Parking: Designing for a Driverless Future

Session Moderator:
Juan Dorado, AIA
Dekker/Perich/Sabatini, Ltd.

Session Panel:
John Cadenhead, AIA
Powers Brown Architecture

Steffen Turoff, Principal Director of Parking & Mobility Planning
Walker Consultants

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Speakers

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Project Manager
Dekker/Perich/Sabatini Ltd.

John Cadenhead, AIA
Director of Design
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Steffen Turoff
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Easter morning 1900: 5th Ave, New York City. Spot the automobile.

Source: US National Archives.

Easter morning 1913: 5th Ave, New York City. Spot the horse.

Source: George Grantham Bain Collection.

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The Future is Unknown

Sixty years ago, flying cars captured Americans' imagination. Can we get self-driving cars sooner? – Popular Mechanics

Source: Walker Consultants

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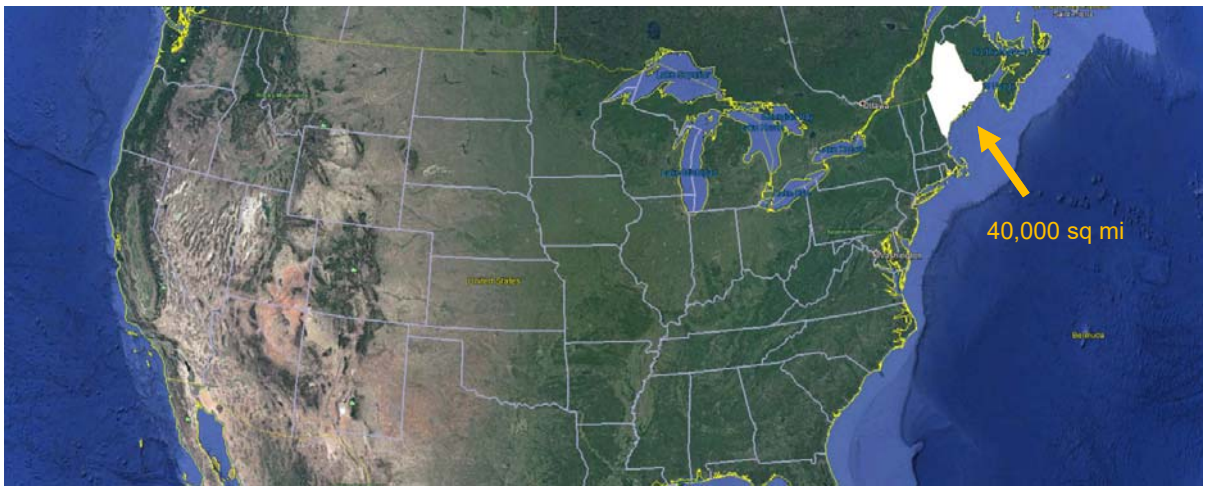
Forces Driving Demand for More Parking…

- Market – 'you can't build what you can't park'
- Financial Institutions
- Zoning Ordinances

- How has parking been traditionally provided in viewing current and past trends for parking?
- In what regions of the country do we consider this to be more of an immediate consideration?



3.3 spaces per car = approx. 40,000 square miles

In other words… Maine

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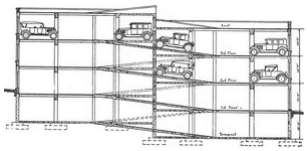
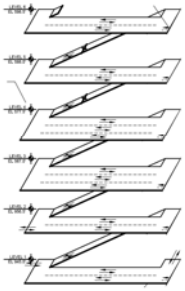
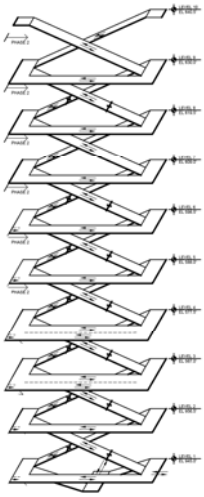
So can we make it more efficient? ✓



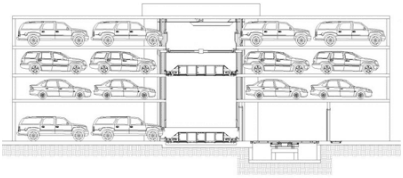
1919 Patent for d'Humy Garage



310 sf / space



340 sf / space



250 sf / space

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How does this effect your project?

