



## Pave Over the Subway? Cities Face Tough Bets on Driverless Cars

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Autonomous vehicles that will outperform buses, cost less than Uber and travel faster than cars stuck in traffic today are two years away. Or 10. Or 30.

But visions of the future they'll bring have already crept into City Council meetings, political campaigns, state legislation and decisions about what cities should build today. That unnerves some transportation planners and transit advocates, who fear unrealistic hopes for driverless cars — and how soon they'll get here — could lead cities to mortgage the present for something better they haven't seen.

“They have imbued autonomous vehicles with the possibility to solve every problem that was ever created in transportation since the beginning of time,” said Beth Osborne, a senior policy adviser with the advocacy group [Transportation for America](#). “That might be a tad bit unrealistic.”

In [Indianapolis](#), [Detroit](#) and [Nashville](#), opponents of major transit investments have argued that buses and trains will soon seem antiquated. In Silicon Valley, politicians have suggested [something better and cheaper is on the way](#). As New York's subway demands repairs, futurists have proposed [paving over all that rail](#) instead for underground highways.

Autonomous cars have entered policy debates — if not car lots — with remarkable speed. And everyone agrees that making the wrong bets now would be costly. Cities that abandon transit will come to regret it, advocates warn. Driverless car boosters counter that officials wedded to “19th-century technology” will block innovation and waste billions.

“We are definitely going to have pushback,” said Brad Templeton, a longtime Silicon Valley software architect who preaches the [potential of “robocars.”](#) (He believes the subway paved over in concrete for autonomous vehicles could [transport more passengers](#) than rail can.) “I regularly run into people who even when they see the efficiency numbers just believe there is something pure and good about riding together, that it must be the right answer.”

His advice to cities: “Infrastructure plans for 2030 are sure to be obsolete.”

In some ways, this is a choice we've faced before. The marketing simulations at autonomous car conferences remind Jeffrey Tumlin, a transportation consultant, of [Futurama](#), the 1939 World's

Fair exhibit sponsored by General Motors that introduced the public to a future of “magic motorways.”

“Nothing has changed at all,” said Mr. Tumlin, a principal with the firm Nelson\Nygaard. “It is the 1939 World’s Fair, and it is so exciting. There’s the model, and traffic is flowing smoothly. And there’s this promise of limitless free mobility.”

### **‘Please, Please, Please, Please Don’t’**

If you believe that autonomous cars will compete with transit rather than complement it — or that autonomous ride-hailing will give cities that never built transit something like it — there is appeal in holding out now.

“Don’t build a light rail system now. Please, please, please, please don’t,” said Frank Chen, a partner with the venture capital firm Andreessen Horowitz. “We don’t understand the economics of self-driving cars because we haven’t experienced them yet. Let’s see how it plays out.”

Theoretically, when companies like Uber and Lyft no longer have to pay drivers, rides could be as cheap as bus fare. And when autonomous vehicles platoon, they could squeeze more capacity and speed out of roadways, eroding some of the timesaving advantages of railways.

A light rail car in Minneapolis. Rail remains the most efficient way to move large numbers of people, despite the promise of driverless cars. Credit Tim Gruber for The New York Times

Technologists also draw an analogy to the internet, infrastructure that was conceived to be simple and uniform, compatible with any application. The intelligence lay in what was built *on* the internet, not the internet itself. For cities, Mr. Templeton suggests this means “smart cars and stupid roads.” Just lay concrete and let innovators design what rides on top of it. By definition, he said, rail precludes all possibilities other than the train.

Inherent in this idea is the fear that cities will lock in the *wrong* future, or that they’ll prevent better ideas from arriving. They’ll bet, for example, on docked bike-sharing systems, and then be caught off-guard when dockless scooters arrive.

“I get very nervous when city planners or municipal bus operators are making technology bets,” Mr. Chen said. “That’s hard enough for us, and we live and die by the quality of the technology bets we make.”

Public transportation agencies can certainly be inflexible. Frank Martz, the city manager of Altamonte Springs, Fla., envisioned a service in the late 1990s that was basically Uber before smartphones. He wanted to allow riders to use computers or kiosks to order smaller vehicles with optimized routes. The local transit agency struggled to bring his idea to life.

“They just could not think about anything other than buses and bus lanes, and drivers and unions,” Mr. Martz said. “They could not think about the user.”

This month, Altamonte Springs finished a two-year pilot offering discounts on Uber rides instead, a model that appeals to the belief that private companies can provide these services better anyway.

“I expect by 2030, most transit agencies are going to be zombie agencies that exist mainly to collect taxes from people to pay down their debt,” said Randal O’Toole, a senior fellow with the

libertarian Cato Institute who blogs, provocatively, as “[The Antiplanner](#).” In the meantime, he argues that cities should put no new money into infrastructure.

He acknowledged that he believed transit was wasteful for taxpayers long before everyone got excited about driverless cars. But now he and others who say no to transit also have something positive to say. *Something better is coming.*

### **Las Vegas Isn't in a Gambling Mood**

Las Vegas has been preparing to build precisely the thing these critics say they shouldn't: the region's first light rail line. The city is running several autonomous pilots, too, but officials aren't sold on the imminent driverless future.

“It's very easy to get caught up in these sensationalized visions,” said Tina Quigley, general manager of the Regional Transportation Commission of Southern Nevada. “Some of these visions may eventually come to fruition. But we are not talking about them happening in the next five years even, some of them in the next 10 years.”

Many potential benefits of driverless cars won't kick in until there is mass adoption. Even in that distant future, Ms. Quigley said, there simply won't be enough space in the busiest corridors for everyone to ride in an autonomous vehicle.

Highways today can carry about 2,000 cars per lane per hour. Autonomous vehicles might quadruple that. The best rail systems can carry more than 50,000 passengers per lane per hour. They move the most people, using the least space. No technology can overcome that geometry, said Jarrett Walker, a Portland-based transportation consultant.

“Let's talk about what we can predict,” he said. “The problem of the city is a problem of sharing space. In 2100, the problem of the city will still be a problem of sharing space.”

By that logic, cities should invest even more in high-capacity rail and dedicated bus lanes in key corridors. Autonomous vehicles might handle other kinds of trips — rides from the train station home, or through suburban neighborhoods, or across the parts of Las Vegas without rail.

This possibility is not radically different from today. Uber and Lyft offer the closest approximation to how people will behave in an autonomous future, when consumers use cars they don't own. Both companies are frequently cited by opponents of transit. But they also now back big transit investments, without which their riders in congested cities would be stuck in even worse traffic.

No system of autonomous cars could be more efficient than the New York subway, said Andrew Salzberg, Uber's head of transportation policy and research. Uber needs that transit, just as it will need electric scooters and bikes and the congestion pricing it also supports in New York to ensure that cheaper transportation doesn't simply lead to more traffic.

The efficiency that autonomous vehicles promise is more likely if people share them — and don't use them for every trip.

Cities fixated on that future, however, could be making another risky bet. New forms of transportation like Uber and Lyft are heavily subsidized by venture capital today, and so cities that expect private services to replace public transit are counting on those subsidies, too. They're

betting that driverless cars will get here, changing the economics of transportation, before the venture capitalists lose patience.