RIGHT SIZE PARKING

Urbanism Next 2019

Aric Ohana, Envoy Technologies
Lisa Nisenson, Wantman Group- WGI


REDUCE MINIMUMS
NO !!
PARKING MAXIMA

OK !
PARKING
MAXIMA

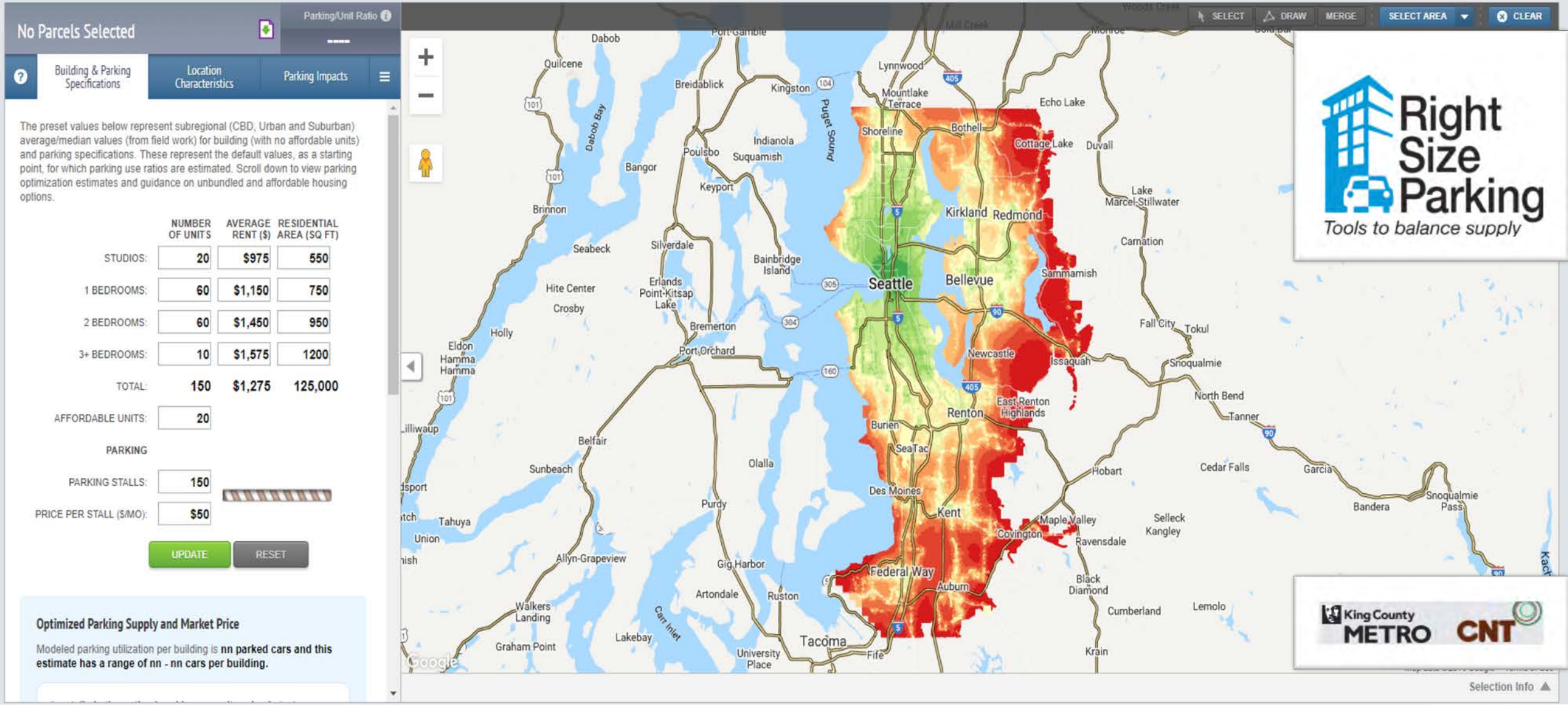
NO !!
RIGHT SIZE PARKING 2.0

THIS PRESENTATION

- TRENDS AFFECTING PARKING
- RIGHT SIZE PARKING 2.0
- MOBILITY-as-an-AMENITY
- CASE STUDY
- PUTTING IT ALL TOGETHER

WGI

WHAT IS RIGHT SIZED PARKING 1.0?



