Hyperloop: 1867
So What about Autonomous Vehicles?
>30,000 Traffic Deaths per Year
Eliminate 80% Commercial Parking Demand?
Join a road train
A safe and energy-efficient way to travel

The road train system makes it possible for the driver to work on his or her laptop, read a book or watch a film.

Drivers who want to join a road train state their destination and are guided by their on-board navigation system to the nearest road train. The car joins the rear of the queue and the system takes over control of the car.

The lead vehicle, for instance a bus, is driven by a professional driver. In this system, the lead vehicle takes over all the following vehicles via wireless radio communication.

The system is built into the cars and does not require any extended infrastructure along the existing road network.

As they approach their destination, drivers take over control of their own vehicles, leave the road train by pulling out to the side and then continue on their own to their destination.

The other vehicles in the queue close the gap and continue together on their journey to the location where the road train separates once again into its individual vehicles.
First/Last Mile
space required to transport 60 people

Car?  Bus?  Bicycle?
space required to transport 60 people

car
uber
autonomous car

Image: Jon Orcutt
Early Signs of Change

**SCHALLER REPORT**

Ride-hailing the leading source of non-personal car travel in NYC 2014-2016

Most ride-hailing growth (not trips) in the outer boroughs, where transit is less convenient
Pop Quiz:

Who’s investing the most in autonomous vehicle technology?
Pop Quiz:
What’s Google’s revenue model? Selling information, right?
~95% of Google’s revenue is Advertising

Source: Investopedia
Minority Report
Cost Models

FACTORS THAT MAY DETERMINE ADOPTION MODEL

- Cost per ride: $1 threshold vs. traditional autos
- Cost of AVs: Too costly for vast majority of people?

Dear Auto Makers:
You’re no longer selling a myth.

Or cars.

You’re selling time.
Effect on Cities – Current Trajectory

- **Upside:** Parking lots and garages repurposed
- **Downside:** Stranded parking garages
- Parking revenue collapses
- Gas tax collapses
- Suburban retail sales tax collapses
- Induced demand results in severe congestion
- Sprawl
- Public health declines

Image: Victor Dover. Atlanta parking
Effect on Transit Agencies: Current Trajectory

- AV fares cheaper than most transit fares for most trips
- AVs faster except at peak where transit has dedicated right of way
- Complete loss of off-peak and reverse peak revenue
- Transit agencies will seek to preserve operator jobs until retiree healthcare requires agency bankruptcy
- Huge increase in congestion and loss of person capacity
- Cities respond by offering incentives to high-capacity Chariot
Alternative Model

Streets are 25-35% of a city’s area

They are its most valuable asset
Manage the street

- Price congestion
- Price wasted space
- Require corporate access to public street fosters public good

Short term:
- Pilot urban HOV lanes
- Autonomous BRT
- Ensure state regs don’t preempt municipal management tools
What should cities be doing?
Manage the curb

• Design standards for curbside dropoff
• Fees for curbside access
• Promote shared use
• Eliminate dropoff/bike conflicts
Modernize parking regulations

- Price for availability
- Eliminate minimums
- Establish maximums
- Unbundle
- Share
- Promote adaptability
Establish data protocols for public good

- Data should inform transportation system
- Barriers to flow of data between public and private sector
- Community voice as key input in data conversations
- Disaggregate data by race, income, and other demographic categories.
- Explain the problem that data will solve.
Quantify Equity in Outcomes

• Research and pilot ways to measure progress in improving inequitable outcomes in access and social mobility.

• Examine all policy proposals to determine how they can advance equity.

• Involve community leaders and private sector in developing the measures and monitoring progress on them.
Reorganize government around mobility

- Be decisive about public transit agency survival
- Realign taxation: replace gas and parking taxes with VMT and congestion fees
- Align public right of way ownership (state, county, local) with operations
- New regional mobility authorities?
Transit Must Lead

• Best contexts for AVs:
  – Long haul trucking
  – Bus Rapid Transit

• Cities must partner with transit operators:
  Dedicated right of way in exchange for AV BRT, 24/7 every 2 minutes

• Begin process now to minimize any job loss
Provide a quality future of work

- Autonomous vehicle technology will shift transportation job market
- Provide good wages, benefits, and protections, for people to move up the economic ladder.
- Ready current workforce to transition from old jobs to new jobs
- Next step:
  - Understand capacity of labor unions and other workforce players to support transition
Tell better stories