Autonomous Vehicles: A Real Estate Road Map to the Future

4th Annual Northern Virginia Apartment Summit
April 4, 2017
Arlington, Virginia
AUTONOMOUS VEHICLES ARE COMING

(Somewhat) conventional wisdom -- commonplace by 2040.

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<th>2015-2020</th>
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<td>Partially Autonomous Vehicles Available</td>
<td>Truly Autonomous Vehicles Enter “Specialized” Market</td>
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TIME TO GET OVER THE “JETSONS” VISION OF DRIVERLESS CARS (AT LEAST FOR NOW)

The Future Family Routine

**Work Day:**
- 7am - Car leaves and takes Parent to Work
- 8am – Car Arrives Home and Picks up Children and Parent to School and 2nd Workplace
- 10am – Car Takes Itself to Repair Shop
- 3pm – Car Picks up Children Drops one at Soccer Practice and One at Piano Lesson
- 5pm – Car Picks up Everyone on Way Home for Dinner Together

**Weekend:**
- 6pm Friday – Picks up Parents and then Children in NYC
- 9am Saturday – Family Arrives Rested in Chicago
- Saturday and Sunday – Family Spends at Grandparents in Chicago
- 4pm Sunday – Family Leaves Chicago
- 7am – Family Arrives Home Ready to get Ready for Work and School
DRIVERLESS CARS, FOR REAL AND CHANGING THE MARKETS IN THE NEXT DECADE OR SO

(Somewhat) conventional wisdom -- commonplace by 2040.

2015-2020
Partially Autonomous Vehicles Available

2020-2025
Truly Autonomous Vehicles Enter “Specialized” Market

2025-2030
Autonomous Vehicles Begin to Dominate Conventional Market

AND FOCUS ON THREE MAJOR TRENDS:
1. RADICAL TRANSFORMATION IN LOGISTICS

UBER’S SELF-DRIVING TRUCK MAKES ITS FIRST DELIVERY: 50,000 BEERS

PACKAGE-DELIVERING ROBOTS TO HIT DC STREETS SOON
AND FOCUS ON THREE MAJOR TRENDS:

2. REINVENTION OF BUS TRANSPORTATION

Meet Olli, The Driverless Vehicle Cruising Around National Harbor

BY RACHEL KURZIU IN NEWS ON JUN 16, 2016 4:05 PM

2get'there, in testing in Italy
AND FOCUS ON THREE MAJOR TRENDS:

3. ACCELERATING SHIFT FROM OWN TO SHARE

The cost of car sharing will continue to plummet, replacing METRO and bus for local trips.

The Lutz Pod, in testing in the UK
Today:
- Private ownership
- 256M cars for 242M adults
- Cars parked 96% of the time
- High fixed costs (car sharing selectively practical)
- Cars = goods

The Future:
- Carsharing model (at least in urban areas)
- 1 car for every 12 adults
- Cars on the move
- Pay per use
- Cars = service providers (car sharing entirely practical)

The fundamental concept of getting around will change, starting with a new ownership model:

UBER, LYFT AND OTHERS TO BE THE PRIMARY OWNERS OF AUTONOMOUS CARS
EVENTUAL MOVE TO DISTRICT PARKING
REDUCE GARAGE FOOTPRINTS BY UP TO 60% AND PROJECT COSTS BY MILLIONS

AUDI, the City of Somerville, and Forest City are currently building a prototype.
PARKING EVENTUALLY TO BECOME MORE ABOUT STORAGE THAN SERVICE

Autostadt Car Towers in Wolfsburg, Germany, taking a cue from the idea of dry storage for boats.
THE AVERAGE U.S. CBD IS 31% PARKING TODAY

REUSING INEFFICIENT URBAN PARKING SITES

Replaces 2,300 spaces with a garage half the size, 1.15M SF of office, 800 apartments, 200 hotel rooms, and 82,000 SF of retail.

One Congress, Boston, MA
REDEVELOP SUBURBAN PARKING INTO HIGHER USES

Seattle, Northgate Mall
CHANGES THE COST DYNAMICS OF (PARTICULARLY SUBURBAN) MIXED-USE

With the hassle of parking the car “automated,” people will now fully engage in walkable, vibrant places.
WE CAN RELOCATE CONVENIENCE USES

“Convenience” stores no longer need to be so convenient, creating redevelopment opportunities at prime intersections, particularly urbanizing suburbs.
WHAT DO SHARING AND REINVENTED BUS MEAN TO APARTMENT DEVELOPERS/OWNERS?

Apartments built since 2000 in Montgomery County –
- Mostly METRO-oriented
- High land and construction cost
- Limited affordability and segmentation
BY THE $2-$3 UBER/POD DRIVE NOW OPENS UP A SECOND TIER OF VIABLE PLACES TO LIVE
LESS DEMAND FOR CHEAP/EASY PARKING MAKES SUBURBAN OFFICE PLIGHT WORSE?

No reversal in sight for the 38% of DC regional office supply >50,000 SF that is already at least half-empty.
MISSING MIDDLE PROBLEM SOLVED?

- Large, exurban single-family detached homes
- Small units in urban, midrise/high-rise multifamily buildings

- Young Families and First-Time Homebuyers
- Empty Nesters
- Low and Middle-Income Renters

Source: Opticos Design
DESIGN CHALLENGES TO BE THINKING ABOUT: NOW BUILD SOON-TO-BE OBSOLETE PARKING

Wider bays (30’) and taller ceilings (20’) accommodate future conversion to residential, hotel, or office.
DESIGN CHALLENGES TO BE THINKING ABOUT:
REUSE OF EXISTING SUB-TERRANEAN SPACE

Document Storage?

Last Mile Grocery Distribution?
DESIGN CHALLENGES TO BE THINKING ABOUT: DROP-OFF AND STACKING DILEMMA

Who was prepared for this? Get ready for that...