INSIDE THE MODEL

Observed vehicles per occupied residential unit (or parking/unit ratio) in 2012 & 2017

Independent variables:

Average Unit's Ft^2
Average Occupied Bedroom Count
Average Unit's Rent (adjusted for 2017)
Parking Price per Month (adjusted for 2017)
Parking Stalls Provided per Housing Unit
Percent of Units Designated Affordable
Gravity measure of Employment
Gravity measure of Population
Gravity measure of Transit Service

What's Missing?

1. Commercial/Mixed Use
2. Technology
3. Vehicle Trends

RIGHT SIZE PARKING 1.5

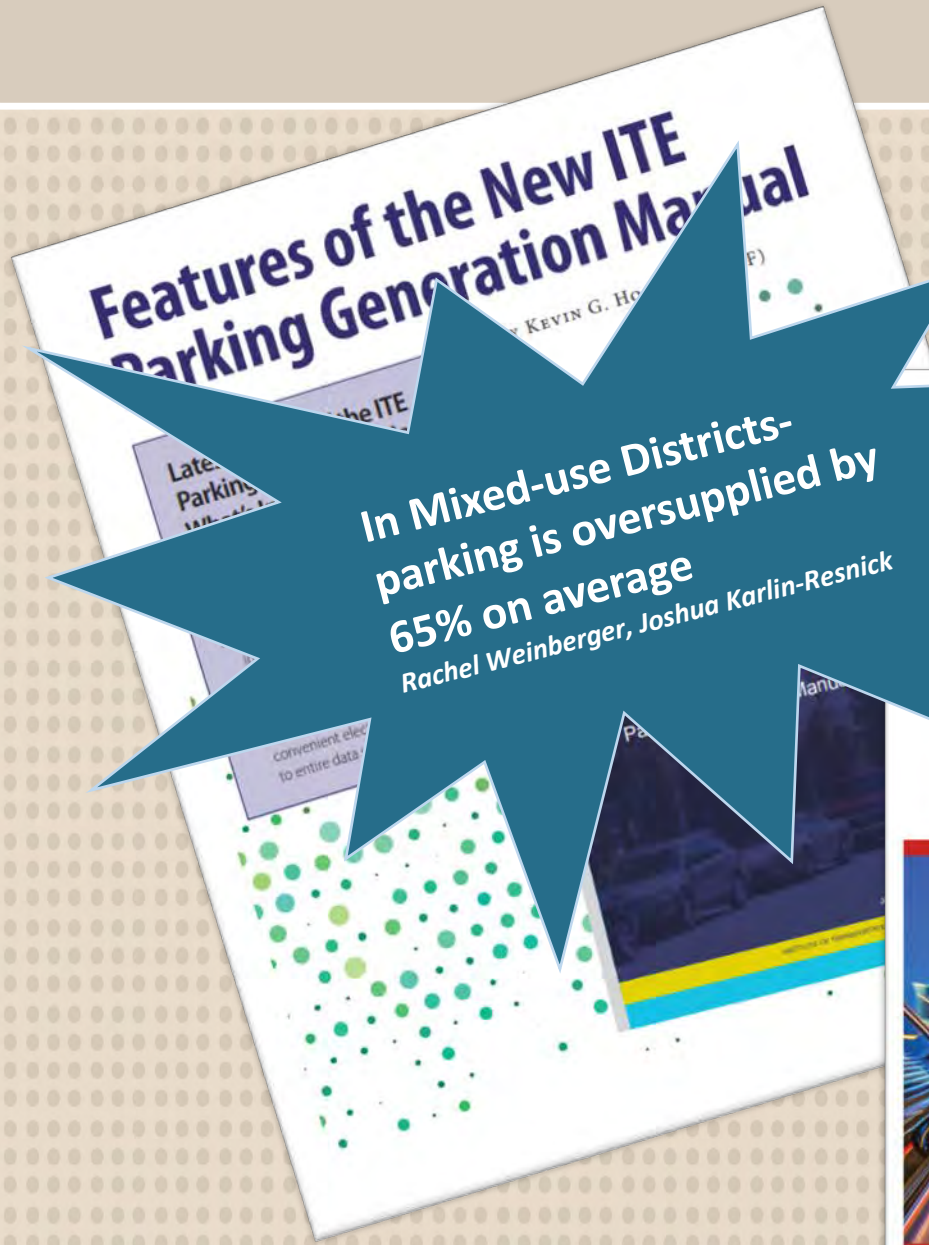
Todd Litman of the Victoria Transport Policy Institute

