

RCLCO



Autonomous Vehicles:
A Real Estate Road Map to the Future

New Partners for Smart Growth Conference

February 4, 2017

St. Louis, Missouri

Adam Ducker, Managing Director

AS YOU'VE HEARD... MORE THAN HANDS-FREE DRIVING, BUT MOSTLY IN SHARED CAR

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

Today:

- Private ownership
- 256M cars for 242M adults
- Cars parked 96% of the time
- High fixed costs
- Cars = goods

The Future:

- Carsharing model
- 1 car for every 12 adults
- Cars on the move
- Pay per use
- Cars = service providers

THE CAR2GO EFFECT

Already, up to 11 vehicles removed per carsharing vehicle.

City	Vehicles Sold	Vehicles Suppressed (foregone purchases)	Total Vehicles Removed per Carsharing Vehicle	Range of Vehicles Removed per Carsharing Vehicle
Calgary, AB (n=1,498)	2	9	11	2 to 11
San Diego, CA (n=824)	1	6	7	1 to 7
Seattle, WA (n=2,887)	3	7	10	3 to 10
Vancouver, BC (n=1,010)	2	7	9	2 to 9
Washington, D.C. (n=1,127)	3	5	8	3 to 8

Source: Martin & Shaheen. "Impacts of Car2Go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities," July 2016.

THE AVERAGE U.S. CBD IS 31% PARKING TODAY

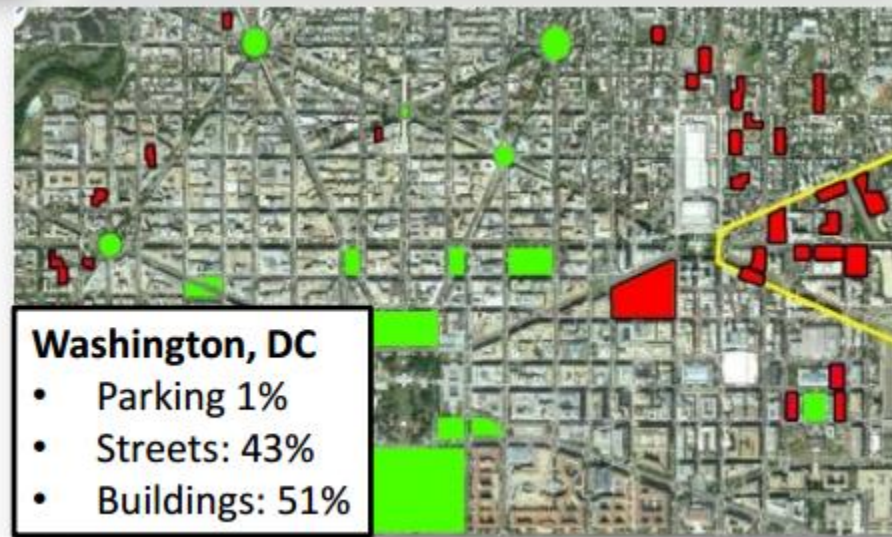
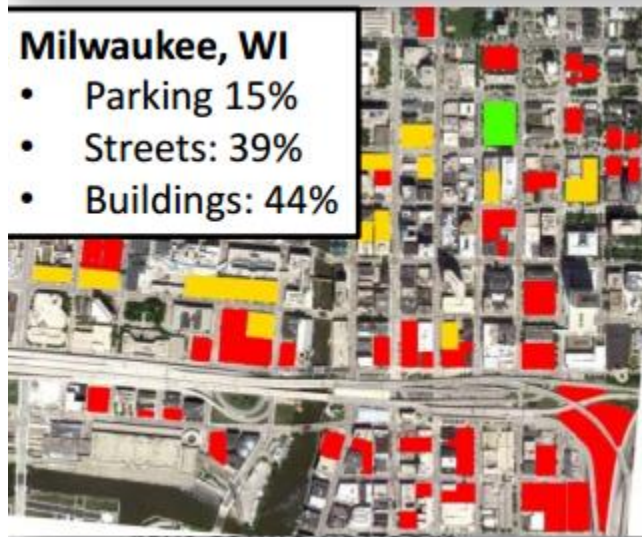
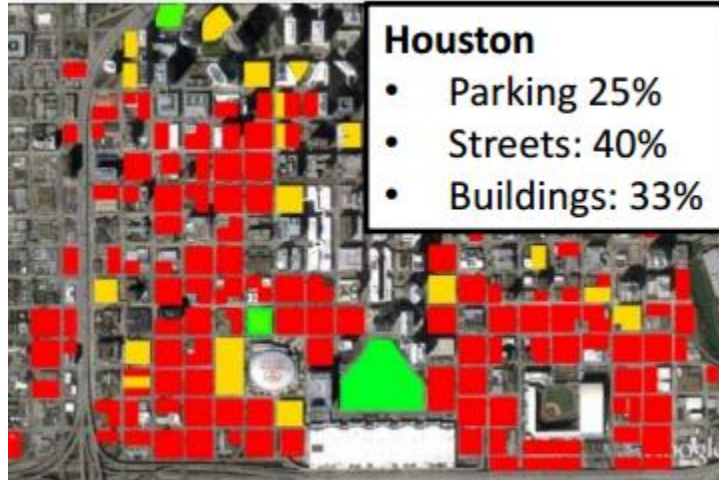
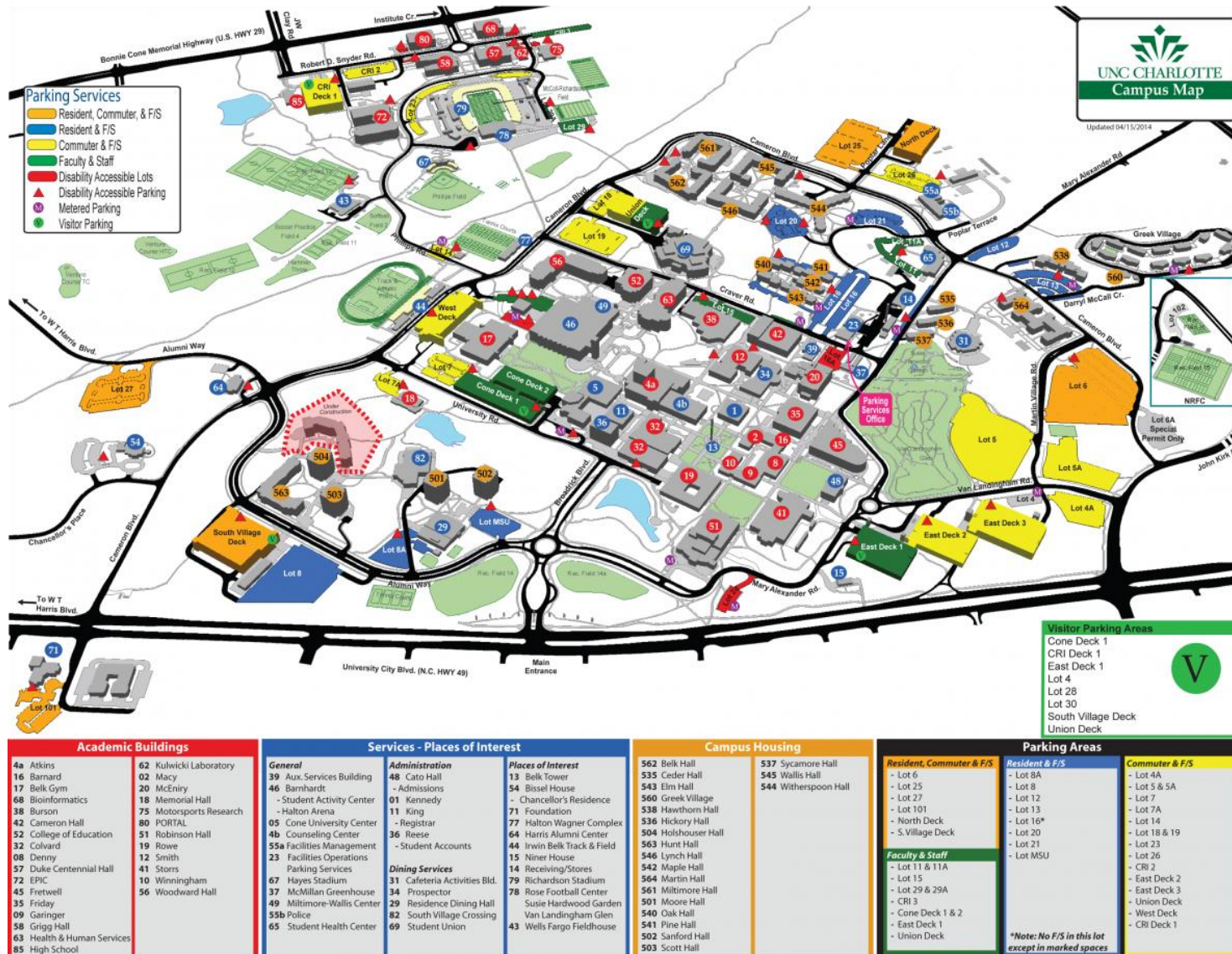


