, explains Grant Zammit, Resource Center Operations team manager. "It's understanding the context of the challenge a client is facing," Zammit says. "It's understanding conflicting challenges, but still trying to figure out how to meet requirements and satisfy external forces. Isolated with those challenges you might choose to take one path, but when you look at the whole, how do you navigate a complex landscape? Those are the solutions we provide."

## Contributing to National Successes

Resource Center teams have contributed to numerous initiatives to improve road safety and efficiency, including Every Day Counts (EDC) and the Second Strategic Highway Research Program (SHRP2). Resource Center teams collaborated with the National Fire Academy to conduct workshops on traffic incident management—training first responders. Resource Center teams have also sponsored multiple events, showcases, peer exchanges, and training courses in safety, operations, structures, geotechnical engineering, pave-

ments and materials, construction project management, environment, and other disciplines to advance EDC implementation and SHRP2 products.

Starting in 2010 and then ramping up as part of the first EDC rollout in 2011, Resource Center staff worked with FHWA Headquarters offices to develop a strategic implementation and deployment plan for Safety Edge<sup>SM</sup> technology. Safety Edge creates a gradual, 30-degree angled edge on the side of the road that can help vehicles that leave the roadway to return safely. The Resource Center focused its educational outreach on showing State DOT staff and paving contractors how to apply Safety Edge and why it works. Safety Edge is now used for road paving in nearly every State. From 2005 to 2015, FHWA evaluated the effectiveness of Safety Edge and found it is associated with a 34.5-percent reduction in dropoff-related crashes on the 1,321 miles



## Resource Center Teams and Topics

Expertise Team	How the Resource Center Can Help
Civil Rights	Disadvantaged Business Enterprise; Americans with Disabilities Act/Section 504; Title VI/Nondiscrimination Program; and Contractor Compliance and On-the-Job Training Program
Finance Services	Financial or Project Management Systems; Indirect Cost Allocation Plan; Financial Management Process Review; and Reporting and Data Analysis
Construction and Project Management	Alternative Contract Management; Federal-aid Project Delivery; e-Construction; Program and Project Management; Construction Inspection; Claims Avoidance Techniques and Strategies; and Advanced Data Collection Methods
Environment, Air Quality, and Realty	National Environmental Policy Act; Section 4(f) of the DOT Act; Cultural Resources; Environmental Justice; Endangered Species; Wetlands and Water Resources; and Roadside Vegetation  Transportation Conformity; Air Quality Modeling; and Noise Modeling  Acquisition; Relocation; and Appraisals
Safety and Design	Intersection Control Evaluation; Roundabouts; Road Safety Audits for Law Enforcement; Performance-Based Practical Design; Local Road Safety Plans; Roadside Safety; Roadside Design; <i>Highway Safety Manual</i> ; Pedestrian and Bicycle Safety; and Performance-Based Intersection Design and Operations
Geotechnical and Hydraulic Engineering	Structure Foundations; Retaining Structures; Slope Stability; Geology; Ground Modification Methods; Geosynthetics; Earthquake Engineering; Instrumentation; and Asset, Risk, and Performance Management  Hydrologic Analysis; Stream Stability Assessment; Hydraulic Modeling of Floodplains, Channels, and Structures; Bridge Scour Analysis; Scour Countermeasure Design; Culvert Design, Inspection, and Rehabilitation; Aquatic Organism Passage Design; and Pavement Drainage Design
Pavement and Materials	Quality Assurance; Profiler and High-Speed Surface Characteristic Certification Site Assessment and Assistance; Infrared and Ground Penetrating Radar; Data Management Quality Plans and Pavement Management; and Pavement Preservation
Operations	Work Zone Program and Project Assessments; Traffic Operations Analysis; <i>Manual on Uniform Traffic Control Devices (MUTCD)</i> ; Cybersecurity for Intelligent Transportation Systems; Engineering, Planning, and Organizing for Operations; Traffic Signal Management and Operations, Performance Evaluation Managed Lane/HOT Lane Project and Program Development; and Automated Vehicle Basics
Structures	Bridge Design, Construction, Inspection, Management, and Preservation: Project, Process, and Program Reviews; Customized Training, such as: Element Level Bridge Inspection, Seismic Analysis and Retrofits, and High Strength Bolting
Transportation Performance Management, Asset Management, and Freight	Asset Management; Scenario Planning/Strategic Visioning; Target Setting; Planning and Project Level Analysis; Travel and Land Use Analysis and Forecasting; Transportation Data; Analytical Tools and Methods; Monitoring and Evaluation; Performance-Based Planning and Programming; Federal Transportation Performance Management Requirements; Freight Planning and Project Development; Truck Size and Weight; Truck Parking; and Freight Performance Management and Freight Operations

(2,126 kilometers) of rural two-lane highways that were studied.

