

Maine Turnpike Authority Addresses Driver Needs with Innovative Approach to Sign Sheeting and Pavement Marking Tape

The Maine Turnpike Authority is a quasi-state agency that operates a 109-mile toll highway (I-95) that begins in Kittery (located on the state's border with New Hampshire) and ends in Augusta, the state's capital. The first section of the Maine Turnpike opened in 1947, making it the second oldest superhighway in the country. The Maine Turnpike Authority recorded 79.5 million vehicle transactions in 2015; of that number, passenger cars totaled 71.8 million.

Maine faces some unique challenges when it comes to best serving its drivers. According to the U.S. Census, Maine's population has the highest median age of any state in the country. Since vision deteriorates with age, more visible road signs are needed for an aging driver population.

Maine also has a large tourism industry, with many drivers on its roads who are not familiar with the area. "Having clearly marked roadway signage is particularly important to us for people who are traveling here from other places," said Stephen Tartre, P.E., director of engineering and building maintenance for the Maine Turnpike Authority.

To increase the visibility of its highway signs in the dark, the authority has used 3M sign sheeting almost exclusively for the past 17 years. The sign sheeting is purchased through a state contract, Tartre said. The authority also had been using pavement markers for about two decades to enhance the reflectivity of the painted lines on its highway. However, this solution

Project: Pavement Marking Tape and Reflective Sign Sheeting Program

Location: State of Maine

Owner: Maine Turnpike Authority

Products: Reflective tape and sheeting



The state of Maine has the highest median age of any state in the U.S., meaning its aging driver population needs to be able to navigate highways with relative ease.

required annual upkeep following the use of plows, salt and sand each winter.

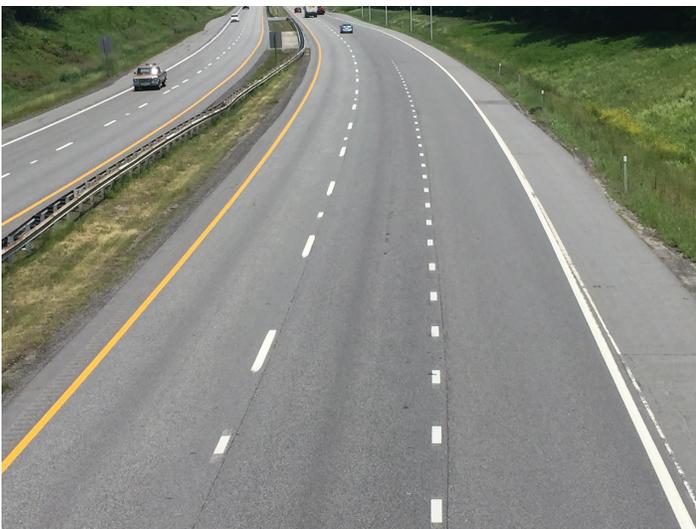
"(The recessed pavement markers) would either pop out because of our plowing operations, or, if they stayed in, within a couple years the reflectivity went away due to the sandblasting from the sand and salt we put out on the roads," Tartre said. "After two years, (the pavement markers) were pretty much useless."

Trying new kinds of paint didn't result in an effective alternative, Tartre said, and the Maine Turnpike Authority decided to stop using the markers. "They weren't cost effective to use, and they provided little benefit," he said.

Pilot Leads to Full Implementation

Looking for a new solution to complement its regular painting, the Maine Turnpike Authority decided in 2012 to conduct a pilot test of 3M™ Stamark™ Pavement Marking Tape Series 380 on one mile of its toll highway. Following the success of that pilot, the authority has been working since 2013 to add the tape to its whole highway, Tartre said. So far, tape has been added to about 6 to 10 miles of highway each year, and the pavement tape should be added to the full highway by 2021.

The Maine Turnpike Authority also plans to replace all major guide signs on the entire length of its roadway over a five-year period, said Ralph Norwood, a project



The Maine Turnpike Authority turned to reflective pavement marking tape from 3M after years of using recessed pavement markers that required annual upkeep and maintenance.

manager at the Maine Turnpike Authority. In 2016, more than 13,000 square feet of 3M™ Diamond Grade™ DG³ Reflective Sign Sheeting was added to tollway signs. In 2017, the authority added around 9,200 square feet, according to Norwood.

The use of reflective sheeting and tape makes the Maine Turnpike Authority a proactive customer, said Michael Allen, senior government traffic safety specialist at 3M. "They are very innovative in their approach to life-saving devices," he said.

The Maine Turnpike Authority has also started using wet reflective removable tape in work zones, Allen said. This helps drivers, especially in dark and wet conditions, to distinguish new highway lines from ghost lines left behind after old lines are grinded away.

Continuing Effectiveness

3M has provided "great support" through the project, including providing all the technical data needed and helping with the installation of the tape. "They provide the proper specs to install the tape correctly, and they actually come out in the field and work with our contractors to bring them up to speed," Tartre said.

The Maine Turnpike Authority continues to monitor the reflectivity of the tape, Tartre said. Unlike the pavement markers that became ineffective after each winter, the 3M pavement marking tape added to the toll highway since 2012 continues to be effective. "We deem this to be very successful," Tartre said.

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