Image: National Real Estate Advisors. Headline: Donald Shoup, author of *The High Cost of Free Parking*.

EVENTUAL MOVE TO DISTRICT PARKING



REDUCE GARAGE FOOTPRINTS BY UP TO 60% AND PROJECT COSTS BY MILLIONS

designboom®

THE NEW METRICS OF PARKING

1 NARROWER AISLES

Perfect alignment and optimized spacing through parking technology



2 STALL STACKS

Flexible re-configuration of parking space – tight parking scenarios are conceivable



3 SMALLER STALLS

The required parking footprint per car can shrink to a minimum



AUDI, the City of Somerville, and Forest City are currently building a prototype.

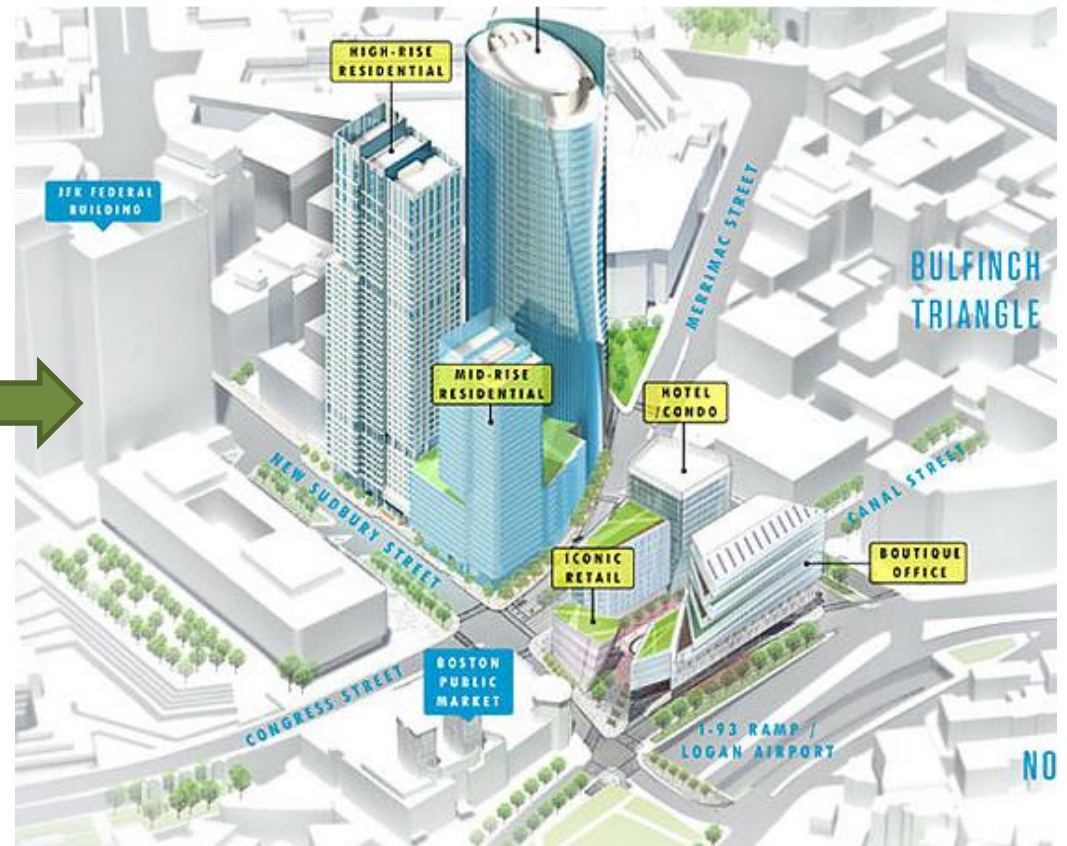
PARKING EVENTUALLY TO BECOME MORE ABOUT STORAGE THAN SERVICE



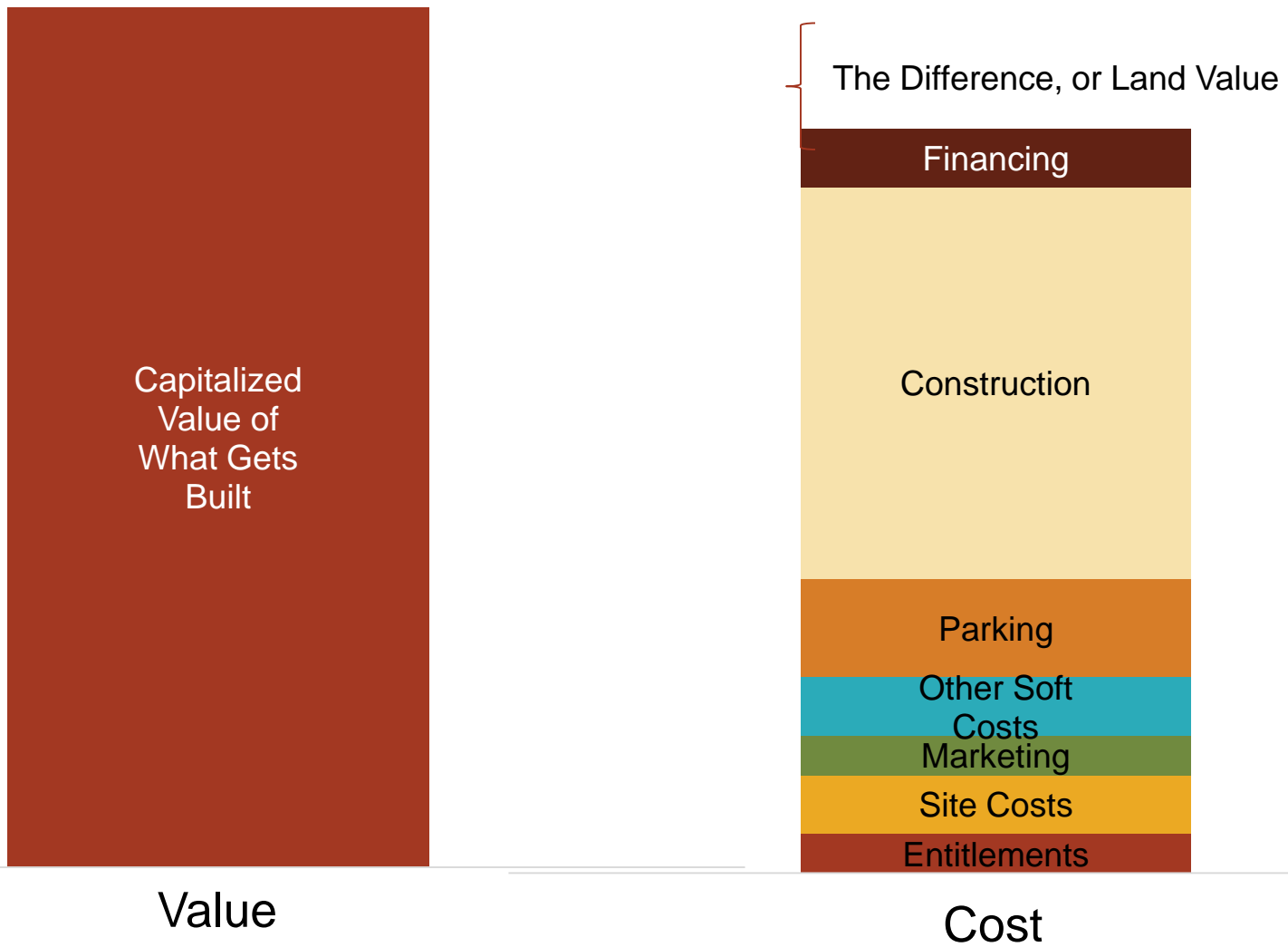
Autostadt Car Towers in Wolfsburg, Germany, taking a cue from the idea of dry storage for boats.

CURRENT PROJECT: ONE CONGRESS, BOSTON

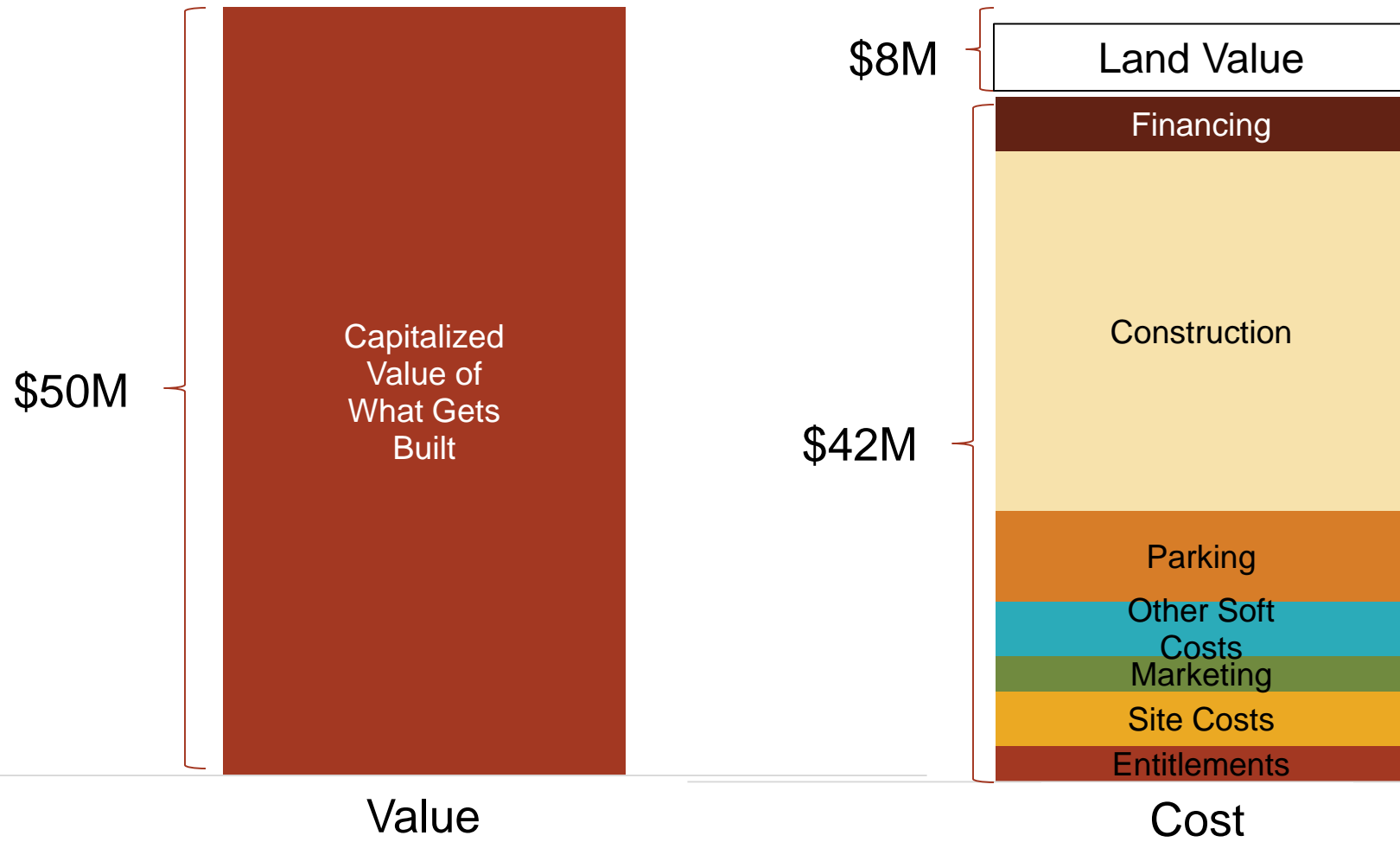
Replaces 2,300 spaces with a garage half the size, 1.15M SF of office, 800 apartments, 200 hotel rooms, and 82,000 SF of retail.



