U.S. Department of Transportation
Federal Highway Administration

Innovative approaches to delivering Federal-aid road safety projects.

Source: Getty Images

Innovative Materials Procurement Practices Lead to Improved Local Road Safety

To accelerate the process of purchasing federally funded safety devices and installing them on local and rural roads to address safety concerns, State departments of transportation (DOTs) are developing innovative approaches to materials procurement and installation. These methods are resulting in faster installation of proven, low-cost safety countermeasures that are saving lives today.

Seizing Opportunities for Safety Improvement in Maine

When Maine DOT began looking into installing rectangular rapid flashing beacons (RRFB) at crosswalks in rural towns and villages, staff saw that using standard contracting methods for installation could result in a final cost of more than four times the purchase price of the devices. Working with the FHWA Maine Division Office, Maine DOT determined that 2 CFR Part 200 would make it possible for the State to buy materials using Highway Safety Improvement Program (HSIP) funds while the localities would install them. By working closely with the FHWA Division Office and the State DOT's legal team, Maine DOT determined this approach would save time and get safety devices implemented more quickly.

Upon receiving FHWA approval to use this materials procurement approach, the FHWA Maine Division Office and the Maine DOT safety office, which manages the State's HSIP funds, established a process for implementation. Under this approach, the State's Local Technical Assistance Program (LTAP) is responsible for selecting recipients of the signs based on the information localities submit in an application form. While Maine DOT looks at the sign program as a systemic approach to improving safety, buy-in from municipalities is necessary since they must perform installation. Since 2011, the program has purchased and distributed 543 RRFBs and more than 250 dynamic speed feedback signs. This year, the agency will also distribute 48 post-mounted school zone speed limit sign arrays that feature flashing beacons and dynamic speed warning signs.

Due to the small populations of many of the towns and villages in the State, Maine DOT has faced several challenges in implementing the program, including lack of local personnel knowledgeable enough to install and set up the devices, lack of computers, and computer operating systems that are too outdated to run the devices' software. In one community, State law enforcement officers downloaded the required software onto their government-issued computers and now run the speed feedback signs for the town. An unanticipated benefit is that this software is able to track the times of day when speed warnings are triggered more frequently, enabling officers to improve safety by targeting their enforcement efforts to those periods.

In addition to law enforcement, the State's LTAP also plays a significant role in helping localities with training and is a key element of the program. The LTAP staff assists local governments with the application process and then distributes the devices to recipients.

"From the safety program perspective, another measure of success was that we were able to extend our reach down to township level. Townships have the same safety problems as larger areas. They just have fewer resources to address them."

—Michelle May, HSIP Program Manager, Ohio DOT

Championing Safety on Ohio's Rural Roadways

In Ohio, the Township Sign Grant Program has been a significant factor in improving safety on that State's extensive network of local and rural roadways. In the nearly 10 years since its inception, the program has been a notable success due mostly to the tireless efforts of its champions, who conduct extensive outreach to the 2,300 local public agencies responsible for 84 percent of centerline miles in Ohio.

In 2013, Ohio DOT's Safety Office had been upgrading signage on rural roads, but the agency could only apply these low-cost devices on State-owned roads. To reach the local road level, the Safety Office began working closely with a champion within the State's LTAP, and together they developed the Township Sign Grant Program.

To support the program, each year, Ohio DOT runs crash analyses and develops a set of township-focused reports, including hot-spot maps and crash trees. These crash maps depict each township's roadway system and highlight the locations of crashes and crash severity levels. The 200 townships with the worst crash problems are invited to participate in the State's Township Sign Grant Program and apply for funds that will be used to purchase signs. The State's LTAP provides grant recipients with a list of the eligible sign types they can select from and install and then moves projects through the Federal funding process, ordering the materials on behalf of the township. Once the signs are delivered by the manufacturer, the township is responsible for installing them within 1 year. After installation, Ohio DOT conducts spot inspections to ensure they were installed correctly and provides additional instructions and guidance on corrective actions if needed. Ohio DOT also continues to collect data on treated locations to measure improvements over time.

As part of this performance assessment, Ohio DOT conducted an assessment of the first 24 townships that participated in the program and found that overall crashes decreased 10 percent, serious injury crashes decreased by 35 percent, and fatal injury crashes decreased 100 percent.[1] Using the *Highway Safety Manual* method for calculating comprehensive and human capital costs, Ohio DOT found that the program's return on investment reflected a benefit-cost ratio of 21.5:1 in human capital cost savings and 62.6:1 in terms of comprehensive societal cost savings.

Exploring innovative materials procurement approaches can result in significantly increased safety on local and rural roadways across the country. Safety professionals in both Maine and Ohio encourage those interested in starting similar efforts to start small, identify and work with others in their agency and among safety partners with similar safety improvement goals, and build on successes to advance roadway safety across their State.

For more information on this practice, please contact your State's FHWA Division Office.

1 ODOT waited until 24 of the originally invited townships had at least 12 months of post-installation crash data before engaging in a comparison to measure success. The comparison measured the decrease in crashes in three categories—overall crashes, serious injuries, and fatalities. The period measured for each township was the 12 months of calendar year 2016. Fatal and injury crash data were measured as an annual average of 4.67 fatalities prior to sign installation and 0 fatalities for the 12 months after installation in these 24 townships. For more details, please see Beale, V. F., Troyer, D., Chock, A., Hopwood, C., & McNeill, M. (2018). "Getting to Zero Deaths on Ohio's Low-Volume Roads." *Transportation Research Record*. 2672(32): 40–48. https://doi.org/10.1177/0361198118782022.