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## Moving toward zero

Connected and automated vehicles will reshape America's cities, and put traffic accidents in the rearview mirror – for good

### A moral obligation

Imagine: Someday, people will talk about highway fatalities the way we talk about polio today. Over the next 20 years, as connected vehicles and automated vehicles become the norm, they could reduce almost to zero the number of husbands, wives, daughters, sons, mothers and fathers killed in traffic accidents. Because more than 35,000 Americans die annually on our roads and highways, and because we have the technical capability to save these lives, we have a moral obligation to do so. Vehicle connectivity and vehicle automation together will make a dramatic impact on transportation safety in the future and also will reshape American cities.

### Connected vehicles sense and avoid crashes

In congested highway traffic, you may not see a driver braking hard several car lengths ahead of you. But your connected car, communicating wirelessly with the vehicles around it, will sense the abrupt slow-down, alert you and assist in stopping your vehicle before a collision. Vehicle connections with infrastructure will alert drivers who approach red lights too fast and will apply the brakes before the vehicle runs through the stoplight or intersection.

### Automation eliminates human error

Vehicle automation is nothing new. Automatic transmission, ABS brakes, traction control, airbags – all of these safety features involve some level of automation within the vehicle.

The world's automakers now are introducing advanced sensor systems that involve cameras, radar and LiDAR, a laser-based technology that continually and accurately scans and maps the environment around the vehicle.

The joint mission of vehicle connectivity plus automation? Prevention – total, 100-percent elimination of all vehicle crashes. Whereas seatbelts and airbags protect occupants in the event of a crash, new vehicle automation technologies could one day prevent the crash from happening in the first place.

In fact, the goal of automakers is to build a car that doesn't crash. How? Automation will reduce and, ultimately, eliminate human error in driving. With human errors accounting for nearly 90 percent of all highway crashes, you can appreciate automation's effect on safety.

### **As roadway capacity increases, the need for parking decreases**

Connected and automated vehicles are game-changers for traffic safety – advancements that the U.S. government and U.S. auto industry have embraced, and cities should embrace, too.

If cars don't crash, vehicles can drive in platoons at high rates of speed and with less space between them. That means every lane of traffic in a congested city could carry at least double its current capacity.

If cars don't crash, cities can reduce lane widths from 12 feet to 9 feet. Now, we can fit four lanes of traffic into today's three-lane footprint – increasing the capacity of a highway by up to 400 percent – without purchasing an inch of new right of way. Not only that, but the clear zone or shoulder along the sides of the highway can be put to more productive use for non-motorized, pedestrian or economic purposes.

Also, as we move into a shared economy, automation promises greater opportunity for vehicle sharing. Before you know it, cars, trucks and buses will operate 24/7/365; cities won't need as much space for parking. As a result, we can reshape our cities, making them safer and more livable.

### **Cities can begin preparing now**

When you combine vehicle connectivity and automation in transportation, you get incredible change – undoubtedly the biggest change to American cities since the advent of the automobile itself.

We are on the brink of this transformation. The U.S. Department of Transportation is accelerating the regulatory process so automakers can bring these technologies to the consumer sooner. Plus, we are seeing government agencies integrate emerging mobility solutions into their plans and programs. As industry and government work together, we will realize greater mobility and safety sooner.

Evolving connected and autonomous vehicles will make travel on our cities' streets and nation's corridors, and in our vehicles, more reliable, predictable, faster and safer. The full benefits of this transformation won't be realized overnight. But cities can start now to incrementally create a safer world for future generations of travelers, including our children, our grandchildren and their grandchildren.

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