



Evaluation of Deicing and Anti-Icing Technologies

Project Number 2010-02

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Problem The deicing and anti-icing of public roadways is an annual challenge for local road agencies. In light of increasing environmental concerns and decreasing budgets, it is essential for these local agencies to use methods that minimize chemical usage and decrease operational costs. At the same time, it is important to maintain the level of service expected by the traveling public.



Solution The City of Grand Rapids has implemented alternative technologies and procedures for deicing and anti-icing that have the potential to improve roadway maintenance and save operating costs. For several years, the city has used standard tailgate spreaders to apply deicing and anti-icing materials. More recently, the city purchased an Epoke bulk spreader. To assess the operational efficiency of these two technologies, the city compared their performance on two equivalent deicing routes.

Procedure The city identified three evaluation criteria for study and comparison between the two technologies: material usage, operational efficiency (time to complete the route), and roadway condition after deicing. When a deicing event occurred, the city deployed the Epoke and tailgate spreaders on two equivalent routes. Equipment operators recorded the amount of material used and the time required to complete each route. After the operations were completed, a pair of observers drove each route and numerically rated the condition of the roadway—without knowing which technology was used.

Results Overall results show that neither the Epoke technology nor the tailgate spreader had any advantage over the other. There was no statistically significant difference in material usage between the two technologies, and observer ratings reveal no significant difference in how well each technology deiced the routes. The data collected did suggest that the tailgate spreader was more efficient at completing a deicing route; however, that spreader serviced one route more frequently than the other. Therefore, the data may be a reflection of the difference in routes rather than operational efficiency.

Approximate Cost \$8,000

OPERA Funding \$4,000

Implementation Unfortunately, the city was unable to draw any significant conclusions from the initial research. Additional research could be beneficial, including projects that compare the technologies on non-residential streets, on longer test routes, or over longer time periods with more snow events.

Status Completed

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