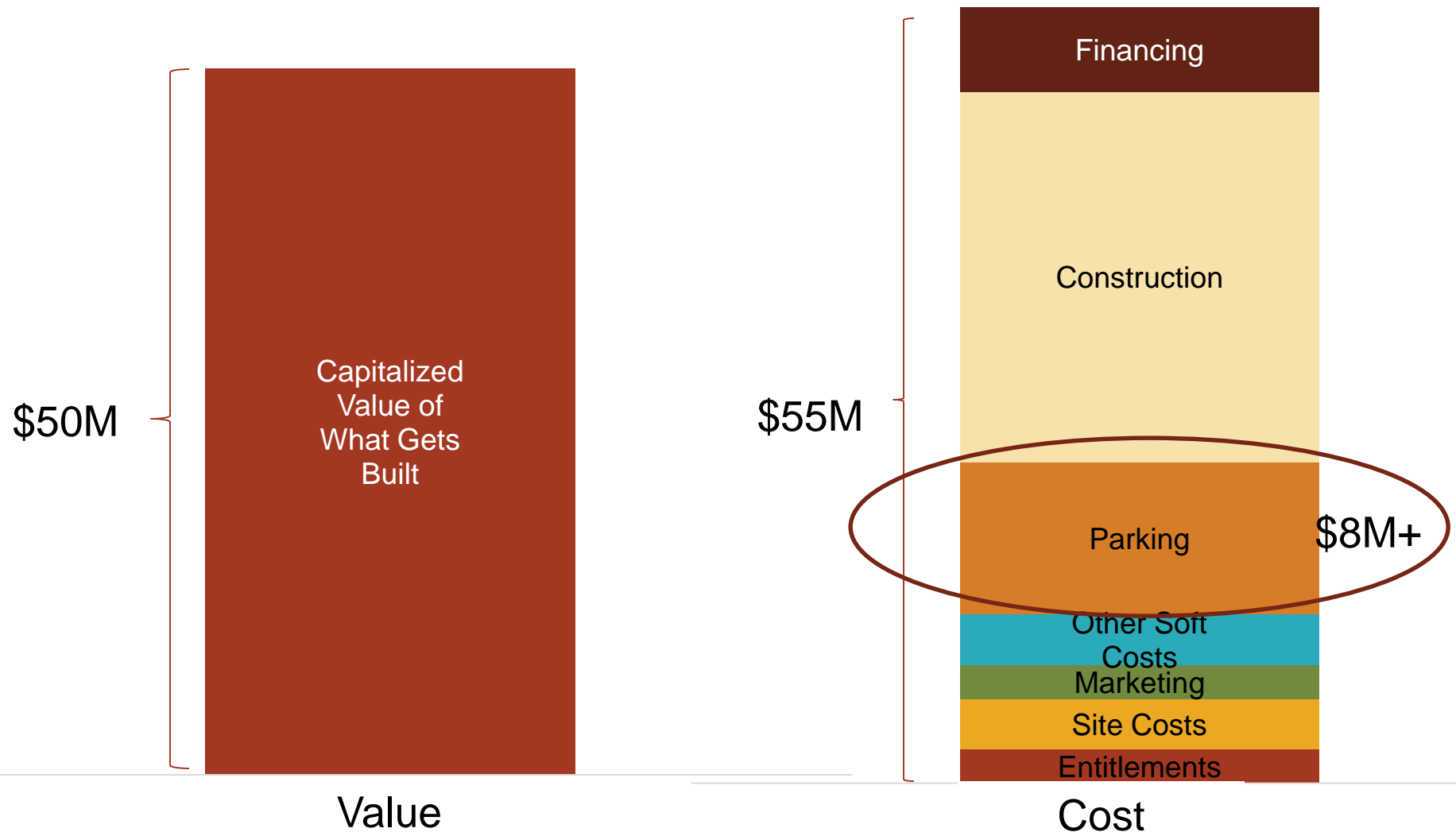
BASIC URBAN ESTATE ECONOMICS



IN AN IDEAL STATE



THE REALITY ALL TOO OFTEN, ESPECIALLY OUTSIDE OF THE PRIME URBAN CORE



AMERICA'S MISSING MIDDLE PROBLEM

Large, exurban single-family detached homes

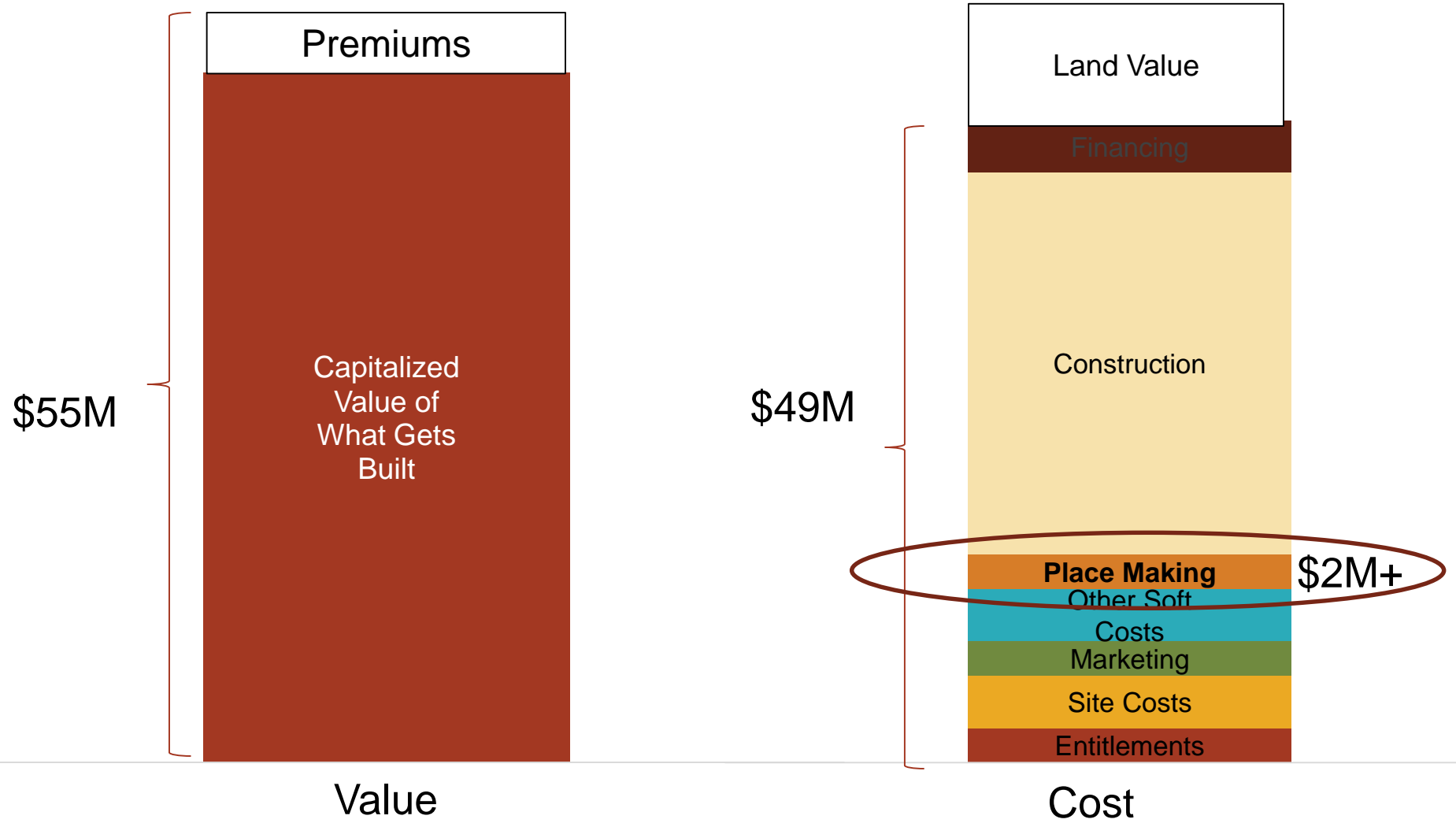
Small units in urban, midrise/high-rise multifamily buildings

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



Source: Opticos Design

SHEDDING THE PARKING CHANGES THE GAME



AND THIS EXPLAINS WHY THIS IS MORE TRUE IN TEXT BOOKS THAN IN AMERICAN CITIES



REDEVELOP PARKING INTO HIGHER USES, LOWER THE COST OF URBAN HOUSING



These used to be parking...



