Oregon
Kate Brown, Governor

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DATE: February 20, 2015

TO: House Committee on Transportation and Economic Development

FROM: Paul Mather, Administrator
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SUBJECT: Studded Tire Study

INTRODUCTION

In December 2014, the Oregon Department of Transportation completed a limited research effort to update the previous effort from 2000 and identify new information on winter tire use and impacts in the state. The study did not attempt to identify advantages or drawbacks of studded tires in the areas of safety or environmental impacts. We found that number of vehicles using studded tires use has dropped by about 75% since the 2000 study.

DISCUSSION

The 2013 Legislature introduced a number of bills around the use of studded tires. Although none of the bills became law, they prompted a discussion that identified a need for ODOT to update its 2000 study to determine the number of people using studded tires now that alternatives are readily available and the damage caused by studded tire use.

RESEARCH STUDY

Our research study included a literature review on the reduction of service life of pavements and maintenance impacts due to studded tires and comparisons between studded tires and new non-studded winter tires. We also contracted with Portland State University's Survey Research Lab to conduct a household survey to determine studded tire use that included which counties studded tires are used, the duration of use, how the vehicle was used, and the age group of the person using the studded tires. ODOT's study included outreach to key stakeholders, including tire industry representatives.

ODOT used tire rut data and other pavement condition data (cracking, patching, roughness etc.) from its pavement management database and traffic data from the ODOT traffic database to identify route segments on state highways where studded tire damage appears to affect the service life of the pavement surface, and the magnitude of reduction. ODOT evaluated actual pavement repair project cost data for state highways to determine costs to repair studded tire rutting damage versus repair costs for other factors. ODOT staff took great care to look only at segments of highway that had ruts

caused predominantly by studded tire use and not heavy truck use, by looking at the shape and location of the ruts (see attached photos).

FINDINGS

At the conclusion of the study, we found the use of studded tires in Oregon has declined since the previous survey was taken in 1994. Survey respondents indicated a number of reasons for not using studded tires: they don't need them, they've switched to a studless winter tire, they use a 4-wheeled drive vehicle, they don't drive in bad weather, and they don't use them because they damage roads.

While the survey conducted in 1994 determined that about 16 percent of registered vehicles in Oregon were equipped with studded tires, the survey taken for the 2013-14 winter season found a reduction in that number to about four percent. The study identified another significant change, from a mix of cars equipped with studded tires on either both axles or just the driving axle in 1994 to almost all cars equipped with studded tires on both axles today. This created a 2014 effective use rate of about half of the 1995 studded tire effective usage; 16 percent for 1995 to eight percent for 2014.

The study found wide ranges of wear rates for different kinds of pavements, reflecting the many factors that contribute to pavement rutting. One way of determining repair cost is by assessing damage that has already occurred. In 2012, studded tires caused an estimated $8.5 million in damage to Oregon highways. This calculation was developed by looking at effective pavement damage–damage sufficient to require repaving before the pavement surface would normally be repaved.

CONCLUSION

Given the decline in studded tire use in Oregon, the increased popularity of all-wheel and four-wheel drive vehicles, and the increased use of non-studded winter tires, the research study leads us to conclude that studded tire use will continue to decline. We also expect to see the resulting damage to Oregon's highways, streets and roads and the costs of repairing studded damage to continue to decline.

Ruts from heavy trucks—notice the 'W' shape.

Ruts from studded tires—notice how the wheels of the truck do not align with the ruts.