The driverless era is on its way

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One of history's greatest inventions, the mass-produced automobile brought mobility to the masses, provided access to better housing and low-cost consumer goods, and enabled both the civil rights and women's rights movements.

We're solving problems with pollution and auto safety without reducing that mobility: Since 1970 we've seen a 180 percent growth in driving, yet total highway air pollution is down 85 percent while fatality rates per billion miles of driving have declined by 78 percent.

We are on the threshold of another mobility revolution that will make cars more common than ever: the self-driving car. Among other things, self-driving cars will change where we live and almost completely replace public transit systems.

In 2013, America's transit systems spent more than $60 billion carrying fewer than 59 billion passenger miles, for an average cost of $1.03 per passenger mile. By comparison, Barclays estimates that shared, self-driving cars will cost only 29 cents per mile. Since cars are also faster and more convenient than transit, transit will disappear except in places that are simply too dense to be served by automobiles, which in the United States mainly means New York City.

Self-driving cars will change the way we think about distance. If people can work, watch movies or play video games with their children on their morning commutes, they will be willing to live much further from work than they do today. This means urban areas will become even more spread out than they are now.

No one can predict for certain all the changes self-driving cars will bring about. But we know self-driving cars use the same basic infrastructure as human-driven cars, so states and cities need to fill potholes and maintain bridges. We have a pretty good idea that public transit will at least shrink, so transit agencies should focus on low-cost, flexible bus service, not build expensive and pointless rail lines.

The Obama administration wants to spend several billion dollars on pilot "smart-road" projects, that is, electronic infrastructure that can help guide self-driving cars. This is a foolish plan as whatever is installed will be obsolete long before the government can build it into all of the nation's 4 million miles of roads.

Google, Ford, Volkswagen, Volvo and most other companies designing self-driving cars don't believe such infrastructure is needed. Instead of relying on smart roads, their cars are completely self-contained, using precise maps showing the exact location of every highway stripe and street sign. A company called HERE has already precisely mapped about two-thirds of the nation's paved roads and streets, updating the maps every day.

Several manufacturers have promised to have self-driving cars for sale by 2020. Once the basic software is available, it may be possible to upgrade many recent cars to be self-drivable for $1,000 or less, which means self-driving cars will dominate the roads sooner than most people think.

When self-driving cars take the road, will you own your car or car-share? Will you live in an urban condo or on an exurban hobby farm? Will you shop and work online while your self-driving car takes you to Florida? No one knows the answers to these questions, so the best that states and cities can do is to keep options open and not commit themselves to expensive technologies, whether rail transit or smart roads, that are likely to soon be obsolete.

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