

## WILL SELF-DRIVING CARS SAVE THE DAY FOR SOCAL? MAYBE ONE DAY...

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My daily commute used to be from Burbank to El Segundo, and when I'd tell people about it, first they would recoil in horror, and then they'd console me, express sympathy. Some would share stories of similar chilling scenarios.

My seven plus years of muddling through that morass of speed-restricted mobility did give me plenty of time to think about what has become an intractable problem. Despite myriad efforts to update and improve and expand public transportation, SoCal remains a city driven by cars, and nothing short of a fundamental paradigm shift in transportation is going to change that. There are simply too many cars, not enough road.

Now imagine a day when you walk out to your car and it immediately recognizes you from your mobile device and sets your preferences. Upon entry it welcomes you, asks you where you want to go, flashes the news you're interested in on the windscreen, reads off your calendar and messages from friends, family, and co-workers. Then you tell it where you want to go. There is no steering wheel, there are no pedals. As it powers up and the electric motors start to whirr, you kick back in your plush lounge chair and get an early start on your day as you're whisked to your destination.

The car's artificial intelligence has become self-aware enough to react to every contingency imaginable. It communicates with the cars around it, the infrastructure recognizes it. You're always going posted speed limits and the car seamlessly blends with the other vehicles into formation as you merge onto the highway. There are no traffic jams. There are lanes for bulk transportation vehicles and lanes for passenger vehicles. There are no crashes or fatalities. No more drunk drivers, no more road rage.

It's this sort of utopian vision—or dystopian depending on the point of view of people who love to drive—that has helped fuel the drive toward a future where the car drives you. Google, and now its spinoff company Waymo, have been pushing this narrative for years as they pile on millions of miles driven without human interaction, its artificial intelligence software continuing to learn every day. For the Waymo crew, it's all about safety. It's about reducing and eventually eliminating deaths resulting from car crashes. Tesla CEO Elon Musk has famously said that “you can't have a person driving a two-ton death machine” but rather they should be driven—in a Tesla we're assuming.

Musk for one has not been shy about Tesla's push toward autonomy and has been boasting lately that Tesla cars will be capable of fully autonomous driving in as little as two years (give or take a few, as we've learned from his previous predictions). I've driven Teslas equipped with the marque's Autopilot system manning the controls, and it can indeed drive the car to an extent. Turn the wheel, speed up, slow down. Mercedes-Benz and General Motors' Cadillac division have similar systems on the road.

In fact, the ramp-up of semi-autonomous systems (lane departure warning, adaptive cruise control, cross traffic alert and more) has been underway for years. Even many of the cheapest new cars on the road today have them available. And as those technologies proliferate, automakers are becoming increasingly bold in their predictions of producing cars capable of fully autonomous driving in just a few short years, which is defined by the Society of Automotive Engineers as Level 4 (high automation), where the car can drive in most circumstances. (The highest, Level 5 is full automation, where no human interaction is necessary at all). There are many self-driving cars already testing in limited capacity, in controlled environments like the American Center for Mobility facility in Ypsilanti, Michigan. Waymo has been running autonomous shuttles in a very limited capacity in Phoenix, one of a handful of small pilot programs.

But the gulf between all of this promising testing, of cars capable of driving autonomously and a day where you can actually walk into a dealership and have a car with no steering wheel or pedals drive you out of the showroom is still Grand Canyon wide. The hurdles are myriad.

Government. The pace of development is far outstripping governmental ability to regulate and oversee the process. States are setting their own limits and standards, and at present there is very little guidance at the federal level. How will these self-driving systems be stress tested like the NHTSA and IIHS crash testing procedures of today?

Infrastructure. Roads will need to be dramatically improved in order to properly manage the new world traffic flow, lights and other traffic control devices will need to be revamped as Vehicle to Infrastructure communication will be critical to creating smart roads. We can barely get funds to fix crumbling bridges.

Liability. Who's at fault when an autonomous car and a non-autonomous car crash? Is it the software's fault? The maker of the car? How will insurance companies deal with these issues? Will insurance even be necessary in a fully autonomous future (who wouldn't want that)?

Public Acceptance. When a car using Uber's self-driving technology failed and hit and killed a pedestrian in Phoenix last year, the headlines blasted out across the globe. It was confirmation for many of the dangers and pitfalls of self-driving cars. Never mind that some 36,000 people were killed in car crashes last year, if an autonomous car kills one person, it makes big news. Additionally, a recent survey by the AAA highlighted just how much Americans are spooked by being driven, no doubt fueled in part by stories like the Uber crash. Nearly three-quarters of those polled say they are afraid of being driven an autonomous car.

So what will the near future hold for drivers in SoCal? Likely more of the same old grind, sadly. It's possible within 10 or so years that cars capable of full self-driving will be on the road. They will be small in number, and maybe they end up taking over the HOV lane in place of EVs. And in downtown cores, there may be geofenced areas where self-driving shuttles and other ride hailing services will roam, and perhaps those areas are in congestion zones where only zero emissions cars with autonomous capability will be allowed to enter.

But yeah, that utopia I often daydreamed about when I was stuck in on the 405? It's going to take a while. Glad I moved to Redondo Beach.