Table 4 Parking Requirement Adjustment Factors

Factor	Description	Typical Adjustments
Geographic Location	Vehicle ownership and use rates in an area.	Adjust parking requirements to reflect variations identified in census and travel survey data.
Residential Density	Number of residents or housing units per acre/hectare.	Reduce requirements 1% for each resident per acre: Reduce requirements 15% where there are 15 residents per acre, and 30% if there are 30 residents per acre.
Employment Density	Number of employees per acre.	Reduce requirements 10-15% in areas with 50 or more employees per gross acre.
Land Use Mix	Range of land uses located within convenient walking distance.	Reduce requirements 5-10% in mixed-use developments. Additional reductions with shared parking.
Transit Accessibility	Nearby transit service frequency and quality.	Reduce requirements 10% for housing and employment within ¼ mile of frequent bus service, and 20% for housing and employment within ¼ mile of a rail transit station.
Carsharing	Whether a carsharing service is located nearby.	Reduce residential requirements 5-10% if a carsharing service is located nearby, or reduce 4-8 parking spaces for each carshare vehicle in a residential building.
Walkability	Walking environment quality.	Reduce requirements 5-15% in walkable communities, and more if walkability allow more shared and off-site parking.
Demographics	Age and physical ability of residents or commuters.	Reduce requirements 20-40% for housing for young (under 30) elderly (over 65) or disabled people.
Income	Average income of residents or commuters.	Reduce requirements 10-20% for the 20% lowest income households, and 20-30% for the lowest 10%.
Housing Tenure	Whether housing are owned or rented.	Reduce requirements 20-40% for rental versus owner occupied housing.
Pricing	Parking that is priced, unbundled or cashed out.	Reduce requirements 10-30% for cost-recovery pricing (i.e. parking priced to pay the full cost of parking facilities).
Unbundling Parking	Parking sold or rented separately from building space.	Unbundling parking typically reduces vehicle ownership and parking demand 10-20%.
Parking & Mobility Management	Parking and mobility management programs are implemented at a site.	Reduce requirements 10-40% at worksites with effective parking and mobility management programs.
Design Hour	Number of allowable annual hours a parking facility may fill.	Reduce requirements 10-20% if a 10th annual design hour is replaced by a 30th annual peak hour. Requires overflow plan.
Contingency-Based Planning	Use lower-bound requirements, and implement additional strategies if needed.	Reduce requirements 10-30%, and more if a comprehensive parking management program is implemented.