- Looking at how parking has been traditionally provided in the past, how do we see this effecting future trends?
- What does parking typically effect regarding the design of the building and site layout and why is that important?

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But… Other factors are reducing the demand for parking…

- Shared-use – It's already happening.

lyft

juno

Uber

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Adaptive Reuse
But AV's are not the only "driver" of reduced parking demand

Evolution of Parking Demands

- Carsharing Services (Uber, Lyft, Juno, etc.)
- Millennial driving habits
- Autonomous vehicles
- Trend towards pedestrian/bicycle friendly communities

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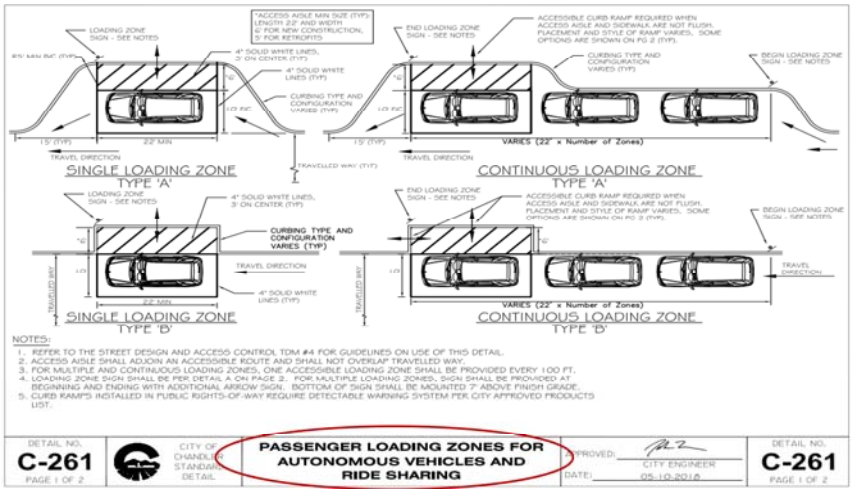
For Example…

- Summit, NJ's ride-sharing partnership in lieu of building a much needed parking garage
- Buffalo, NY eliminates minimum parking requirements
- Santa Monica eliminates minimum parking requirements on new downtown developments
- DC reduces parking requirements at new buildings near metro and bus lines
- Chandler, AZ: 'first in nation to include AVs and Ride-sharing in zoning code.'
- There are others…



City of Chandler approved standard detail

Demand for drop-off and pick-up areas increase = reduced demand for parking

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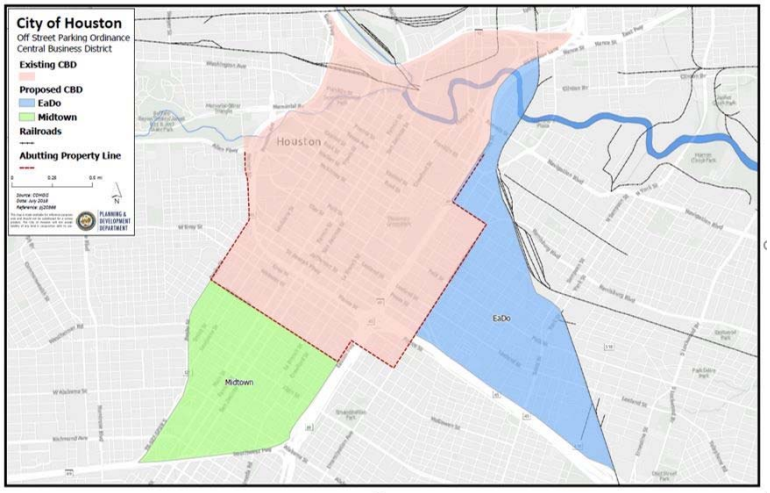

City of Houston expansion of CBD

No more off-street parking requirements in Midtown & EADO

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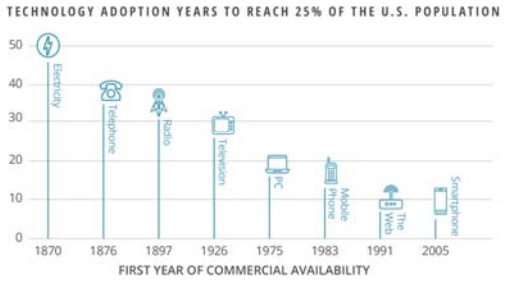
Technological Factors Reducing the Demand for Parking…

- Autonomous Vehicles – It will happen.