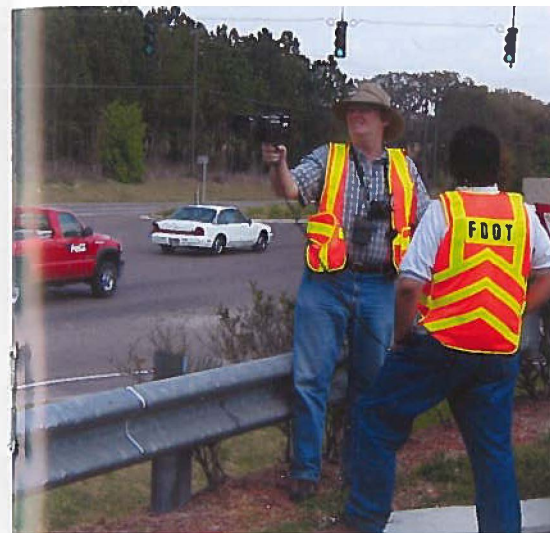
Resource Center teams also have contributed to other high-impact projects. To support the rollout of Jason's Law—named for trucker Jason Rivenburg who was murdered while resting at an abandoned gas station—staff explored supply chain issues that cause truckers to have to stop at odd hours. They then convened working groups and roundtables to find solutions. For example, one potential solution they proposed is a phone app to tell

truck drivers if their rig will fit into parking spaces at particular stops.

In addition, the Resource Center mobilized to help with evacuation coordination and routing during hurricanes Harvey, Irma, and Nate in 2017. Resource Center teams stationed in Atlanta, GA, contributed traffic management expertise at the Federal Emergency Management Agency's (FEMA) regional coordination center. They worked with their FHWA division and State DOT counterparts throughout the southern region to assess traffic

flow volumes, traveler information systems, and road closure information. The teams provided on-call assistance and staffed emergency support positions at FEMA facilities.

"We are always ready to respond," says National Resource Center Director Bernetta Collins. "If there is a crisis or an unexpected incident, we want to be the first call for assistance. We pride ourselves on having the ability to respond quickly when transportation is affected. We are confident we have the resources and organizational



Safety specialist Craig Allred demonstrates speed monitoring to an employee of the Florida Department of Transportation as part of a road safety audit and assessment.

navigate Juneau's streets. The exercise showed how design decisions can affect the pedestrian environment and directly impact mobility for people with disabilities. Alaska DOT staff now regularly reference the provided training materials for clarity on best designs for infrastructure such as curb ramps, sidewalks, and pedestrian signals.

### Embracing Flexibility, Change, and Innovation

The Resource Center continues to support customer needs, to bring new technologies to the field, and to adapt to a changing transportation environment.

In 2015, the Resource Center's office in Baltimore, MD, began a year-long pilot allowing technical specialists to work from home. The pilot was successful and cost-effective, and the Resource Center has extended full-time remote work to technical specialists in all office locations. Remote work enables Resource Center experts to bring their far-reaching insights to challenges nearly anywhere, anytime—and represents a sneak peek into how the center may continue to evolve.

structure to support such events with the highest level of expertise."

### Support at the State Level

Resource Center staff also contribute at the State level. For example, they offered technical expertise to California on intersection control evaluation, which uses quantitative safety analysis to inform intersection design—including alternative intersection types, like roundabouts. In Florida, Resource Center staff are training State troopers to identify road engineering issues. Because law enforcement officers spend the bulk of their time on the road, they can be valuable contributors to identifying and reporting issues.

The FHWA Indiana Division Office and Resource Center teams have worked closely for more than 2 years on several major projects. These include \$1.45 billion for nine new interchanges and several overpasses along I-69. For the project, specialists from the Resource Center use safety analyses and simulation modeling to deliver services in planning, air quality, operations, safety, design, environment, and realty. Preliminary engineering has been completed, and construction is expected to begin in the summer of 2019.

In March 2018, Resource Center staff performed training in Juneau, AK, for Alaska DOT staff regarding compliance with the Americans with Disabilities Act. The staff from Alaska DOT rode in wheelchairs, walked blindfolded while using a cane, and used low-vision goggles to get first-hand experience of what it is like for disabled people to

"In the next 20 years, I hope the Resource Center is recognized simply as just that—a center for the resources the transportation industry needs," Collins says. "We want to build on our cross-functional, cross-disciplinary approach in all we do. We are addressing challenges with our whole team—environment, structures, safety, and all our other disciplines—so that we are immediately thought of as bringing a holistic approach for any issue."

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**Judith Johnson** is the marketing and communications manager for the FHWA Resource Center. She has a B.A. in English from Fisk University and an executive certificate in marketing management from Emory University. She completed graduate studies in journalism at the University of Missouri-Columbia.

For more information, see [www.fhwa.dot.gov/resourcecenter](http://www.fhwa.dot.gov/resourcecenter) or contact Clark Merrefield at [clark.merrefield@dot.gov](mailto:clark.merrefield@dot.gov).

## Federal-aid Essentials

Do you work at a local public agency? Want to know how to navigate the Federal-aid Highway Program? The FHWA Resource Center created the Federal-aid Essentials website in 2012 for busy local agency staff who want straightforward answers to questions about Federal-aid policies, procedures, and practices. Over time, State agencies have expanded the use of Federal-aid Essentials for employee orientations, refresher courses, and certification training programs. There are videos, State contacts, and outreach materials. Visit [www.fhwa.dot.gov/federal-aidessentials](http://www.fhwa.dot.gov/federal-aidessentials).

