

# MOUNTAIN-PLAINS CONSORTIUM

RESEARCH BRIEF | MPC 19-386B (project 451) | September 2019

## Assessing the Cost-Effectiveness of Wyoming's CMAQ Unpaved Road Dust Suppression Program, Year 2



### the **ISSUE**

The federal congestion mitigation and air quality (CMAQ) program funds projects aimed at improving air quality in the United States. For a number of years, Wyoming counties have used CMAQ funds to apply chemical dust suppressant treatment on gravel roads. The state of Wyoming owns a large inventory of gravel roads spread around the state. Most of these roads serve low-traffic volumes and connects rural Wyoming areas. With the significant increase of oil and gas drilling operations in recent years, local authorities witnessed a substantial increase in traffic volumes, resulting in higher maintenance costs that are unaffordable for local road agencies. This has led to higher demands from counties and local jurisdictions to apply for and receive CMAQ funds. WYDOT and the Federal Highway Administration are facing a significant increase in CMAQ funding applications and are looking for more cost-effective ways to allocate these funds.

### the **RESEARCH**

This study is part of a multiple year study to assess the effectiveness of chemical dust suppressant treatment on gravel roads. The study evaluated the effectiveness of the CMAQ program in Wyoming and developed cost effective strategies to implement with CMAQ funds. Long-term performance models were developed to predict the service life and behavior of chemically treated gravel roads. A life-cycle cost analysis was then conducted to compare the cost of maintaining chemically treated road with the cost of maintaining untreated roads.



A University Transportation Center sponsored by the U.S. Department of Transportation serving the Mountain-Plains Region. Consortium members:

Colorado State University  
North Dakota State University  
South Dakota State University

University of Colorado Denver  
University of Denver  
University of Utah

Utah State University  
University of Wyoming



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### Project Title

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### Sponsors | Partners

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## the FINDINGS

Roads selected to receive treatment using CMAQ funds were found to have high dust emission rates that violate the Environmental Protection Agency requirements before treatment. Chemical dust treatment significantly reduced dust emissions to values below the federal concentration limits. It was also found that dust mitigation efforts paid for by CMAQ funds are effective in significantly reducing dust emissions and improving air quality.

## the IMPACT

The research will lead to the reduction of fugitive dust emissions from unpaved roads. Maintenance costs are expected to decrease on roads treated with dust suppressants because maintenance is not needed as often and gravel is not lost as quickly. Treatment of gravel roads with suppressants will also lead to higher quality road surface with less raveling and better vehicle control.

For more information on this project, download the entire report at <http://www.ugpti.org/resources/reports/details.php?id=964>

For more information or additional copies, visit the Web site at [www.mountain-plains.org](http://www.mountain-plains.org), call (701) 231-7767 or write to Mountain-Plains Consortium, Upper Great Plains Transportation Institute, North Dakota State University, Dept. 2880, PO Box 6050, Fargo, ND 58108-6050.



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