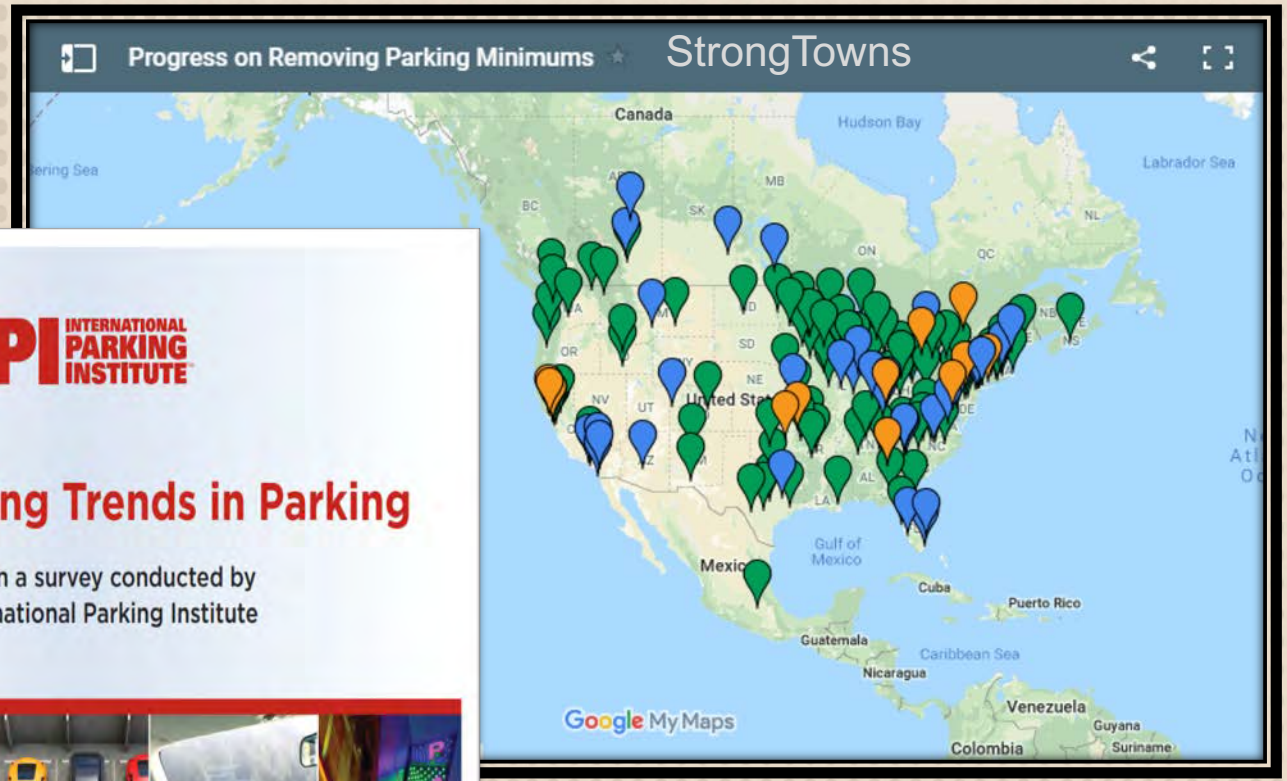
This table summarizes various factors that affect parking demand and optimal parking supply.

