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A HOME FOR READERS AND THINKERS

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UNCATEGORIZED

Cue the debate

BY CRAIGMEDRED ON FEBRUARY 13, 2017 • (7 COMMENTS)



Costly bits of metal?

Alaska Sen. Cathy Giessel, a conservatively fiscal Anchorage Republican, has introduced legislation to up the fee on ice-gripping, motor-vehicle tire studs from \$5 to \$75 in the 49th state, thus fueling the perfect social-media debate.

As reported by [KTUU.com Austin Baird](http://www.ktuu.com/content/news/Tax-on-studded-tires-would-increase-exponentially-under-new-plan-413379343.html), (<http://www.ktuu.com/content/news/Tax-on-studded-tires-would-increase-exponentially-under-new-plan-413379343.html>) the bill would add an increased cost of \$280 to a set of studded winter tires.

“Giessel, who chairs the Senate Resources Committee, said the move is necessary because studded tires contribute significantly to ruts that infamously slice through Alaska roadways,” he added.

“According to a statement describing her reason for introducing the bill, the Department of Transportation estimates that repairing a two-lane road from rutting costs \$1 million per mile.”

This is about all the information needed for an argument with simple battle lines:

On one side are those who believe “we need studs, or we’re all going to die in traffic accidents. And we can’t afford another \$280.”

On the other side are those of the opinion that “if you people knew how to drive, you wouldn’t get in accidents, and the studded-tire ruts in pavement cost the state a lot of money to repair. Why should we subsidize the desires of bad drivers?”

Oh if only things were so simple.

For anyone who cares to dig down, the debate appears nowhere this simple. Studs would appear to remain the gold standard for driving on glare ice, but in any other sort of winter conditions there might be studless tires as good or better. And there is more to the argument than just road-repair costs and personal safety.

Studs kill people

Studs might be good for drivers and motor vehicle occupants. The consensus among highway safety experts at this time is that on icy roads with temperatures near freezing, studded tires remain the safest tires you can have on your car or truck.

But this doesn't mean studs are good for your neighbors. Studs, it would appear, can have life and death consequences for people outside your car or truck. There's a growing body of evidence that particulate matter ripped out of pavement by studs is a legitimate public health concern.

A Swedish study presented to the International Society for Environmental Epidemiology in 2005

(<https://ehp.niehs.nih.gov/isee/p-3-30-05/>) concluded “8 premature deaths per year were avoided in the Greater Stockholm metropolitan area due to the ban (on studded tires) on one single street.”

“Road traffic is the dominant local source of air pollution in Norway, especially due to the widespread use of studded tires from October to April. A car with studded tyres produces up to 100 times more particulate matter than a car with regular tyres,” **according to the Norwegian Environment Agency** (<http://www.environment.no/Topics/Air-pollution/>).

There is no data for air pollution linked to studded tires in Alaska, but the brown air that sometimes hangs over the state's largest city in winter coupled with the amount of studded-tire traffic on usually snow-free, bare-pavement thoroughfares such as the Glenn and Seward highway does give one pause to wonder.

The daily commuter traffic is thick on those two highways, and the two thoroughfares visibly show some of the greatest wear from studded tires. That would be in keeping with what the science says: the faster and/or heavier the vehicle with studded tires the more pavement it devours.

The Glenn and the Seward are both high-speed arterials. And both show the automobile-wide rutting common with studded tires.

The case for and against

“A substantial volume of research has investigated the negative impact of studded tires on pavement,” [the Washington State Department of Transportation noted in an exhaustive 2002 examination of studded tire use.](#)

<https://www.wsdot.wa.gov/research/reports/fullreports/551.1.pdf> “This report does not concentrate on pavement wear issues. Rather, the focus of this work was to review the latest findings regarding the performance of late-model vehicles equipped with the current generation of studded tires, as well as those equipped with the new ‘studless’ winter tires such as the “Blizzak” made by Bridgestone/Firestone.”

The studs versus Blizzak debate now rages on social media with a lot of anecdotal accounts and little data. Washington

state investigators went digging for data. Here is some of what they found:

“1. Studded tires produce their best traction on snow or ice near the freezing mark and lose proportionately more of their tractive ability at lower temperatures than do studless or all-season tires.

“2. The traction of studded tires is slightly superior to studless tires only under an ever-narrowing set of circumstances. With less aggressive (lightweight) studs being mandated, and with the advent of the new ‘studless’ tire, such as the Blizzak, since the early 1990s, the traction benefit for studded tires is primarily evident on clear ice near the freezing mark, a condition whose occurrence is limited. For the majority of test results reviewed for snow, and for ice at lower temperatures, studded tires performed as well as or worse than the Blizzak tire. For those conditions in which studded tires provided better traction than studless tires, the increment usually was small.

“3. The precise environmental conditions under which studded tires provide a traction benefit are relatively rare. The maximum frictional gain (in comparison to nonstudded tires) is found for new studded tires on smooth ice, where they have been shown to provide up to 100 percent gain in certain tests. However, the relative frictional gain of studded tires diminishes or becomes negative on roughened ice, as the temperature drops, as the studs wear, or if the comparison is made with studless tires.

