

The Top Five Things Planners Need to Know About Self-Driving Vehicles



By Chris Hedden & Dan Krechmer with Ron Basile
<http://www.camsys.com/automated-connected-vehicles.htm>

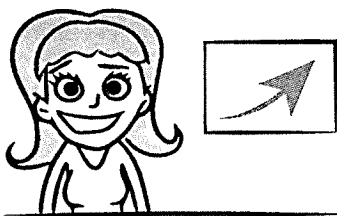
Every day you hear a story in the news about connected vehicles, automated vehicles, or self-driving cars and how these vehicles will transform mobility in the United States.



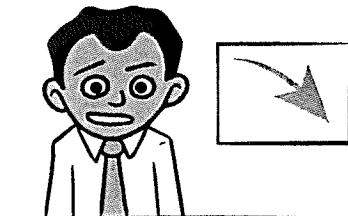
These stories talk about things like
Shared Economy and
Disruptive Technologies.



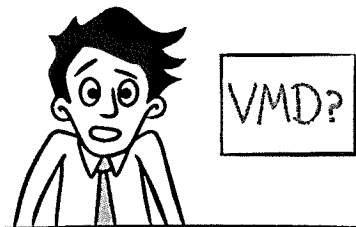
And they give conflicting predictions:



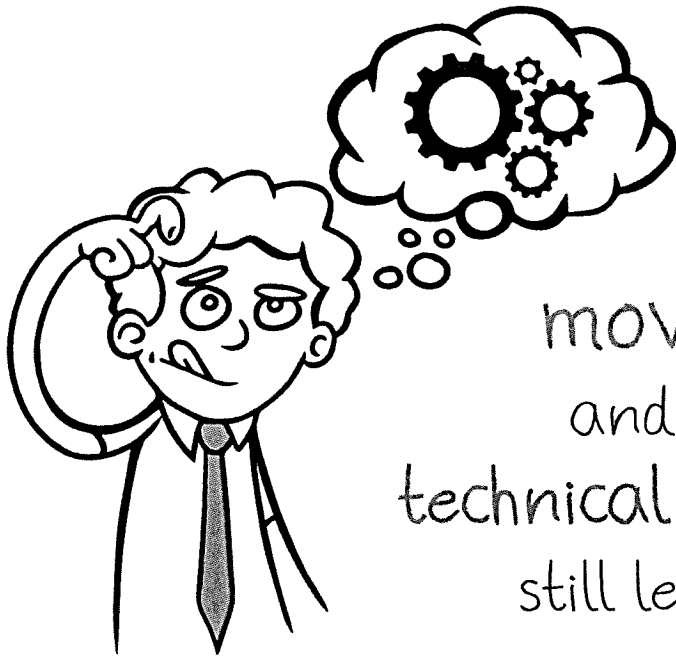
Some say
VMT will go up...



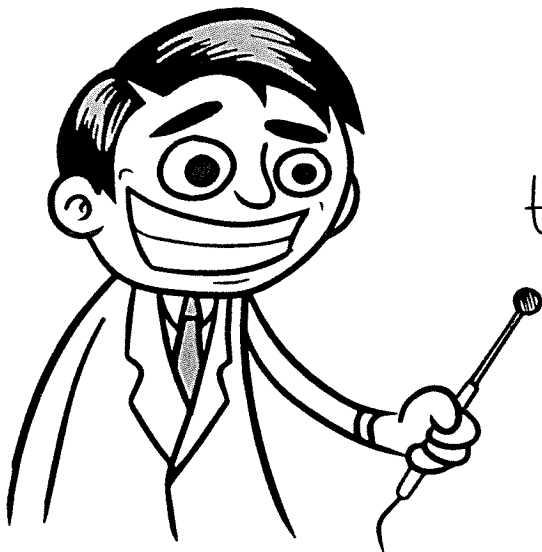
Some say
VMT will go down...



And some folks are now
talking about VMD...
What the heck
is that?



Lots of
moving parts
and lots of hard
technical problem-solving
still left to be done.