TRENDS



In Mixed-use Districts- parking is oversupplied by 65% on average

Rachel Weinberger, Joshua Karlin-Resnick

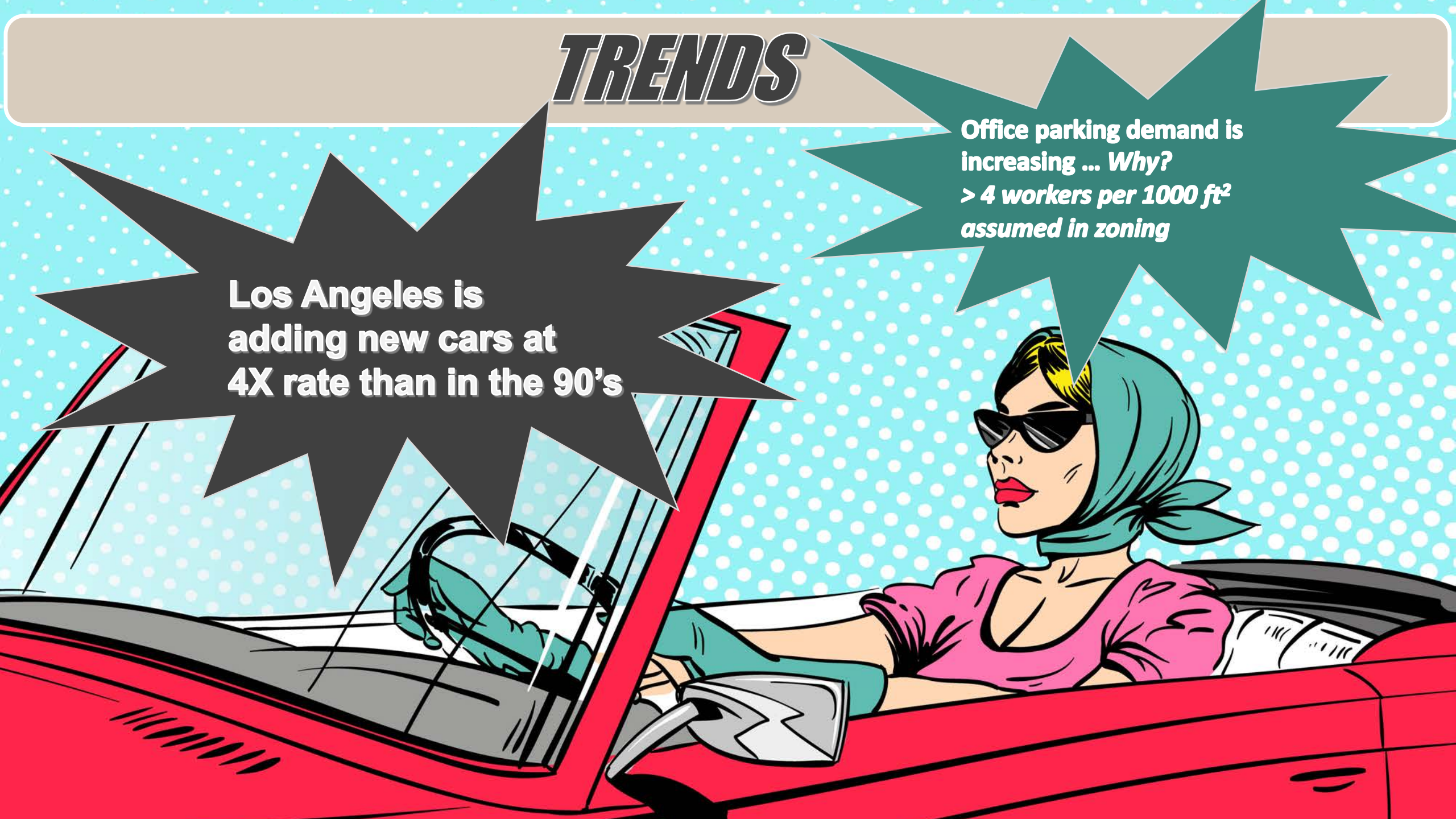



By & For Bankers
Real Time Inventories Critical
Public & Private Spaces
ONE VISION. ONE RESOURCE.
HOUSINGAMERICA.ORG
RIHA
RESEARCH INSTITUTE FOR HOUSING AMERICA

TRENDS

Los Angeles is adding new cars at 4X rate than in the 90's

Office parking demand is increasing ... *Why?*
> 4 workers per 1000 ft²
assumed in zoning



TRENDS


TNCs reducing demand for parking: entertainment districts & airports
• Avoid drunk driving and hassles of parking
• Parking at hotels down 15-20% (Ace Parking)
• Non-car owners cite lack of transit (Henao & Marshall)

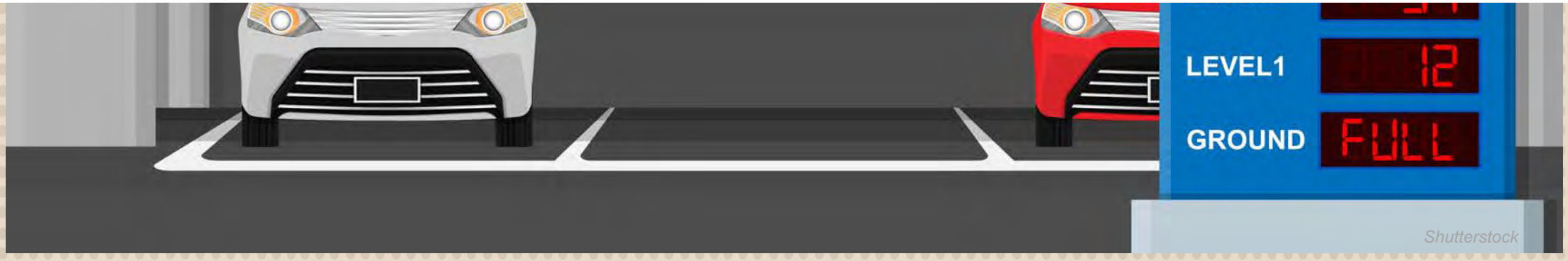
TRENDS

TRENDS

Deloitte: By 2040, > 50% VMT traveled in the US could occur in shared autonomous vehicles

