In June of this year, proponents of so-called “driverless” automobiles celebrated when the Nevada Assembly passed legislation that would allow autonomous passenger vehicles to operate on the state’s roads. Internet search giant Google has been capturing headlines with its experimental autonomous cars, and the company seems to believe that the concept has commercial potential.

The dream of a car that drives itself while its human passengers relax is nearly as old as America’s love affair with the automobile. In 1939, while planning for the Interstate Highway System was still in its infancy, General Motors’ “Futurama” pavilion at the New York World’s Fair offered visitors a glimpse of a future in which cars guided by directional radio beacons glided along high-speed expressways.

These “magic motorways” were the brainchild of pioneering industrial designer Norman Bel Geddes, who presciently noted that automotive engineers had succeeded in making the automobile far safer and more comfortable than it had been only two decades earlier—but that the driver remained just as susceptible to human error as ever. This led Bel Geddes to conclude that the way to increase safety would be to remove the driver—the “weakest link”—from the driving equation altogether.

This vision of automated road travel captured the public imagination, and the rapid advances in engineering and computing technology in the decades that followed seemed to bring the vision ever closer to reality. Self-driving cars and automated roadways remain staples of futuristic fiction, as in such films as I, Robot and Minority Report, both of which prominently feature cars that drive themselves.

But let’s do a reality check. Consider the highly automated world of flying commercial aircraft. The autopilot still needs the supervision of highly trained pilots. And even then, “things happen.”

Since the ITS Institute was established, we have pursued a different vision of the future—summed up in our focus on human-centered technology. Faced with Bel Geddes’s observation that the capabilities of the driver have not improved along with those of the automobile, we have chosen to focus on improving and assisting the driver rather than taking the driver out of the picture.

Furthermore, many of the human limitations associated with automobile crashes—poor night vision, difficulty judging the speed of oncoming vehicles or the size of a gap between approaching vehicles, inability to see around corners—can be overcome with driver-assist technologies that enhance our sensory and information-processing abilities but keep us “in the loop.” The ITS Institute has already deployed in-vehicle systems that allow snowplow drivers to operate in zero-visibility conditions on Alaskan highways and enable bus drivers to operate comfortably on narrow bus-only highway shoulders in the Twin Cities. Our researchers have also deployed roadside, sensor-driven driver-support systems designed to improve the ability of a stopped driver to make safe decisions about entering rural high-speed through-stop intersections.

And let’s remember that for a fully autonomous vehicle to operate safely, every component of the guidance system—the sensors, data processors, servomotors, and even the network that connects them—must operate with near-perfect reliability. This reliability would need to be maintained throughout its life on every vehicle. Keep in mind that there are 250 million vehicles on U.S. roads today.

The drive to develop fully autonomous passenger vehicles has produced some intriguing results and is certainly a worthwhile endeavor. However, to reap the safety benefits of technology, we believe that trying to remove the driver from the transportation equation rather than enhancing the driver’s abilities is essentially an attempt to reinvent the wheel. The road to the future of transportation starts with an improved understanding of human drivers and a commitment to enhance their ability to reach their destinations safely and efficiently.

I would like to take this opportunity to thank departing ITS Institute board members: Joe Peters of the FHWA’s Office of Operations Research Development, Mary Ellison of the Department of Public Safety, and Mark Hoisser of DARTS. We are grateful for their service and contributions.

Max Donath, Director
ITS Institute