“11. A Norwegian study concluded that the use of studded tires tends to reduce the accident rate by a small amount – from 1 to 10 percent.

“13. Pavement rutting caused by accelerated wear from studded tires can cause the dangerous conditions of tramlining, hydroplaning on accumulated water in the ruts, excessive road spray, and premature damage to pavement markings.

“14. The roughening of ice and pavement from studded tires provides a safety benefit for all vehicles (with and without studs) by helping to prevent formation of smooth, glare ice.

The full study can be found [here](#)

(<https://www.wsdot.wa.gov/research/reports/fullreports/551.1.pdf>). It makes clear there are both costs and benefits to studded tires.

Some states – notably including snowy Michigan, Minnesota and Wisconsin – have looked at the costs and **banned studded tires** (<https://rma.org/tire-safety/seasonal-driving-tips/studded-snow-tire-regulations>) or, in the case of Michigan, allowed them in theory only. The Michigan Legislature wrote a law setting standards for a low-impact studded tire.

“Although state laws and regulations allow studded tires that meet restrictions for road wear/damage that studs cause to the pavement, to date no manufacturer of tire studs has supplied the required information to the Michigan Department of Transportation that their product meets or exceeds the pavement wear specifications,” **the state Department of Transportation says**. (<http://www.michigan.gov/mdot/0,4616,7-151-52374-205116--F,00.html>) “Therefore, studded tires are NOT allowed on Michigan roadways at this time.”

Land of the free

None of the mountainous western states, including California where the snow piles deep in the Sierra Nevada Mountains, have banned studded tires, although the state of Washington

did impose a [\\$5 per tire state fee on studded tires in 2016](https://app.leg.wa.gov/rcw/default.aspx?cite=46.37.427), (<https://app.leg.wa.gov/rcw/default.aspx?cite=46.37.427>) and Oregon is reviewing its policies on studded tires.

“It’s time state legislators took more seriously the studded-tire question and, if not banning them outright, at least require a fee from drivers who buy them — to help defray costs of fixing the damage their tires do to everybody’s roads,” [The Register-Guard in Eugene, Ore., opined in a December editorial](http://registerguard.com/rg/opinion/35086297-78/studded-tires.html.csp). (<http://registerguard.com/rg/opinion/35086297-78/studded-tires.html.csp>)

“Why make the 96 percent of the people who don’t use studded tires pay for the damage caused by the 4 percent of the drivers who do?”

The complaint against studs in Oregon parallels the opposition to studs in Alaska: Someone has to pay for the damage they do to roads. A 2014 Oregon study put the costs of repairing stud damage at \$4 million per year on state roads alone in that state.

The study did note costs have been declining because fewer and fewer people drive on studded tires. Use, [the study said](https://www.oregon.gov/ODOT/COMM/Documents/StuddedTireReport2014.pdf), (<https://www.oregon.gov/ODOT/COMM/Documents/StuddedTireReport2014.pdf>) has dropped from 16 percent of vehicles in 1995 to 8 percent in 2014.

Oregon road repair costs are lower than those in Alaska because of considerable use of Portland Cement Concrete (PCC) roadways.

“Portland Cement Concrete is more resistant to rutting than asphalt,” the 187-page Oregon report said. “The PCC wear rate is about 0.0091 inches per 100,000 studded tire passes, while

the wear rate of asphalt pavement is about 0.0295 inches per 100,000 studded tire passes.”

Asphalt, in other words, wears more than three times faster than PCC. Most roads in Alaska are asphalt.

“While Portland cement concrete is a great roadway surface, the Alaska climate’s freeze-thaw cycles wreak havoc on it,” **notes the University of Alaska Anchorage.**

(<http://greenandgold.uaa.alaska.edu/blog/37620/research-a-new-idea-for-solving-rutting-intersections-in-anchorage/>) “Everyday traffic pounds the rigid surface and wide temperature fluctuations allow micro cracks to form in the concrete.”

The state, however, is now experimenting with a steel fiber-reinforced rubberized concrete developed by UAA Civil Engineering Professor Osama Abaza. It is to be tested on Abbott Road this year.

Abaza is pitching the fortified cement as a possible answer to Alaska’s rutted roads. He estimates it could reduce from five years to 20 years the time required for road repairs at Anchorage intersections where rutting is worst from the sliding and spinning tires of cars constantly starting and stopping.

“It’s going to save money,” **he told KTUU.com in September.**

(<http://www.ktuu.com/content/news/A-concrete-solution-to-Alaskas-road-problems-395037831.html>) “It’s going to save lives, and at the same time, we don’t have to deal with the hassle of building those highway intersections every 4 or 5 years.”

The costs of large-scale use of the new product, if it passes performance tests, has yet to be determined. Meanwhile, tire

rubber compounds continue to evolve, slowly minimizing the advantage of studs on slick roads.

There may come a day when studless tire performance exceeds that of studded tires in all winter driving situations, but until then let the debate resume.

The data provides ammunition for both sides.

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