TECHNOLOGY ADOPTION RATES HAVE STEADILY DECLINED OVER TIME.

Source: Pew Research Center, asymco.com

…AVs by 2030?

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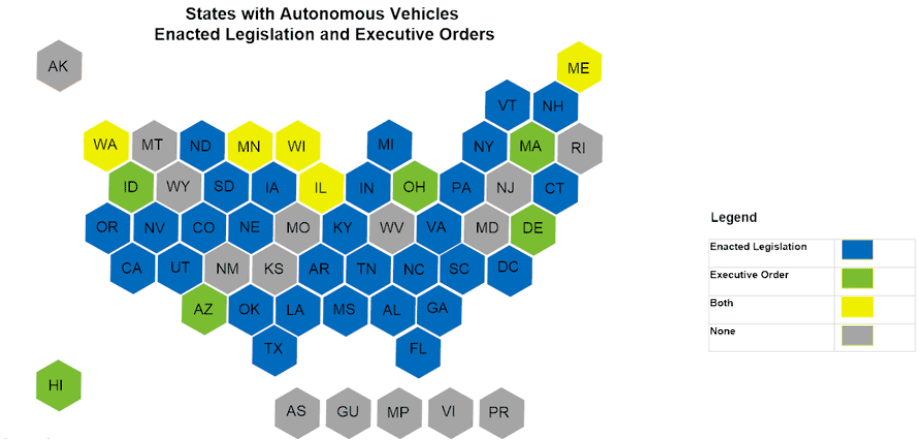
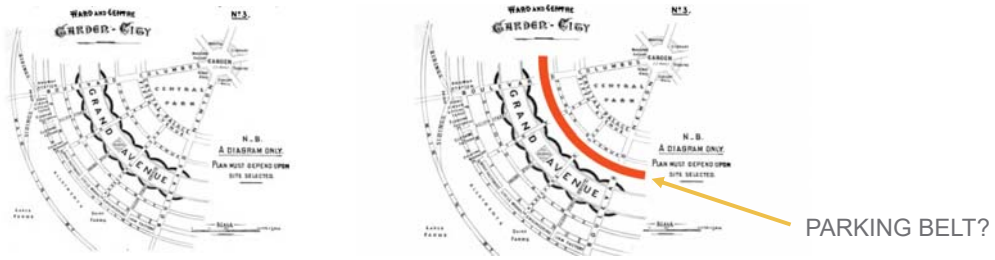


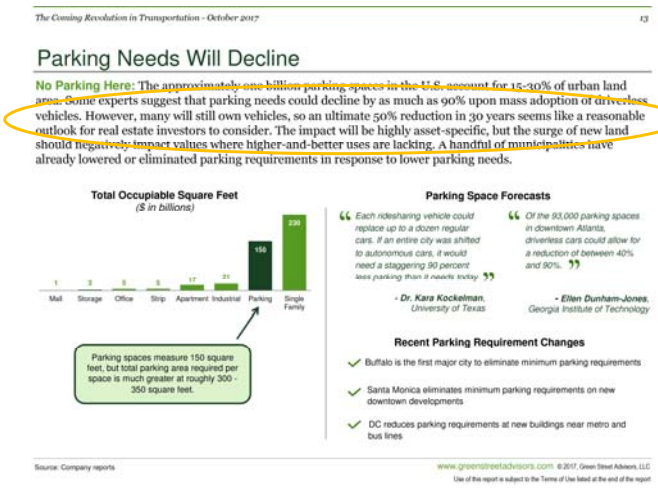
States with Enacted Autonomous Vehicles Legislation

Remember Maine?

