

Ohio Department of Transportation ORIL Research Project Fact Sheet



Winter Pothole Treatments for Local Roads

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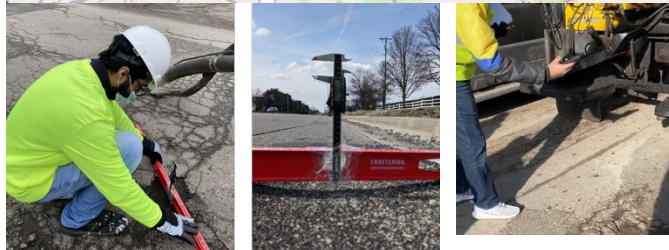
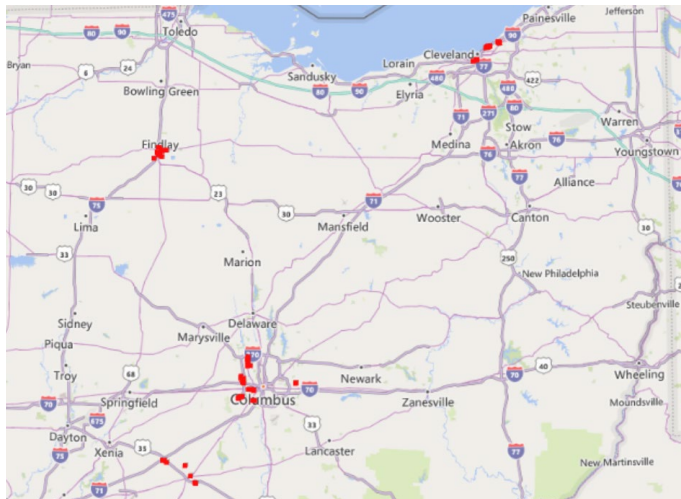
The Problem

Potholes are one of the most aggravating forms of pavement deterioration because of the danger they pose to the travelling public and the potential damage they can cause to vehicles. Despite all measures taken by local public agencies (LPAs), the development of potholes is inevitable, which presents a challenge to these agencies. Pothole patching is the most common pavement maintenance operation used to remedy the presence of potholes

Research was needed to identify cost-effective and efficient methods and materials to be used in patching potholes on local roads and evaluate their advantages and disadvantages for the different types of LPAs. This study determined the optimal repair methods and materials for the various types of potholes and roads.

What the Researchers Did

A survey of LPAs in Ohio and nationally and a comprehensive literature review were performed to identify the best methods and materials used for winter pothole patching. A comprehensive field testing plan was developed to evaluate the identified methods and materials. The testing plan considered different factors. A total of 686 patches were installed as part of the testing plan in different LPAs in Ohio using the considered method and materials and their combination. In addition, the patches performance and longevity were monitored. Data mining techniques were employed in order to identify the factors that dictates the patch performance. In addition, survival analysis were conducted to determine the expected lifetime of the different patching methods/materials combinations. Finally, cost analysis was conducted to determine the life cycle cost of the different patching methods/materials combinations



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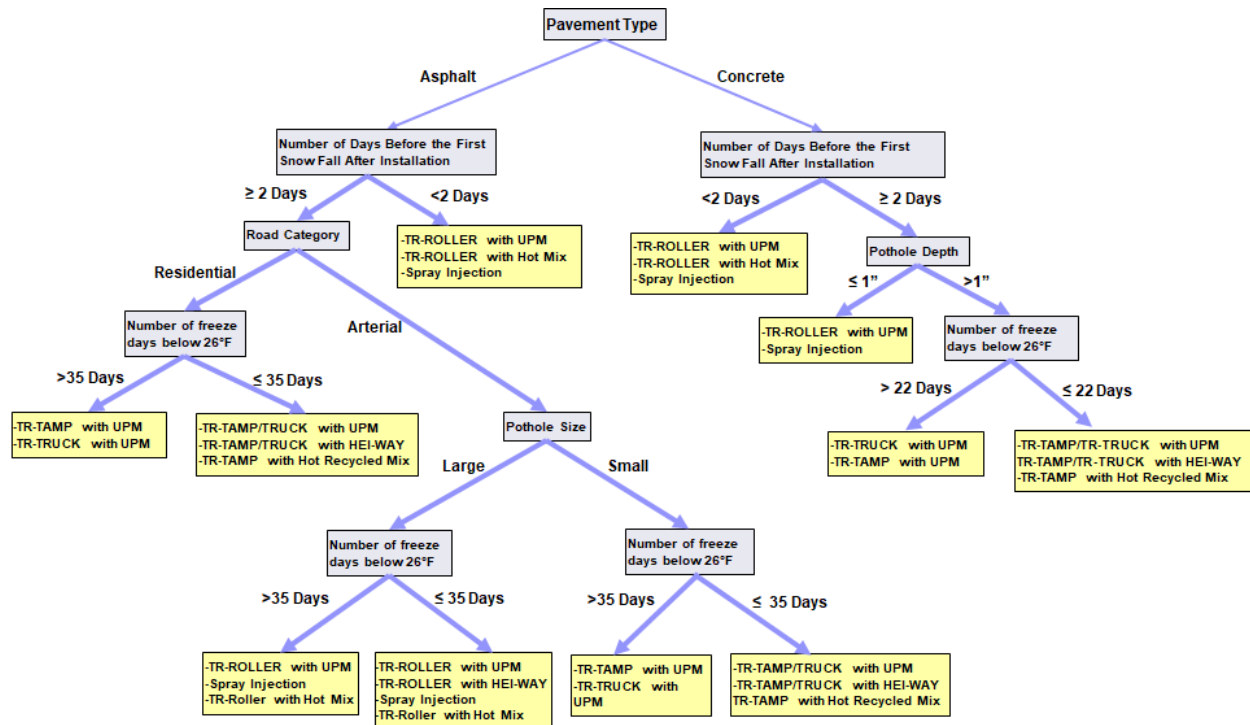


What They Found

- The results of cost analysis indicated that the throw and roll-tamper and truck tire with UPM cold mix and throw and roll-truck tire with HEI-WAY cold mix were the most cost effective when used for patching potholes on residential streets.
- For the arterial streets, UPM and HEI-WAY cold mixes as well as hot recycled mix with throw and roll-tamper were the most cost-effective combinations for the analysis period of six months. Other combinations such as UPM and HEI-WAY cold mixes with truck tire had comparable life cycle cost and can be used alternatively.
- For the analysis period of 12 and 18 months, UPM and HEI-WAY cold mixes with tamper were found to be the most economical combinations followed by UPM and HEI-WAY cold mixes with truck tire for patching potholes on arterials streets.
- Spray injection and certain combination of throw and roll-roller and cold mix, such as throw and roll-roller with UPM cold mix, were also found to be economically viable option for analysis periods of 12 and 18 months. Therefore, these combinations can also be used as alternatives, especially when an LPA is looking for patches with an expected service life of at least 12 months.

What They Recommend

- Follow the decision tree shown below to select the optimal repair of methods and materials combination for winter pothole patches on different types of local roads.



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