Summit New Jersey: Cancelled $10M garage; opted for shared-use pilot with Uber in 2017 (renewed with Lyft 2018)

Davidson NC: Cancelled municipal garage citing AVs (2018)



TRENDS

Capgemini
RESEARCH INSTITUTE

The last-mile delivery challenge

Giving retail and consumer product customers a superior delivery experience without impacting profitability

Technology driven innovations in last-mile delivery

Last-mile logistics leads the pack in terms of retail technology funding, with $1.3 billion in capital raised in Q2 2018.[a] This is driven by the early adoption of new autonomous-delivery models in developed markets as well as an attractive business case founded on urban demand and the prevailing high labor costs for fulfillment.

Drones

7-Eleven was the first to successfully complete a Federal Aviation Administration-approved drone delivery in July 2015.[b] The retailer partnered with drone operator Flirty to make the delivery. Since then, several retailers – including Amazon – have piloted these.

Autonomous vehicle

Ford, Walmart, and delivery service Postmates are collaborating to design a service for delivering groceries and other goods to Walmart customers using auto vehicles. It aims to use autonomous vehicles by 2021 to reduce the costs o delivery.[c]

Self-service lockers

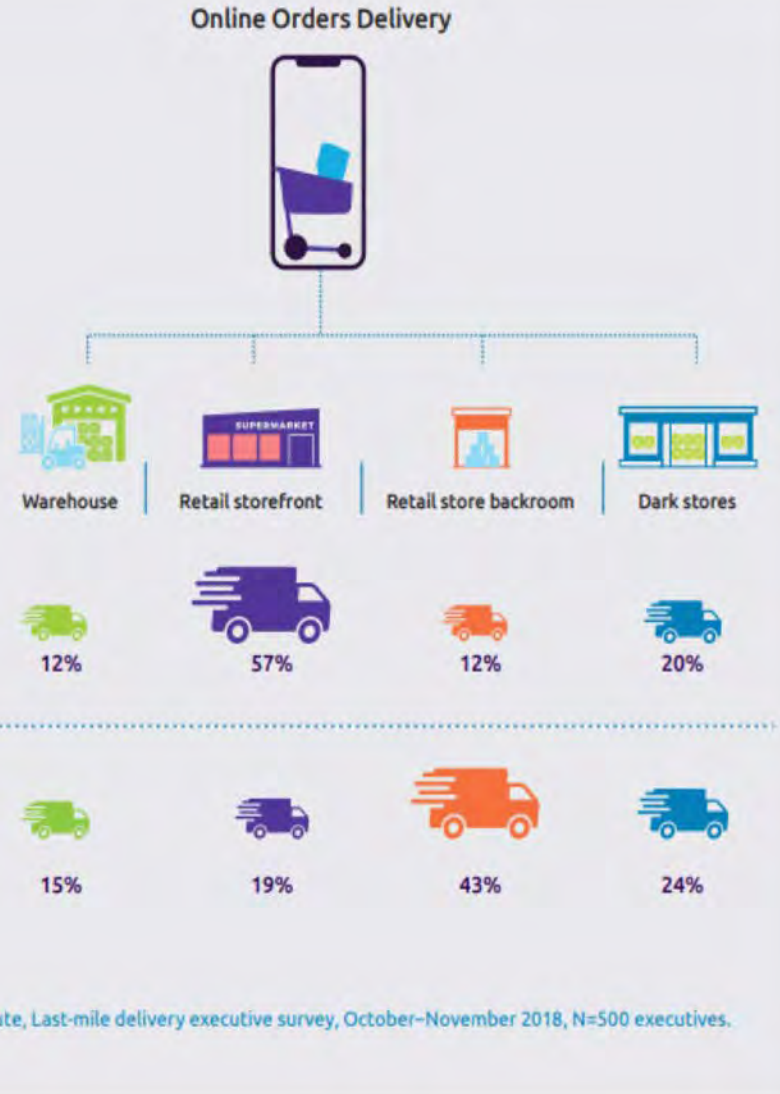
Self-service lockers allow customers to select any locker location as their p delivery address. They can then retrieve their orders by entering a unique code, removing the need for human involvement. Amazon was among the implement this, with Home Depot and Walmart among the major retailers suit.[d]

