

# PARTNER

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## Driverless Cars and Impact on CRE

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2018 City Managers Meeting  
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## Future of Driverless Tech



Autonomous delivery vehicle prototype  
(Pizza Hut/Toyota)



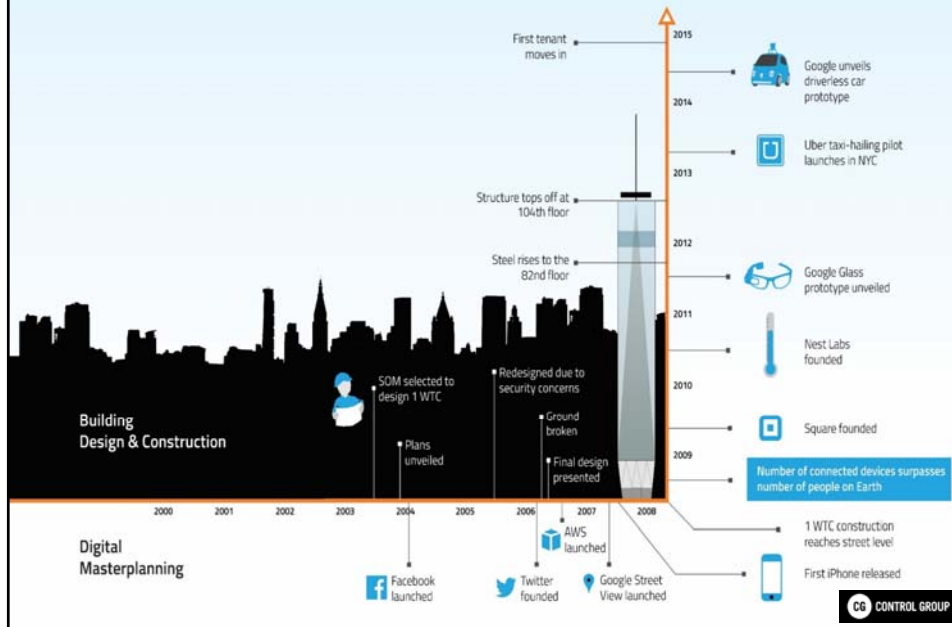
Panasonic autonomous vehicle prototype/CES2018

### Autonomous ride sharing and services of the future...



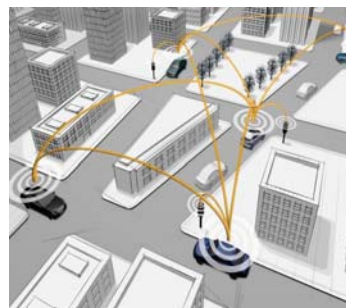
Courtesy: JWT Intelligence

## The Speed of Change



## Effects of Driverless Cars on CRE

1. Parking & Density
2. Commute Tolerance
3. Cars vs. Trains
4. Future City Planning?

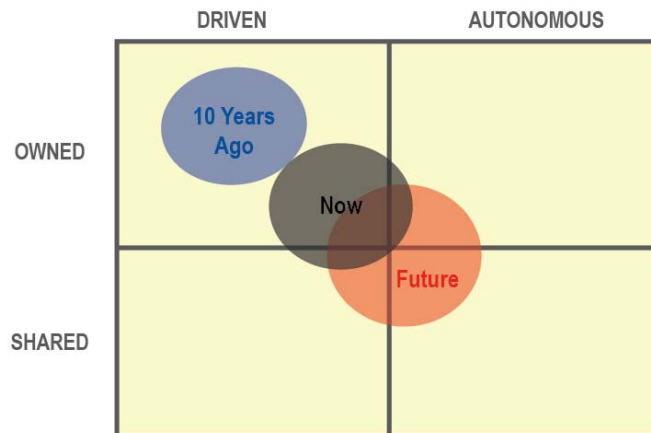


## Parking and Density



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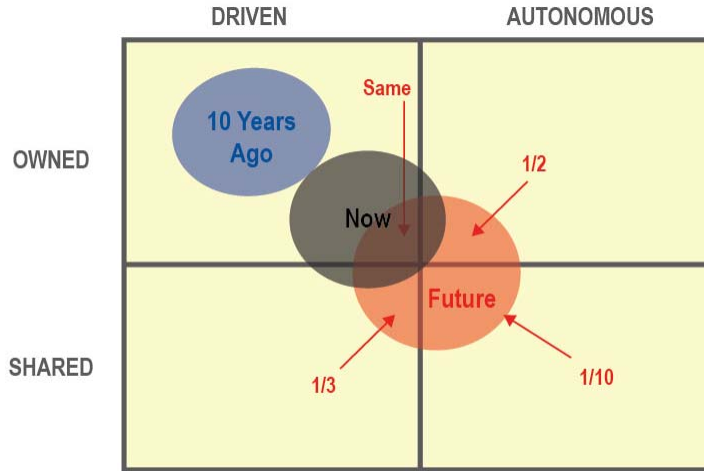
## Evolution of Vehicle Operation