TOP 5

things planners need
to know about
self-driving vehicles

1) Self-Driving Vehicles Will Happen

(6)

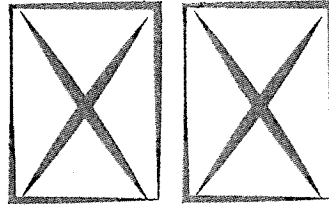
2) It's Connected AND Autonomous

(7)

3) Commercial Vehicles Will Be First

(8)

4) Capacity Expansion May Be a Thing of the Past



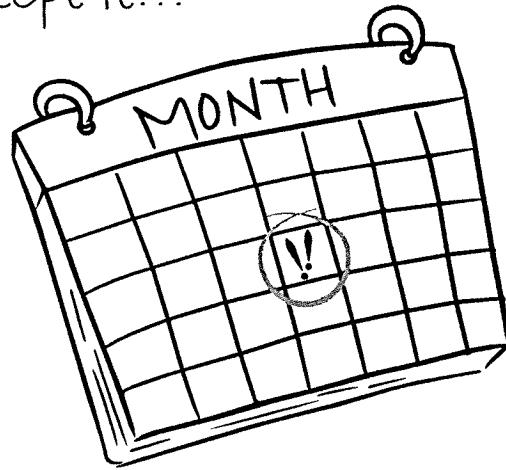
5) The Shared Economy Will Play a Huge Part in the Mobility of the Future

1. Self-Driving Vehicles
Will Happen

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It really is time to accept it...

it is no longer
a matter of if,
it is now a
matter of when.

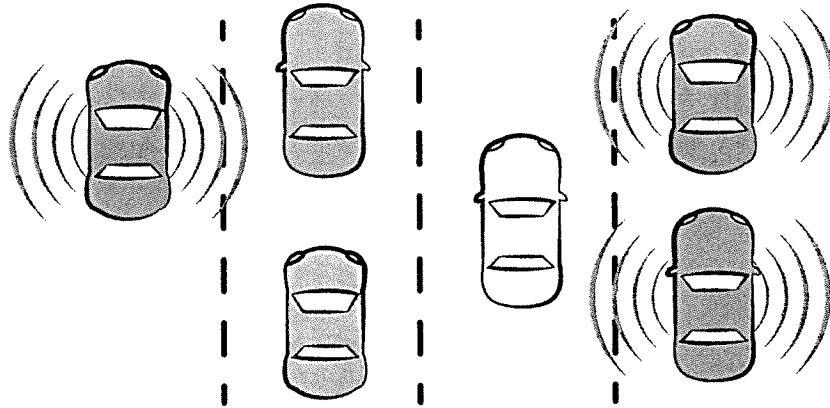


1. Self-Driving Vehicles Will Happen

The falling cost of sensors,
radars, and other devices,
coupled with dramatic
increases in software
capabilities, have provided
the tipping in providing this
functionality in a vehicle.



1. Self-Driving Vehicles Will Happen



Now is the time to start developing new forecasts based on these vehicles being in the fleet.

1. Self-Driving Vehicles Will Happen

And answering some of the larger questions:

Will this
increase
or decrease

VMT?

What happens
to Transit?

How will
LAND USE
change?

How do we need to
UPDATE our modeling
techniques
to better capture the
IMPACT of these VEHICLES?

2. It's Connected AND Autonomous

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Alone they both provide significant improvements toward mobility, but combined they allow these new vehicles to reach the full potential of their transformative capabilities.



2. It's Connected AND Autonomous

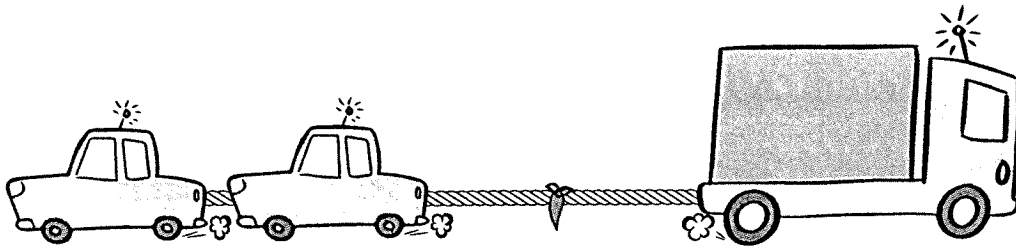


And don't forget to start building relationships with these new technology companies and traditional car makers, you will need them to more fully understand the impact of these vehicles.