Delivery to car

A service that gives couriers access to a person's vehicle, allowing them to deliveries inside. John Lewis has teamed up with Jaguar Land Rover's mob and venture arm – InMotion – to trial delivery to shoppers' cars.[e] Amazon h launched this service in partnership with General Motors and Volvo.[f]

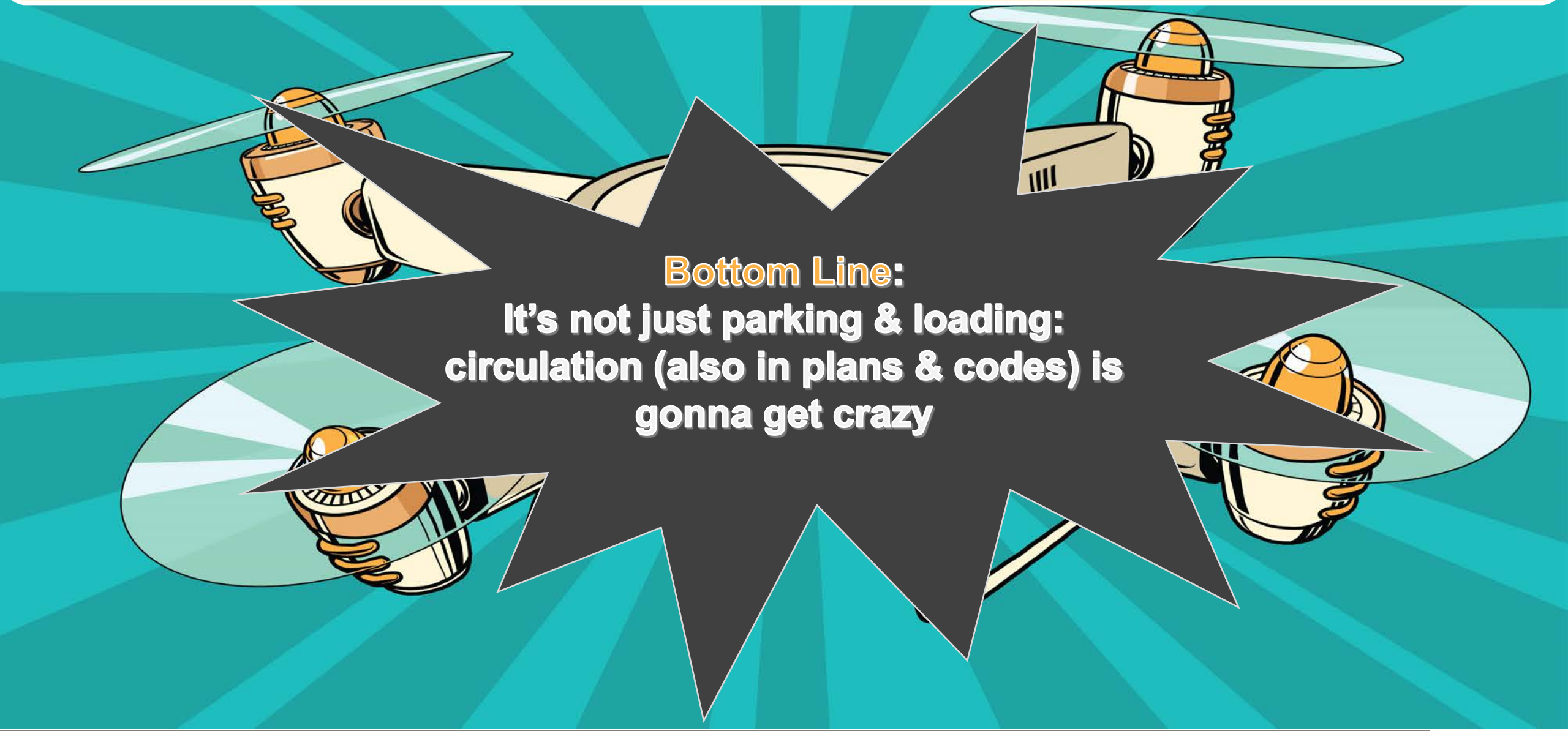
Delivery inside home when customer is away