Parklet in London

Seattle, Northgate Mall

BUT AEV REALLY MIGHT BE THE EVOLUTION THAT ALLOWS EXISTING ACTIVITY CENTERS TO DENSIFY

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

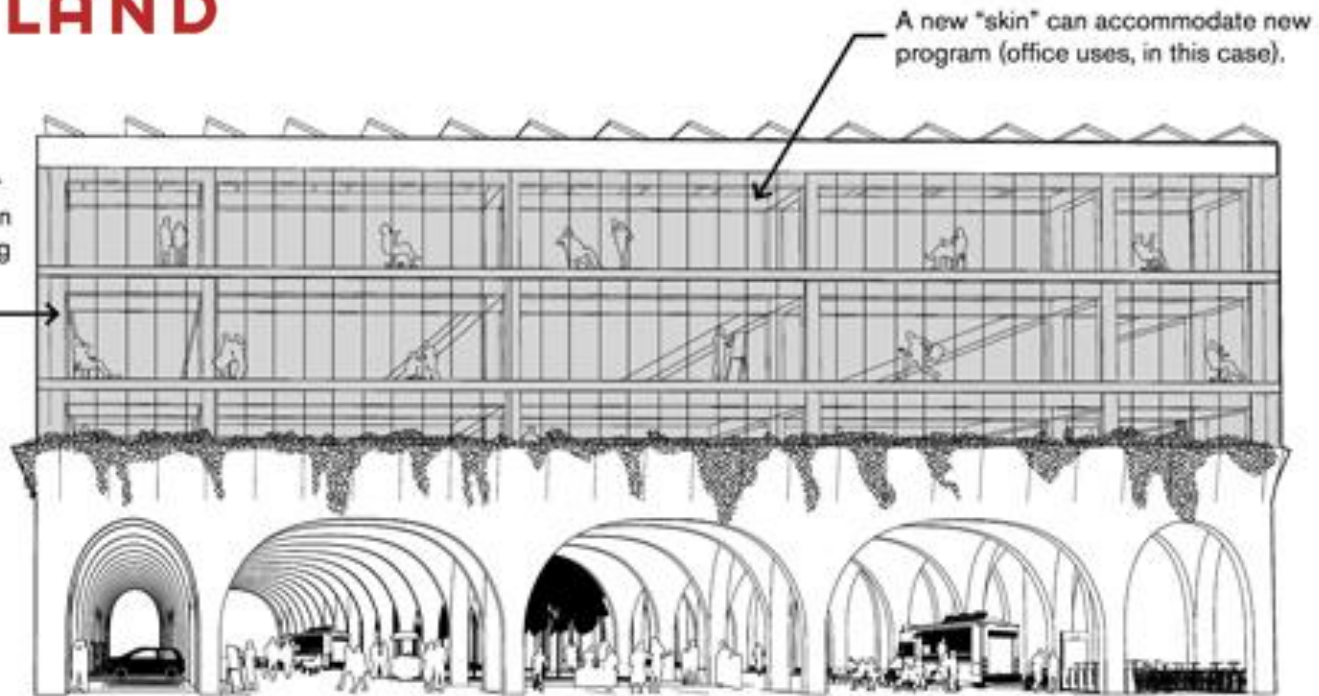


Pike & Rose

SMART DEVELOPERS ALREADY BUILDING PARKING FOR FUTURE CONVERSION

URBANLAND

The straightforward structural system allows for the relatively simple addition of mechanical and plumbing systems required for more intensive uses.



UrbanLand, November 2014

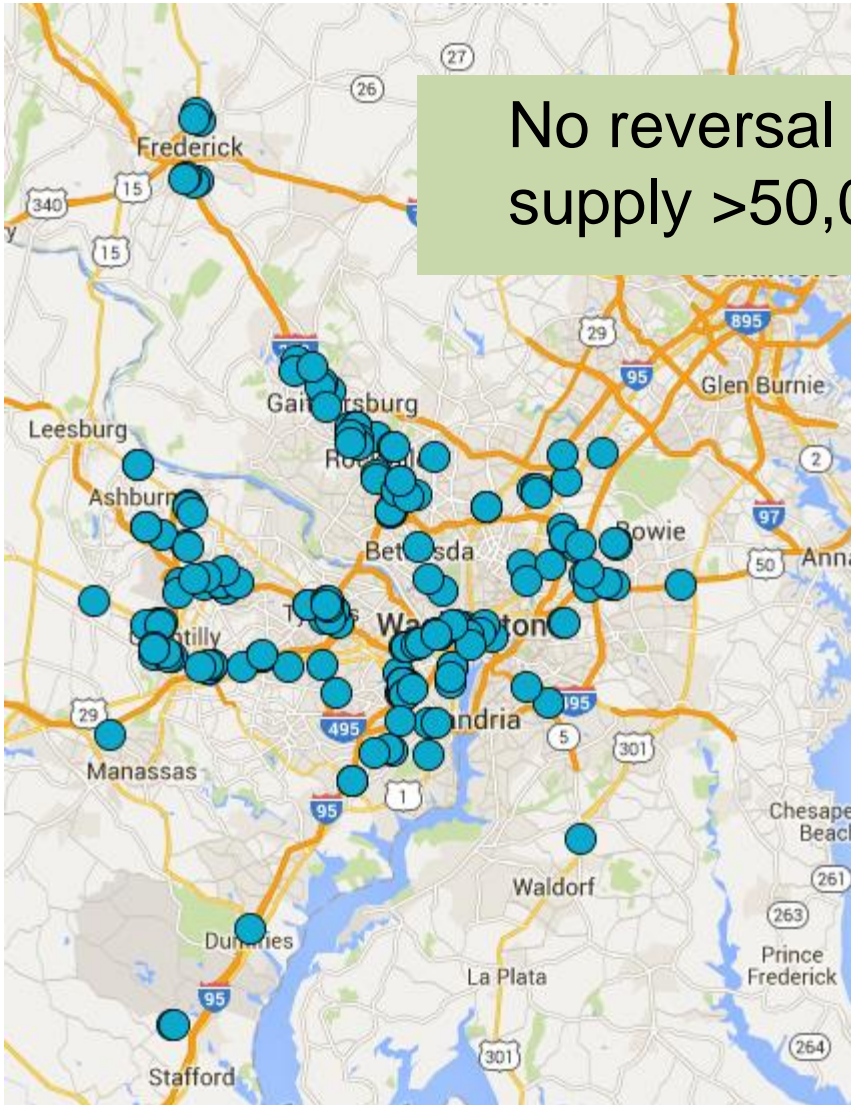
Wider bays (30') and taller ceilings (20') accommodate future conversion to residential, hotel, or office.