3. Commercial Vehicles Will Be First

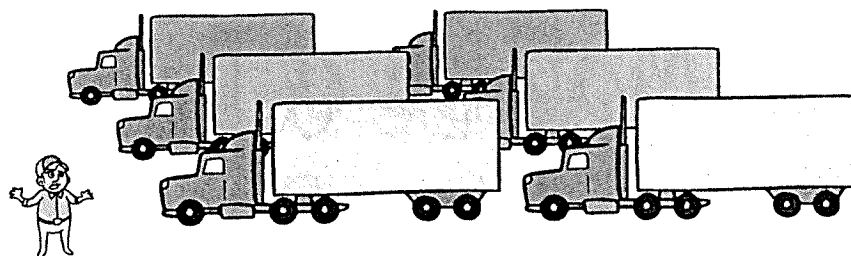
3. Commercial Vehicles Will Be First

Which type of vehicle (trucks or cars) comes to market first will depend a great deal on who has the greatest demand for such a machine.



3. Commercial Vehicles Will Be First

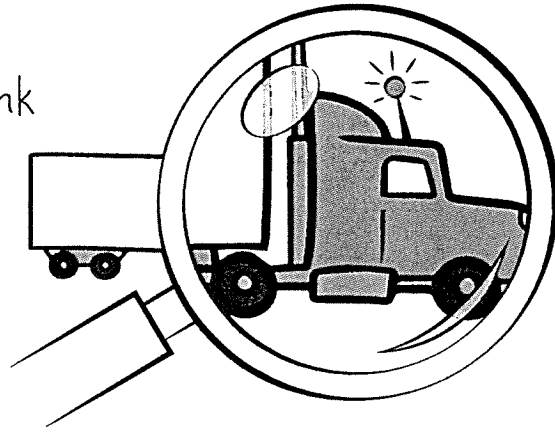
The driver shortage in the country is only going to get worse...



and shippers (the ultimate customer) are always looking for ways to reduce costs and increase reliability/efficiency.

3. Commercial Vehicles Will Be first

Understanding these types of vehicles first allows us as planners to prioritize our efforts and think about how elements of our transportation network and economy could change.

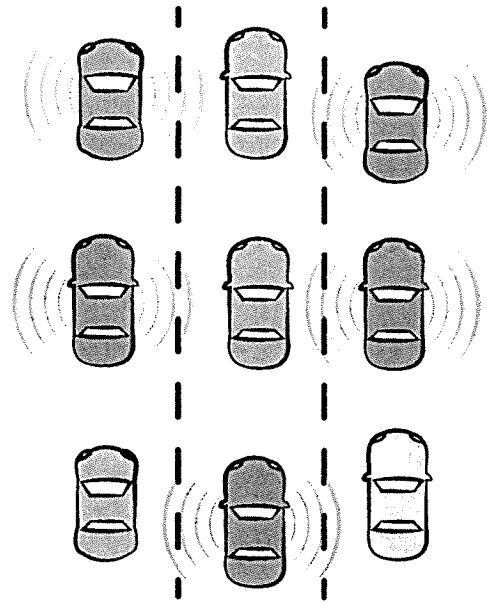


(i.e., will there be a need for so many roadside services built to support truck drivers?)

4. Capacity Expansion May Be a Thing of the Past

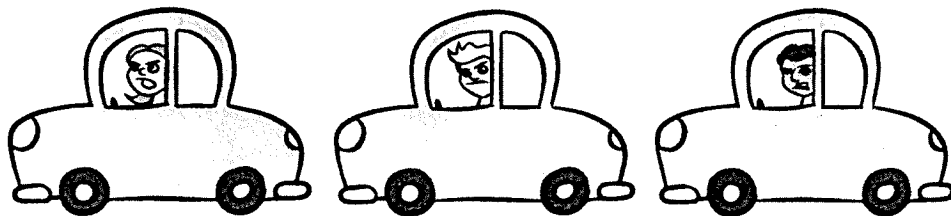
4. Capacity Expansion May Be a Thing of the Past

When the majority of the fleet is both connected and automated, there will be significant decreases in crashes, resulting in significant increases in safety and reliability.