A delivery service that allows couriers to enter a customer's home and leave packages. Waitrose is the first retail supermarket in Britain to offer this service.[g] The Dutch supermarket chain, Albert Heijn, a subsidiary of Ahold Delhaize, is also experimenting with this service.[h]



Source: Capgemini Research Institute, Last-mile delivery executive survey, October–November 2018, N=500 executives.

TRENDS



Bottom Line:
It's not just parking & loading: circulation (also in plans & codes) is gonna get crazy


WHAT IS RIGHT SIZE PARKING 2.0?
PARKING DEMAND “ECOSYSTEM”
FOR PEOPLE & GOODS IN DISTRICTS
USING EXISTING & TRENDING TDM PRACTICES
WHILE ANTICIPATING EVOLVING TECH & TRENDS
RESPONDING WITH ADAPTIVE BUILDING/GARAGE/STREET DESIGN
WGI

THE PARKING DEMAND ECOSYSTEM

SITE DESIGN

Location Factors (Proximity to Transit, Use Mix, Connectivity)

Mobility Rooms
Showers & Lockers
Secure Bike Parking
Pick Up/Drop Off
On-Site Car & Bikeshare
Vehicle Charging
Real Time Transit Info
Real Time Inventory
Facilitated Delivery
Parking - Shared Vehicles
Automated Parking

DISTRICT DESIGN

Concentrated Destinations
TOD/Mobility Hubs
Use Mix
Connectivity
Access Management
Multimodal Infrastructure
Public & Private Parking
Parking Benefit District
District Delivery Plans
Side Street Loading
Designated Shared Spaces
Digital Infrastructure
District Smart Parking
Contingency Parking
Pick-Up/Drop-Off Zones
AV Parking (Remote)
Drone Paths

MODES

Walking
Scooters
Bikes
Bikeshare (Dock, Dockless)
E-Bikes (owned, shared)
Mopeds, Motorcycles
Ridehailing (single, shared)
Cars (+AV)
Car Share (RT, Pt2Pt, P2P)
NEVs
Shuttle/Microtransit (+AV)
Buses (+AV)
Bus Rapid Transit (+AV)
Rail Transit (+AV)
Delivery Drones (Air & Ground)
Passenger Drones

POLICY & PRICING

Parking Benefit District
Promoted Parking Apps
Guaranteed Ride Home
Unbundle Parking
Partial Unbundle Parking
Shared Parking Rules
Parking Cash Out
In-Lieu-Of Fees
Dynamic Meter Fees
Curb Parking/Pricing
Residential Permits
Valets
TNC Fees
Contingency Parking
Enforcement
(Delivery Impact Fees)

On-Demand Electric
Vehicles for Communities


ENVOY

City of Boston.

In Board of Aldermen,

May 1,1889.

ORDERED: That consent and permission is hereby granted to the West End Street Railway Company in addition to the rights now possessed by it to establish,construct,maintain and use the overhead single trolly electric system of motive power so called,in the operation of its cars in and on each and all of the streets,ways and squares


CLOTHING
CLEANSED
MBRID GE
1834


ENVOY


COMMON
Boylston St
Tremont St
Park St
Beacon St

Future of Growing Cities

Less Parking, More Shared Rides

“ Using land exclusively for parking is not effective. Every car requires at least **three parking spots**—at **home**, at **work**, and at any third location the **driver visits**.”

Urbanland.org - The Future of Growing Cities Requires Less Parking, More Shared Rides


ENVOY
ENVOY
ENVOY
ENVOY