**Currently: 1 BILLION parking spaces, constitutes 15-30% of urban land**  
(Source: Green Street Advisors, LLC)

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# Parking Space Elimination



Surface parking footprint could reduce by 35-100% (Green Street Advisors, LLC)

# Parking Space Transition – Phase I

**Phase 1: 2018-2025**  
Garage adapts to autonomous vehicles.

Today, the typical car is used only 5% of the time.  
(95% of the time it is parked in a garage, at a house, or on the street).  
However, by the time today's garages are built,  
self-parking cars and shared fleets will likely be a reality.



Driverless vehicle storage is packed in hyper-efficient rows on the top level. Garages designed for autonomous or self-parking vehicles can substantially increase their efficiency and use **60% less space**.

Floor-to-floor heights are designed to accommodate future uses such as residential or office.

Conventional parking on lower levels for increased accessibility.

By 2025, fully autonomous cars are expected to be available to the general public for an additional \$10,000.  
Source: Boston Consulting Group

Image courtesy Arrowstreet Architects

## Parking Space Transition – Phase II

### Phase 2: 2025-2035

Building adapts to fully autonomous vehicles and new uses.

As car ownership evolves to a subscription service with intelligent fleets, there will be less need for parking.

Garages are transformed into other uses, such as offices, residential, and hotels.

In 2035, the need for parking is estimated to decline by more than 5.7 billion square meters in the United States.

(This equates to half the size of Connecticut. Source: The McKinsey & Co.)



Image courtesy Arrowstreet Architects

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## Maximizing Road Space/Travel Speed

Current Freeway - Heavy Traffic

30 MPH



\* Note: Widths vary based on construction date.

Self-Driving Hypothetical Freeway

80-90 MPH?



Self-Driven Cars:

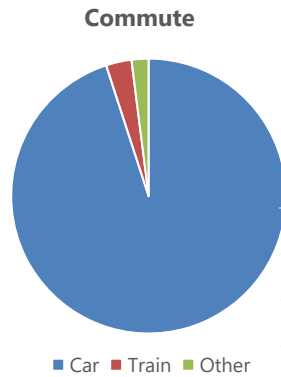
- Misallocation of space
- "Accordion effect"
- Avg US commute = 26 min. (Gallup/Census data)

Driverless Cars:

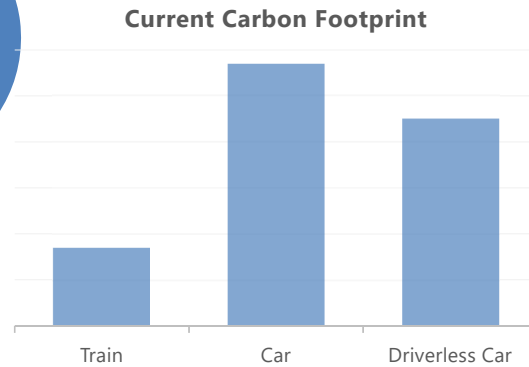
- More efficient design?
- Faster commutes
- Improved delivery/services
- Expand work/life distance

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# Will Commuter Trains Become Obsolete?



- Efficiency will increase exponentially
- Carbon footprint will improve
- "Car Beats Train"



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# Expanding Location Access

**1776** Port cities established as a derivative of transportation/access (New York, DC, Philadelphia, Boston, San Francisco, etc.)



**EXPANDED TRAIN SYSTEM**

**1876** New metropolitan areas established (Dallas, Denver, Indianapolis, Phoenix, etc.)



**PASSENGER CARS**

**1976** Further expansion of suburbs, exurbs, secondary and tertiary markets



**AUTOMATED VEHICLES**

**2030**

**???**

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## Conclusion/Looking Ahead

- Future city planning sessions: always take driverless cars into account
- "Grayfields" – we are overparked!
- Improved lifestyle through efficiency
- Changing population density maps