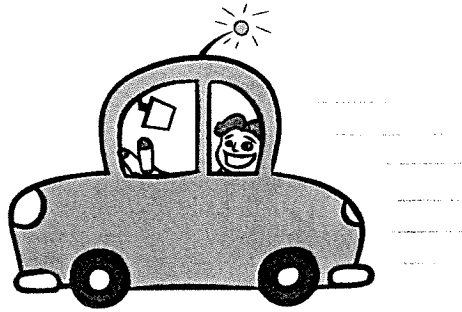


4. Capacity Expansion May Be a Thing of the Past

It also will lead to significant decreases in non-recurring congestion, which as we know is over 50% of total congestion.



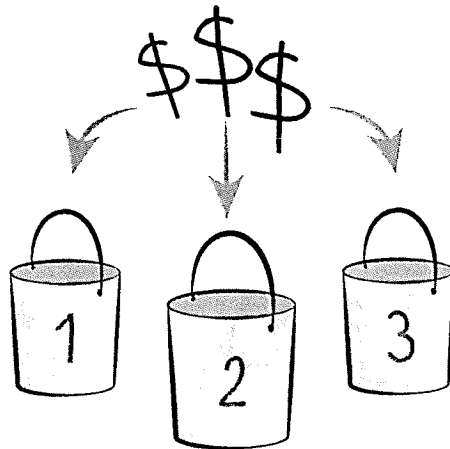
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With these decreases in congestion we could get more capacity out of the existing system, lessening the need for expensive, time-consuming capacity expansion solutions.

3. Capacity Expansion May Be a Thing of the Past

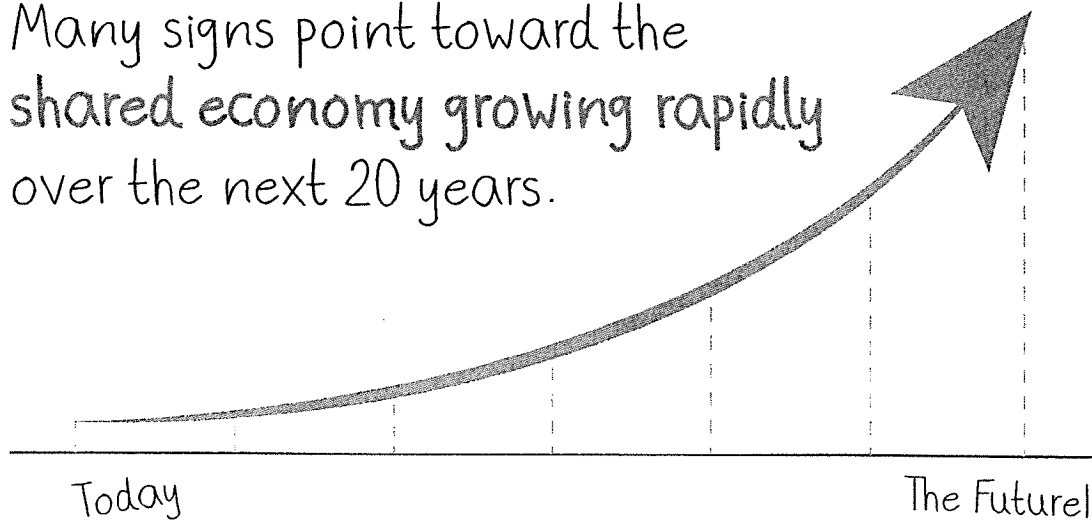
Planners today need to start thinking about where to invest given these new developments.



5. The Shared Economy Will Play a Huge Part in the Mobility of the Future

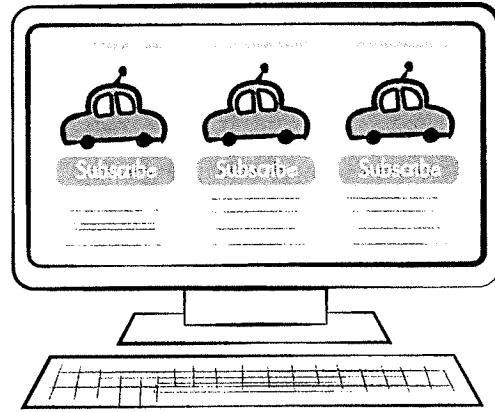
5. The Shared Economy Will Play a Huge Part in the Mobility of the Future

Many signs point toward the shared economy growing rapidly over the next 20 years.