WE CAN RELOCATE CONVENIENCE USES

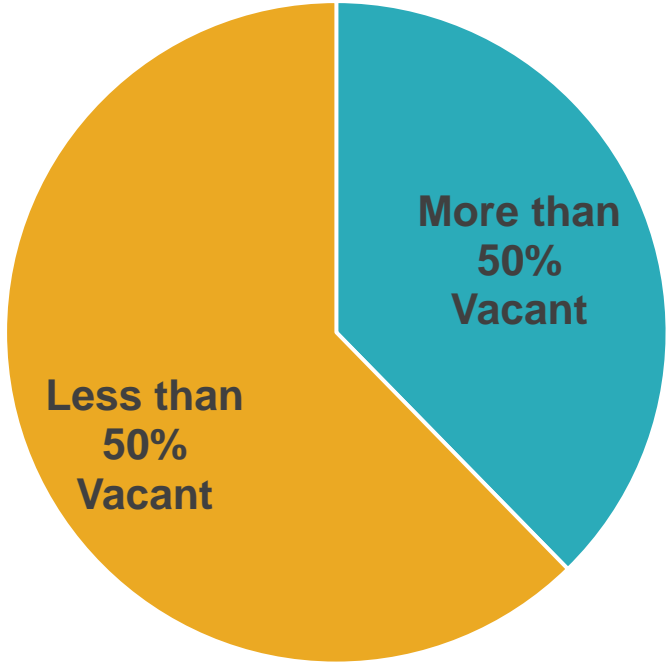
“Convenience” stores no longer need to be so convenient, creating redevelopment opportunities at prime intersections.



