Investigation of Dust Control Practices in Minnesota

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ABSTRACT

Residents living on aggregate surfaced roads may have an expectation of a dust free environment, even as traffic levels increase in quasi-rural locations. As a result, agencies often use various chemical treatments to suppress dust. This paper presents the results of a study that examined the effectiveness of several dust control products on aggregate surfaced roads in Minnesota counties and municipalities. The objective of this investigation is to provide counties, cities, and townships with an independent evaluation of product performance.

A mobile dust meter was used to rate dust production and build a knowledge base regarding loss of fine material from aggregate surfaced roads. The evaluation parameters included application rates, material and handling costs, equipment requirements, product performance with respect to air quality, and treatment suitability for given location.

During the first year of the project several products were installed and evaluated on 0.5-mile test sections. A total of 22 test sections were evaluated. The products were applied at standard rates. Freight was the overwhelming factor when evaluating the treatments by cost. Evaluation of dust production showed that the chloride type products performed similarly. Results verify that moisture content is an effective qualifier of dust production potential. A minimum moisture content value may be used to establish the timing of dust control applications.

Monitoring during the first year period included measurement of the residual effect of dust treatments by laboratory and field methods. During the second year evaluations were performed on an additional 28 test sections to compare the effect of treatment rates and to further investigate the residual effect along with multiple treatments.

Final results for this project will be tabulated from 2008 spring and summer field evaluations.