5. The Shared Economy Will Play a Huge Part in the Mobility of the Future

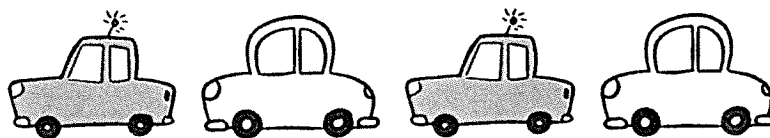
Along with buying cars like they we do now, people would also have mobility through **subscription-based** shared vehicle fleets.



5. The Shared Economy Will Play a Huge Part in the Mobility of the Future

As planners we need to start now, trying to understand the effects of this new mobility as a service concept.

If there are less cars in the total fleet, but they are more highly utilized, what does that mean to congestion?



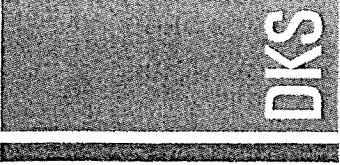


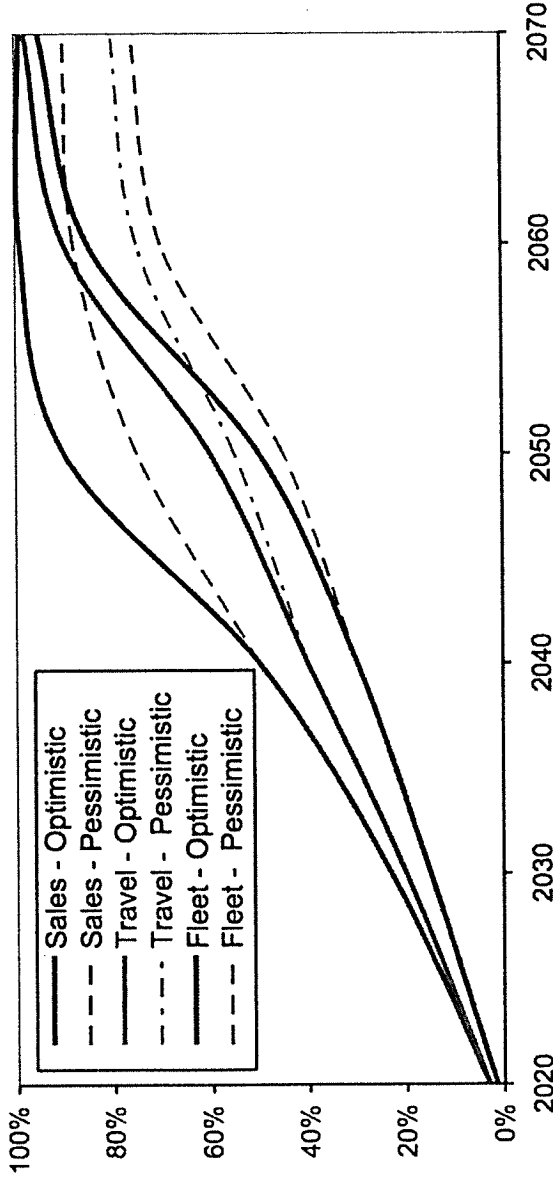
Table 6 Autonomous Vehicle Implementation Projections

Stage	Decade	Vehicle Sales	Veh. Fleet	Veh. Travel
Available with large price premium	2020s	2-5%	1-2%	1-4%
Available with moderate price premium	2030s	20-40%	10-20%	10-30%
Available with minimal price premium	2040s	40-60%	20-40%	30-50%
Standard feature included on most new vehicles	2050s	80-100%	40-60%	50-80%
Saturation (everybody who wants it has it)	2060s	?	?	?
Required for all new and operating vehicles	???	100%	100%	100%

Autonomous vehicle implementation will probably take several decades.

Autonomous Vehicle Projections

Figure 1 Autonomous Vehicle Sales, Fleet and Travel Projections (Based on Table 6)



If autonomous vehicle implementation follows the patterns of other vehicle technologies it will take one to three decades to dominate vehicle sales, plus one or two more decades to dominate vehicle travel, and even at market saturation it is possible that a significant portion of vehicles and vehicle travel will continue to be self-driven, indicated by the dashed lines.

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