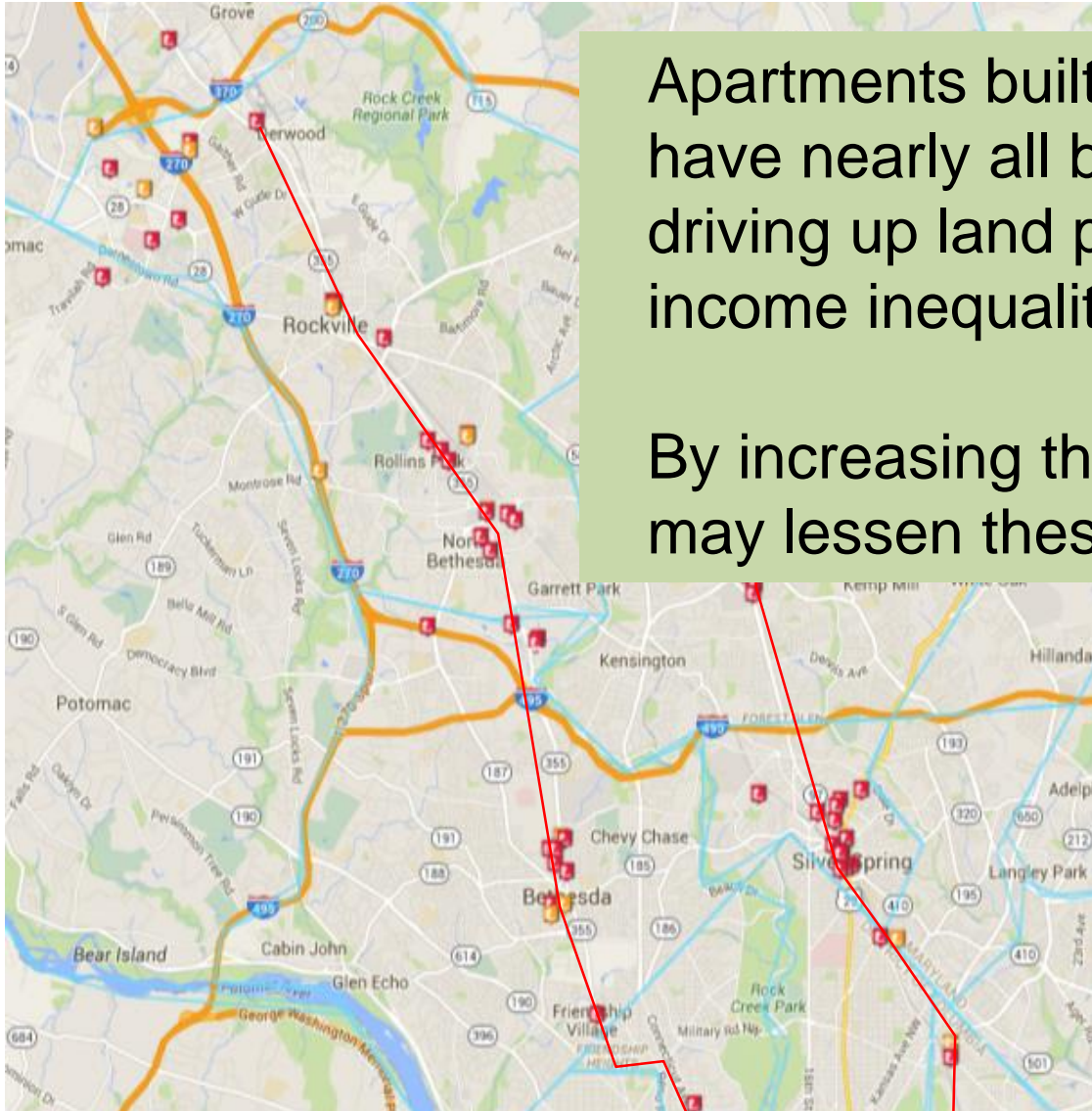
LESS DEMAND FOR CHEAP, EASY PARKING MAKES SUBURBAN OFFICE OBSOLETE



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



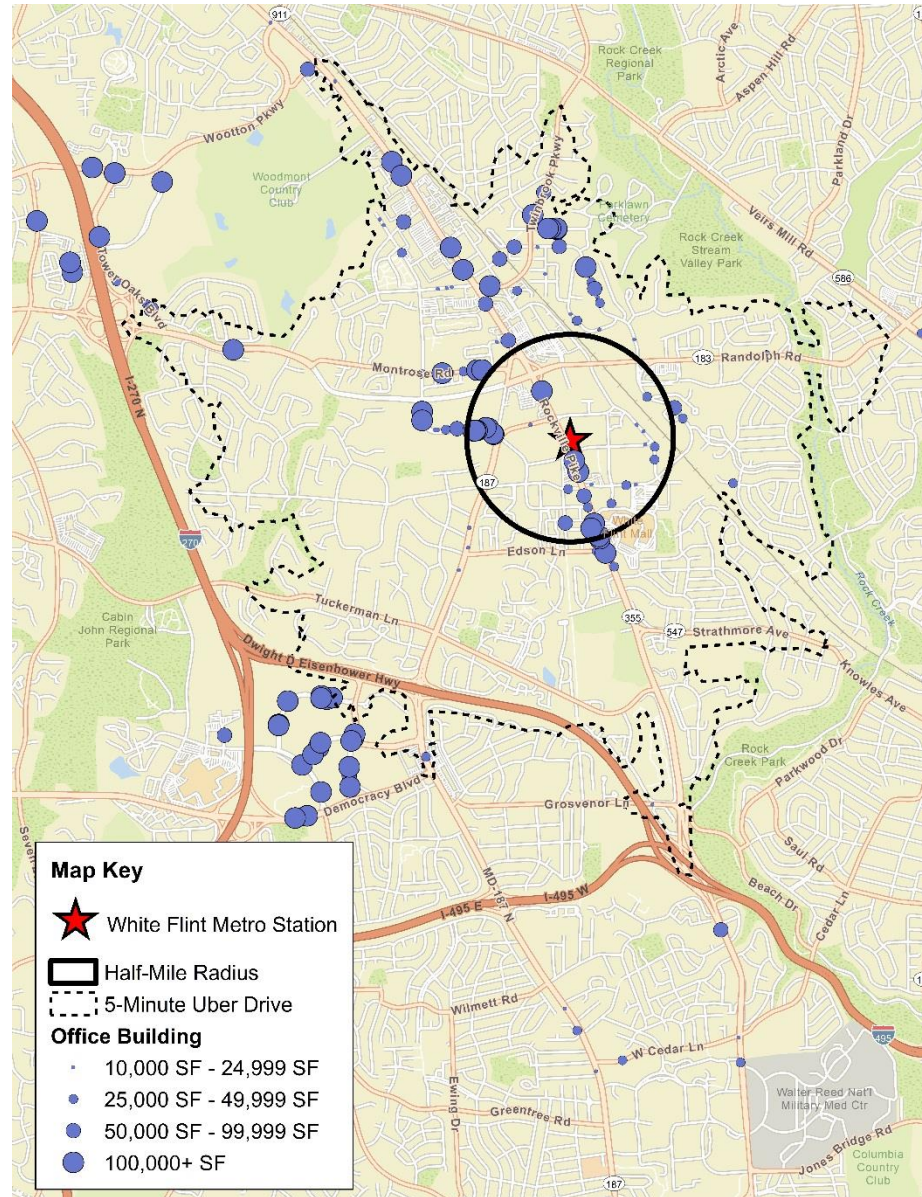
TOD INCREASES FROM ¼ MILE TO SEVERAL MILES



Apartments built since 2000 in DC have nearly all been transit-oriented, driving up land prices, rents and income inequality.

By increasing the radius for TOD, we may lessen these pressures.

BY THE “\$5 UBER DRIVE NOW OPENS UP A SECOND TIER OF VIABLE PLACES TO WORK





As people come to expect **instantaneous, autonomous delivery** of goods purchased online, demand for last mile warehouse space will continue to grow.

wtop

Package-delivering robots to hit DC streets soon



ALEX DAVIES TRANSPORTATION 10.25.16 6:00 AM

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

WIRED



THE THREAT: NEW PRESSURES FOR DENSITY, AND FOR SPRAWL?