Different Endpoints for Passenger & Vehicle…

- Vehicles can be parked (charged) blocks or miles away
- Reduced premiums for convenient locations
- Vehicles can remain in continuous motion – automobiles currently sit idle for 94% of the time. (occupying only 1 of their 3.3 spaces)





'50% reduction in 30 years seems like a reasonable outlook for real estate investors to consider.'

Parking Requirements will Decline. How much???

Some studies predict up to a 90% reduction in parking demand mostly without citing a timeline. Lets call it 50% in 30 years.

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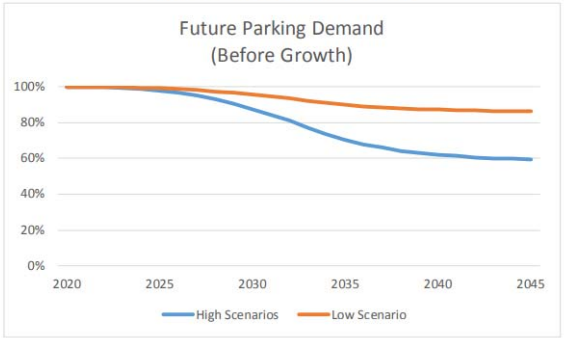
Greatest Impact Will Be in Dense Urban Areas and Those With High Parking Costs

AV Impact on parking demand

15% -40%

Decrease in Parking Demand*



2020-2040

Market Penetration Timeline

Source: Walker Consultants

* Projection

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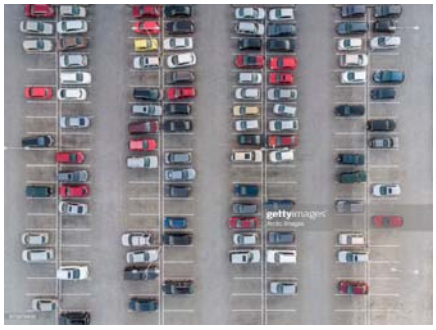
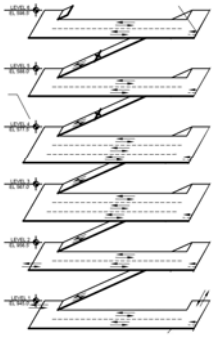


Surface

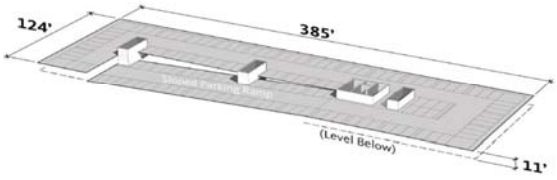


Structured

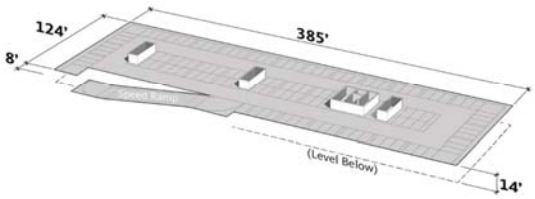
Podium

Reduction of parking space

Varies by type of Garage



Approx. $16,500 / space



Approx. $19,800 - / $23,100 space
(20 – 40% premium)

Future - proofing

Comes at a higher 'up-front' cost.

TNC impact on parking today
= Curb congestion in these locations

Hotels	Restaurants & Bars	Sports & Events		Airports
Business	Valet	Parkers	TNC	Business
30-70%	80%	3-6%	200%	5-20%

Source: Walker Consultants

TABLE 1: POTENTIAL SECTOR IMPACT—*EXCLUDING* PUBLIC TRANSPORTATION PREMIUM EFFECTS

SECTOR	POSITIVE/NEGATIVE	POTENTIAL IMPLICATION ON REAL ESTATE VALUES
Towers/Datacenters	↑↑	Increased data demand from vehicles and riders
Office (Central business district)	↑	Improved accessibility to have employees in one location
Hotel (Destination/resort)	↑	Increased time and purchasing power
Retail (Destination/entertainment)	↑	Improved density at desirable centers; increased time and purchasing power
Retail (Convenience/commodity)	↓	Less need for physical proximity
Residential (Suburban/further from city centers)	↑	Improved access increases values
Residential (Single family and apartments)	↑↓	Mixed/uncertain net impact
Industrial/Logistics	↑↓	Impact depends upon the fit within the new supply-chain configuration
Self Storage	↓↓	Less parking required at home and in commercial buildings; results in emergence of shadow supply
Billboards	↓↓	Highway billboards lose audience as riders face inward

Source: Brookfield Investment Management as of September 30, 2017.

