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Bumpy ride ahead through pothole purgatory

Patch as patch can: Frigid weather and overdue maintenance blamed for pothole purgatory

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By Allen G. Breed, AP National Writer

Hate potholes? Well, unless you and your elected officials are ready to cough up billions more for better roads and proper preventive maintenance, buckle up, 'cause it's going to be a bumpy ride.

"What people have to understand is you can't have a pothole without first having a crack in the pavement surface," says engineer Larry Galehouse, director of the National Center for Pavement Preservation, a quasi-g

University. "Agencies have been cash-strapped for a number of years, and now it's all coming home to roost."

And despite all the advances in patching materials and equipment in recent years, engineers say that until someone ponies up, it's going to remain a case of patch as patch can.

"If you've got a pavement in poor condition that's got a lot of alligator cracking … where water is getting into the pavement and freezing and thawing, it's going to break up the structure," says Kevin J. Haas, a traffic investigations engineer with the Oregon Department of Transportation in Salem. "It's just the law of sciences and physics and thermodynamics and whatever other laws you want to throw in there."

This winter, the law is coming down hard on Americans.

In New York City, road crews have patched a record 136,476 potholes since Jan. 1. The Department of Transportation had filled just under 57,000 by this same time in 2013.

New Englanders, famous for their meteorological stoicism, are reeling from what Boston Public Works Commissioner Mike Dennehy calls a "pothole eruption."

"We filled our 6,000th pothole this morning since Jan. 1," Dennehy said Tuesday. Last year's comparable figure was about 1,600.

vaunted "Potzilla" — a massive truck that keeps the fill material hot en route to worksites. An electrical failure last weekend caused the heating core and hydraulic augers to quit, forcing workers to shovel up to 2 tons of dried asphalt from the machine's bowels before the beast could hit In Philadelphia, they're not even attempting to keep count.

"We're just trying to keep up as best we can," says Gene Blaum, a spokesman for the Pennsylvania Department of Transportation.

Since Dec. 1, PennDOT workers have applied more than 2,000 tons of patching material in the five counties around the City of Brotherly Love, says Blaum.

"It's been a relentless winter season," he says.

"It's the recipe for potholes," agrees Dennehy. "It's just freeze-thaw-moisture, freeze-thaw-moisture, freeze-thaw-moisture."

The Federal Highway Administration defines a pothole as "Localized distress in an asphalt-surfaced pavement resulting from the breakup of the asphalt surface and possibly the asphalt base course." Climate and traffic combine to remove pieces of asphalt, leaving potholes — and localized distress for drivers.

Normally, major pothole trouble comes in late February or early March. But this season's "polar vortex" meant cities from the upper Midwest to the Deep South have been repeatedly pummeled by ice and snow since January — and produced an early crater crop.

Still, that wouldn't be as big a problem had the nation invested more up front, Galehouse and others say.

In its report card on the nation's infrastructure last year, the American Society of Civil Engineers gave America's roads a D. In a recent post on the group's blog, contributor Becky Moylan quipped that "pothole-dodging could be an Olympic sport."

But it's no laughing matter. ASCE estimates it would take an investment of $3.6 trillion by 2020 to ensure the safety of highways, bridges, the power grid and other public resources.

American motorists are already paying the price: TRIP, a nonprofit organization that researches surface transportation issues, released a report last year estimating that "unacceptably rough" roads cost the average urban driver $377 a year in repairs — or a total of $80 billion nationwide.

Is anyone doing roads right?

In an interview with the Guardian newspaper about the state of Great Britain's roads, David Weeks, director of that nation's Asphalt Industry Alliance, even gave props to the ancient rival across the Channel. "This sort of thing doesn't happen in Scandinavia or France, where they mend the roads properly," he said.

Mats Wendel of the Swedish Transport Administration thinks America could learn something from his country, which he believes has stricter rules on asphalt composition and road construction than the U.S. to account for the wet and cold. He says additives such as cement and lime are compulsory in the top layer of asphalt on Swedish roads, and that there are even stricter limits on air bubbles within the asphalt.

"We take the frost in the ground into consideration when we construct our roads, and they don't really do that in the U.S.," he says.

But he says Sweden has also borrowed a page from road builders in Arizona and California, who use rubber in the mix to avoid cracks. "Some U.S. states use it to a great extent," Wendel says. "But not on the East Coast."

In fairness, Thomas Bennert, a research professor at Rutgers University's Center for Advanced Infrastructure and Transportation, says it's hard to compare Stockholm with New York.

"You can go to parts of Scandinavia where I'm sure they don't have to really do anything, because the roads are not really traveled as heavily," he says. "You do need that pounding of the traffic to really hit it."

Regardless of what they're doing elsewhere, what really matters is what's happening right here at home, says Galehouse. He says Americans pay about $21 a month on average in state and federal road taxes — a fraction of what they pay for cable television or a cell phone.

"And yet what is one of our most expensive investments out there?" he says. "It's our automobile. And we're wrecking our automobiles because we're hitting potholes … The key is not fixing them. The key is preventing them."

But the patching goes on.

Boston has "Potzilla." Others are investing in so-called "pothole killer" machines, says Haas.

"A person right from the cab of the vehicle can blow highly compressed air to get all the water and debris out of a pothole," he marvels. "It unloads its asphalt and aggregate mixture down into there, and then it compacts it — all in one breath. And it just moves on to the next pothole."

Still, much work being done this hectic season has been what those in the industry call "throw-and-roll" — slap some "cold mix" of stone and liquid asphalt into the hole, roll over it with the truck, and move on.

Researchers at Nottingham Trent University and the University of Nottingham in England found that applying a coat of bitumen emulsion between two layers of asphalt "greatly improved its resistance to further cracks." They also confirmed that a hot mix repair — in which the asphalt was heated to 284 degrees or higher — was the best option for fixing holes 1 inch and deeper.

If "a few simple and cost-effective measures are applied with each repair then there may be less need for as many repeat repairs," and savings could be in the millions annually, Mujib Rahman, one of the study's co-authors, said in a university release last February.

All of this is cold comfort for American drivers.

Robert Sinclair, a spokesman for the American Automobile Association in New York, says his branch received more than 13,000 calls for flat tires in January, a 25 percent increase over last year.

"Just about all flat tire calls are potholes," he says.

Manhattan's streets are such a minefield that rolling over a hole is often the lesser of two evils, says New York cabbie Ishtiaq Mealow.

"They're deep and everywhere," says the 20-year-old driver, whose cab suffered a blowout Tuesday. "But sometimes in New York City, you can't avoid them. There's too much traffic coming … You just got to take a risk."

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Associated Press Writers Malin Rising in Stockholm, and Deepti Hajela and Amanda Barrett in New York City also contributed to this story.