Walkable Infill
Development,
Redevelopment

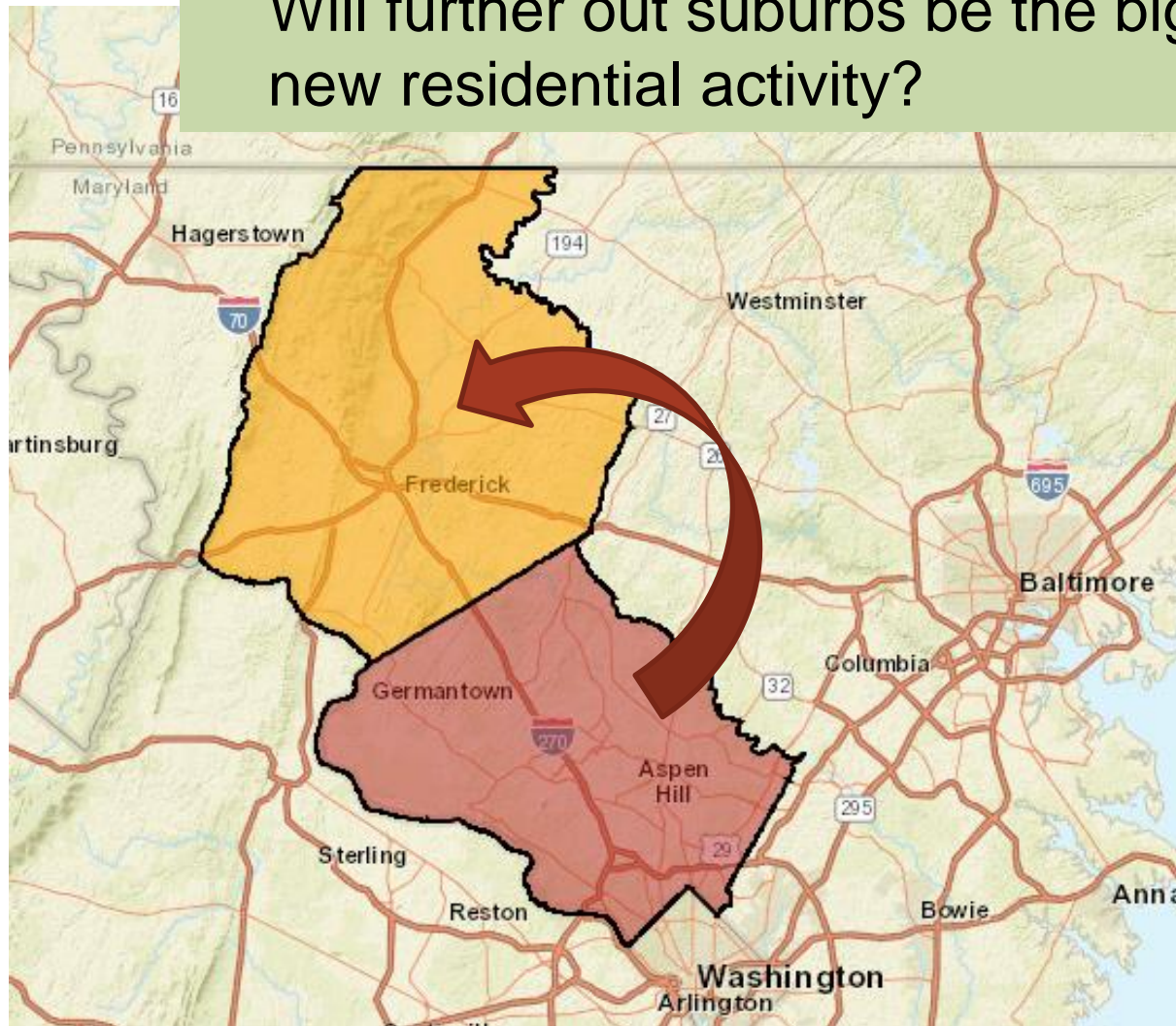


Greenfield
Development

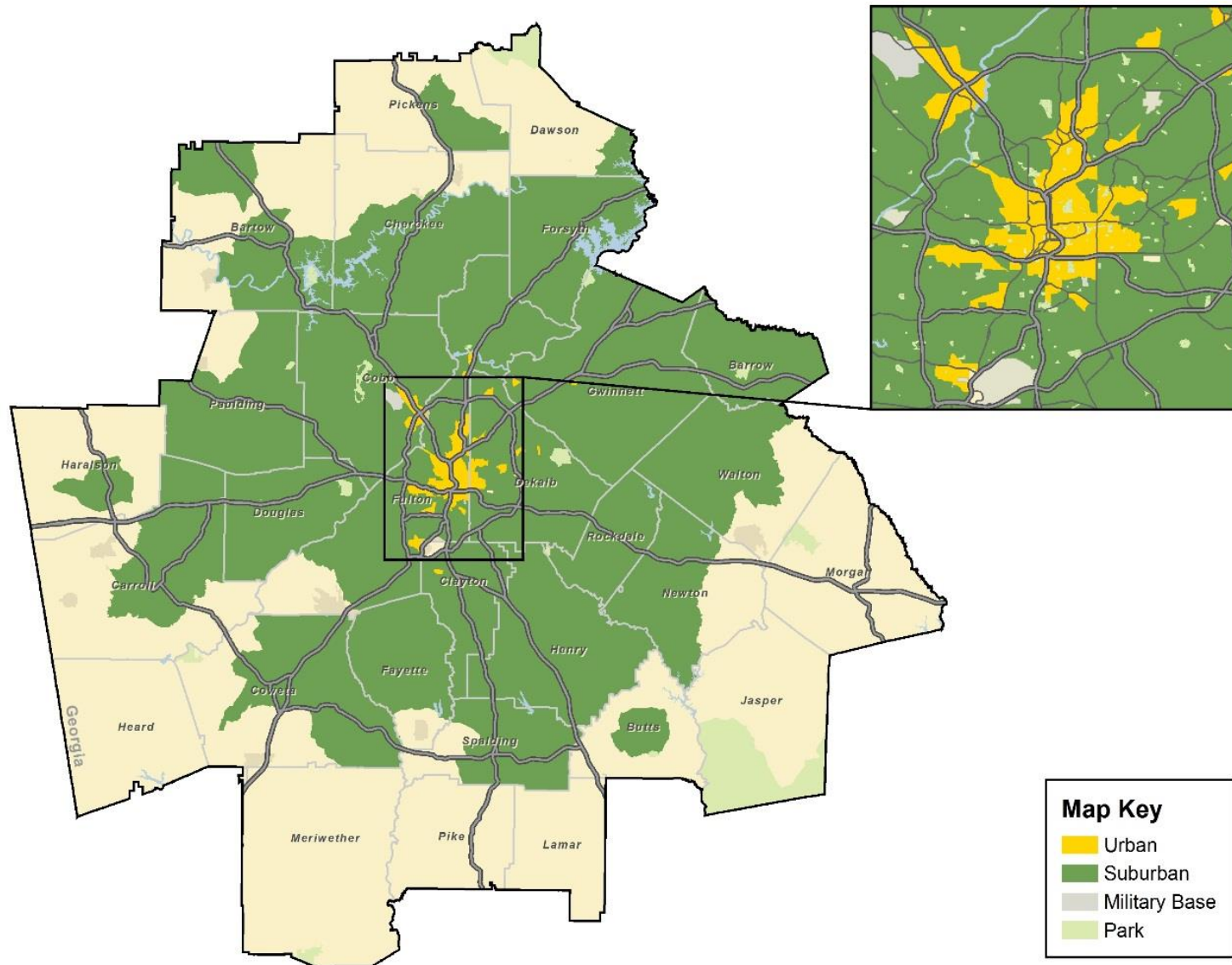


THE LONG DISTANCE COMMUTE WILL AGAIN BE FEASIBLE

Will further out suburbs be the bigger beneficiaries of new residential activity?



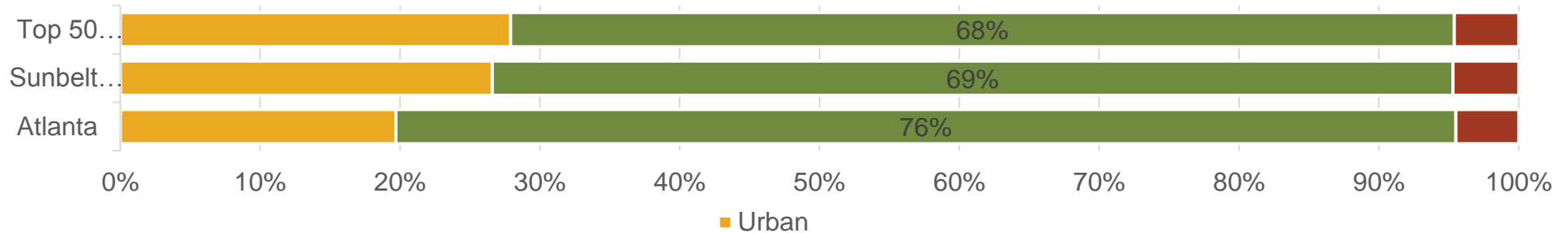
AMERICA'S METROS AT 75% SUBURBAN, SOME LIKE ATLANTA MORE THAN 85%



Source: RCLCO; ESRI Business Analyst

AMERICA'S METROS AT 75% SUBURBAN, SOME LIKE ATLANTA MORE THAN 85%

Distribution of Employment; Various Geographies; 2014



	DISTRIBUTION OF EMPLOYMENT		EMPLOYMENT GROWTH (2005-2010)		EMPLOYMENT GROWTH (2010-2014)	
	URBAN	SUBURBAN	URBAN	SUBURBAN	URBAN	SUBURBAN
NATIONAL						
Top 50 MSAs	27.9%	67.5%	8.2%	0.0%	6.0%	9.0%
REGIONAL						
Sunbelt	26.6%	68.7%	2.6%	3.1%	6.1%	13.9%
PEER CITIES						
Raleigh	25.9%	68.7%	52.5%	10.5%	2.6%	23.2%
Nashville	22.9%	68.7%	5.0%	- 1.2%	8.9%	13.4%
Dallas	27.0%	68.4%	6.8%	8.3%	8.3%	14.9%
ATLANTA	19.7%	75.8%	-3.1%	- 0.4%	9.0%	10.5%

RECASTING OUR MAYBERRY VISION OF THE FUTURE

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



Federal law requires MPOs to prepare regional transportation plan updates every 5 years. These plans have at least a 20-year outlook.

But in 2013, only 1 of the 25 largest MPOs in the U.S. mentioned driverless cars in its long-term regional plan.

SOURCE: Guerra, 2015. Planning for Cars that Drive Themselves: Metropolitan Planning Organizations, Regional Transportation Plans, and Autonomous Vehicles. *Journal of Planning Education and Research*.

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