Brookfield AUTONOMOUS VEHICLES AND THE POTENTIAL IMPACT ON REAL ESTATE 5

Potential impact on Real Estate Sectors

Some are obvious and some…

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Brookfield AUTONOMOUS VEHICLES AND THE POTENTIAL IMPACT ON REAL ESTATE 5

What about when the industrial sector catches up with available technologies?

Potential impact on Real Estate Sectors

Some are obvious and some are not.

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Remember this?

What about this?

+

Potential impact on Real Estate Sectors

Impact of automated parking technologies and AV's on the Industrial Real Estate Sector

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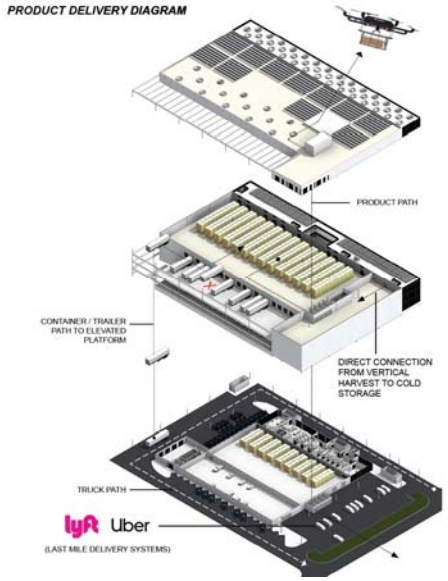

Potential impact on Real Estate Sectors – Industrial

Impact of automated parking technologies and AV's on the Industrial Real Estate Sector

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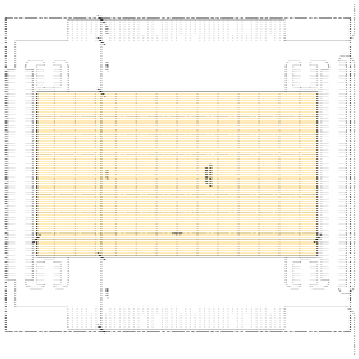
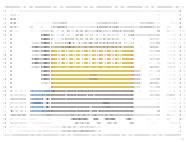


= 16.82 acres
+ 60 dock doors

VS



= 3.83 acres
+ 96 dock doors

Potential impact on Real Estate Sectors – Industrial

Impact of automated parking technologies and AV's on the Industrial Real Estate Sector

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96 DOCK DOORS

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Adaptive Reuse

Three-Level Progression of Steps for Design of New Garages for Adaptive Reuse

Easy (<10% Cost Premium)

- -Provide for increased car charging stations
- -Placing ramps on the exterior
- -Increase the floor-to-floor height
- -Use removable spandrels
- -Design for future expansion up to 30% of building height

Medium (10%-25% Cost Premium)

- -Use medium span construction (30' x 35') to accommodate future increased floor loading
- -Increase site setbacks to allow for future architectural treatment
- -Design for future expansion between 30% and 50% increase in building height
- -Design the top level for conversion to an assembly space or green roof

Difficult (>25% Cost Premium)

- -Provide express ramps and flat floors
- -Design for future expansion of 50% or greater increase in building height
- -Use short span construction (30' x 30') and design for 125 psf LL
- -Provide a basement level for future MEP rooms, trash room and loading dock

Source: Walker Consultants

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Q&A/Polls **Submit questions on the app or slido.com/code #NAIOP2019**

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Up Next - Networking Break from 11:30 – 11:45
in the Exhibit Hall.

The next session block starts at 11:45.

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