

# Ford Shows Way To Mitigate Phantom Traffic Jams With Adaptive Cruise Control

ROMEIO, Mich.: Ford and Vanderbilt University researchers are demonstrating that so-called phantom traffic jams could be minimized with widespread use of adaptive cruise control available today in most Ford vehicles.

The team conducted what is believed to be the largest, most realistic demonstration of its kind, showing that existing technology could help minimize phantom traffic jams, which happen for seemingly no reason and can cause hazardous traffic backups.

On a closed Ford test track, 36 drivers simulated normal highway traffic using adaptive cruise control, which can automatically slow down and speed up to keep pace with the car in front without getting fatigued or distracted. Those drivers then drove the same course, but without the technology – meaning they had to manually brake and accelerate the vehicle.

The results: vehicles using adaptive cruise control reduced the impact of a braking event more than those vehicles without the activated technology. Even with just one in three vehicles using adaptive cruise control, the test yielded similar traffic-busting benefits.

“A fun Fourth of July family road trip can quickly become irritating when traffic slows to a crawl – especially once you learn there was no reason for the gridlock,” said Michael Kane, supervisor, Ford Co-Pilot360 Technology. Ford currently offers



adaptive cruise control on 71 percent of U.S. models.

“For years, traffic researchers and engineers have been looking to smart vehicle technologies to reduce traffic congestion, whether that’s vehicles that talk to each other or vehicles that can predict the road ahead,” said Daniel Work, civil engineering professor at Vanderbilt University.

Work and lead PhD researcher, Raphael Stern, have been working with the support of the National Science Foundation to determine how smart technologies can provide a pathway to fewer traffic snarls – and reduced overall fuel consumption. They plan on publishing the results of the Ford demonstration in an upcoming academic journal.

As with crashes, human factors – such as merging into traffic without signaling, distracted driving, poor driving habits and reaction times, or unnecessary braking – are the main causes of

phantom traffic jams. Think of it like this: Once one driver hits the brakes, a chain reaction can occur as other drivers tap their brakes, causing the flow of traffic to halt.

“Unlike the traffic jams caused by accidents or road construction, phantom traffic jams appear out of nowhere,” Work said. “Combined, traffic backups cost the typical American commuter on average an additional 41 hours a year sitting in traffic at a cost of \$1,400 per commuter.” These figures take into account lost productivity, fuel burned while idling and increased wear and tear.

This year, the company is launching FordCo-Pilot360™, the most advanced suite of standard driver-assist technologies — a combination other non-luxury competitors don’t offer standard in North America.

Ford Co-Pilot360 includes standard automatic emergency braking with pedestrian detection, blind spot information sys-

tem, lane keeping system, rear backup camera and auto high-beam headlamps. The new 2019 Edge is Ford’s first vehicle to offer adaptive cruise control with new lane centering technology, providing support on long road trips by helping keep the vehicle centered in its lane.

Ford’s adaptive cruise control technology – introduced in 2006 – has been consistently enhanced to help in a variety of conditions across the company’s cars, trucks and SUVs – like being specially tuned to work for F-Series F-150 and Super Duty customers who tow boats.

*Adaptive cruise control versus the phantom curse: Ford’s demo*

Three lanes of 12 vehicles each were tested on a closed high-speed oval simulating a highway. The lead vehicles in each lane slowed from 60 to 40 mph to mimic a traffic disturbance. Without the ACC technology, the drivers each braked harder than

the vehicle ahead, which led to a braking wave that became more pronounced further down the traffic stream.

The demonstration was repeated with all vehicles using adaptive cruise control set at 62 mph, just slightly higher than the lead vehicles to ensure the vehicles remained in a constant platoon. In these demonstrations, the ACC systems outperformed the human drivers in almost every braking situation. In one run, the ACC actually suppressed the braking wave so the last car in the lane only slowed by 5 mph instead of coming to a stand-still.

The team also reduced the number of ACC active vehicles to 33 percent. This is the low threshold researchers have long believed could help suppress phantom traffic backups. The results were similar to the full ACC demonstrations.

“Adaptive cruise control systems don’t get tired or distracted, they’re consistently looking at the vehicle ahead,” said Kane. “Plus, they are programmed to provide more consistent distances between vehicles so they can better respond to the speed and distance of the vehicle ahead.”

According to Work, while the automated systems can function with greater consistency, humans still have one big advantage over the machine systems: their ability to see one or more vehicles ahead, which enables them to be more precise in their response to traffic slow-downs.

## Five Things To Enjoy Your Summer Road Trip

With more than 5,000 kilometres from coast to coast, it’s no wonder Canadians are fans of summertime road trips.

“Hitting the road with your windows down and your favourite tunes on the radio is one of summer’s simplest pleasures, only enhanced by how beautiful our country’s landscapes are,” says Darryl Croft, automotive expert at OK Tire. “Before heading out, it is important that drivers are prepared in case of an emergency.”

Here are five things to check before you head out on your next adventure:

1. Pack an emergency kit. Your kit should include non-perishable food, bottled water, washer fluid, a spare tire, jumper cables, jack and tool kit, first aid supplies, flares, candles and matches or a lighter, flashlight,



batteries, and your cell phone charger. Keeping this small yet crucial kit with you could help you avoid roadside disaster.

2. Vehicle maintenance.

Your tires, brakes, steering and suspension should all be checked out by an automotive professional to ensure that they’re running smoothly. Poor perfor-

mance from any of the above can spell danger when your trip calls for high speeds, bumpy road driving or quick stops.

3. Bring a backup set of

keys. How frustrating is it when you’re ready to leave the house and can’t find your keys? Now imagine that happening when you’re a hundred miles from home and can’t go anywhere. You will thank yourself later for this foresight.

4. Top up. Keep your eyes peeled for the next gas station when your fuel drops to one quarter full. Don’t risk unusually long distances between stations that could see your road trip plans coming to a halt because your vehicle won’t take you any further.

5. Have your paperwork in order. Keep your owner’s manual, registration, license and proof of insurance with you, and ensure they are valid for the length of your trip.

If you don’t have your vehicle’s manual anymore, most automakers offer PDF versions online.

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