HOUSING UNDERPRODUCTION AND HOW TO MAKE IT UP

David Barker,
Barker Apartments
(Moderator)

Mike Wilkerson,
ECONorthwest

@ApartmentWire
#NMHCresearch

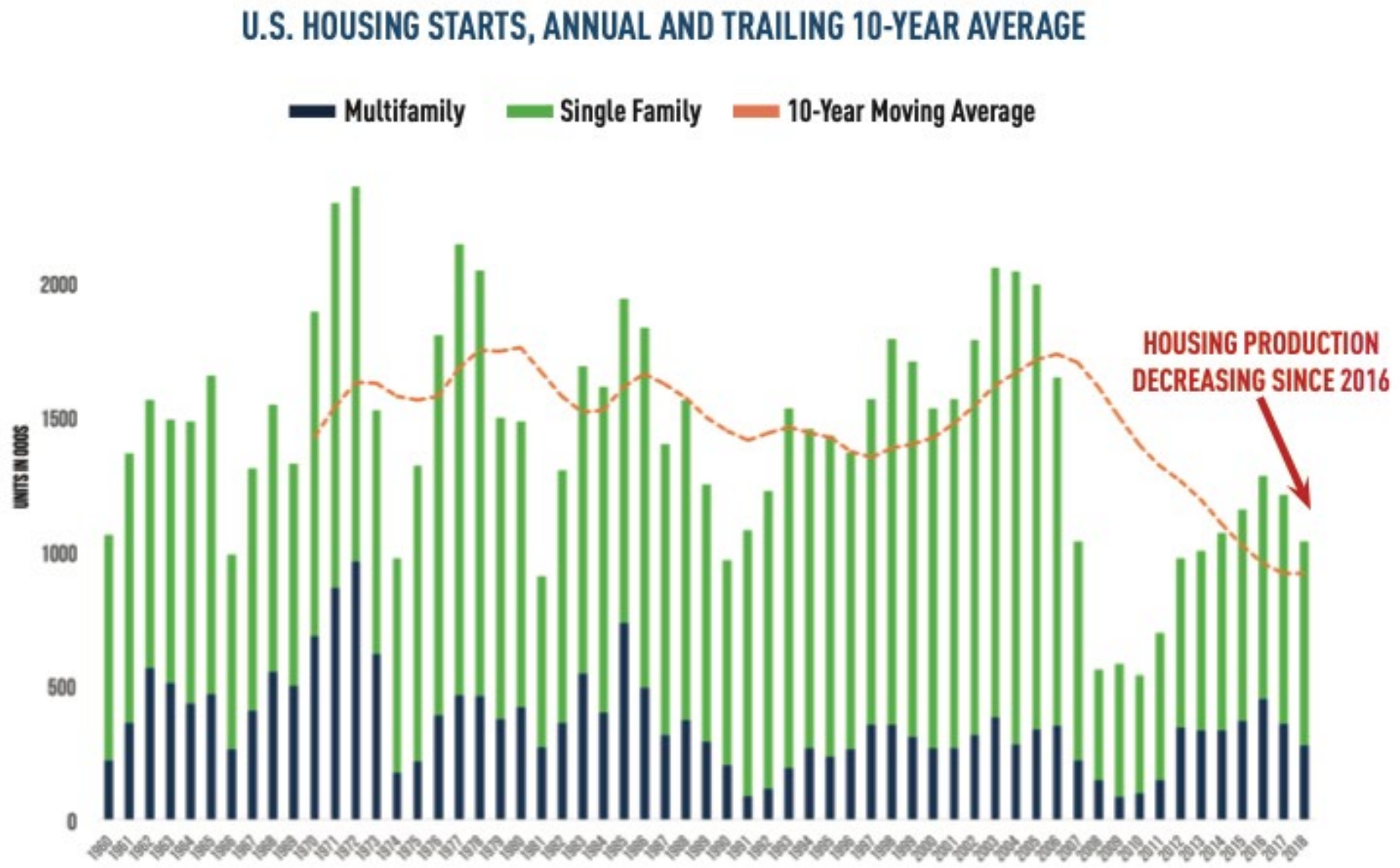Housing Underproduction in the U.S.
Michael Wilkerson, Ph.D.

2019 NMHC Research Forum
April 2-3, 2019

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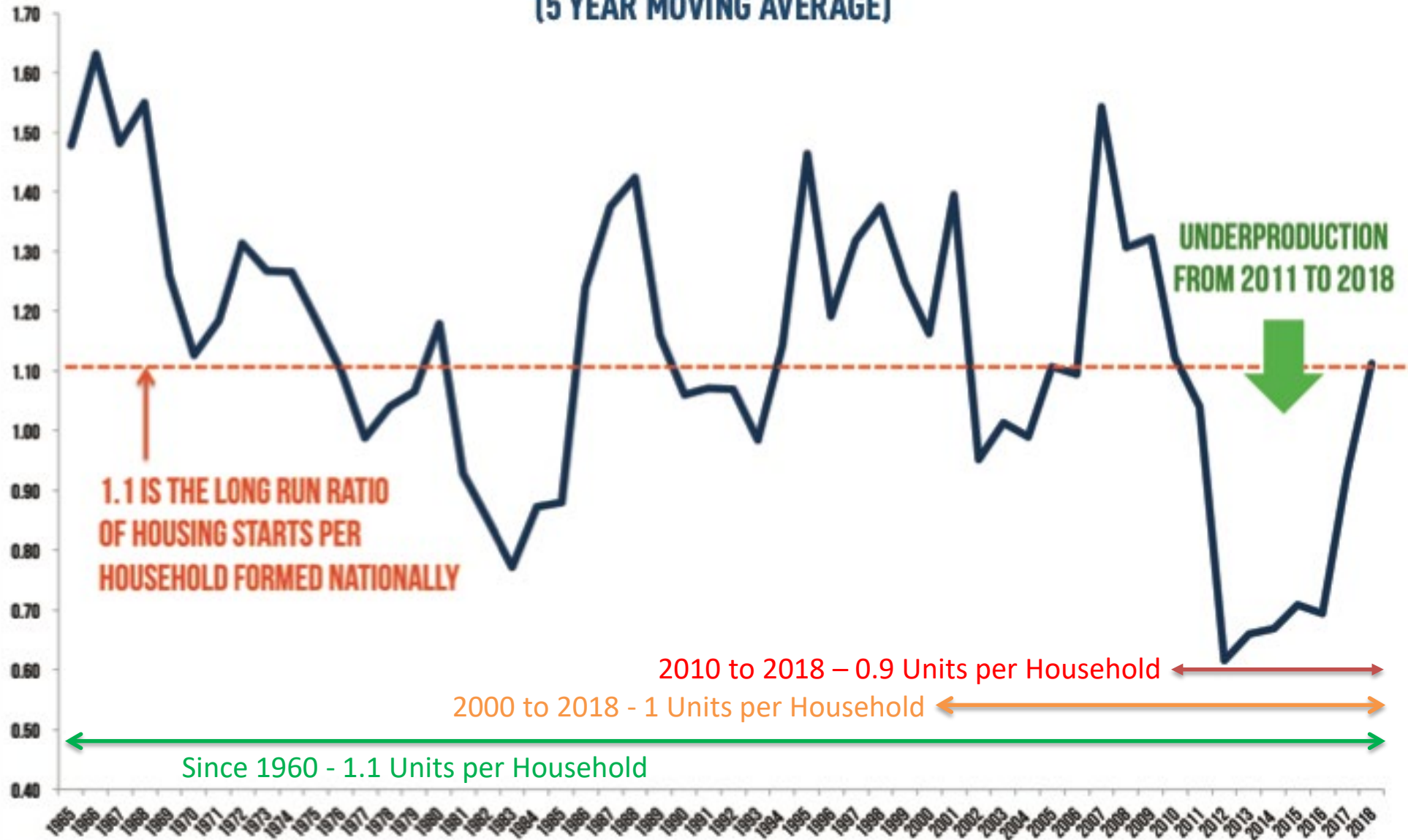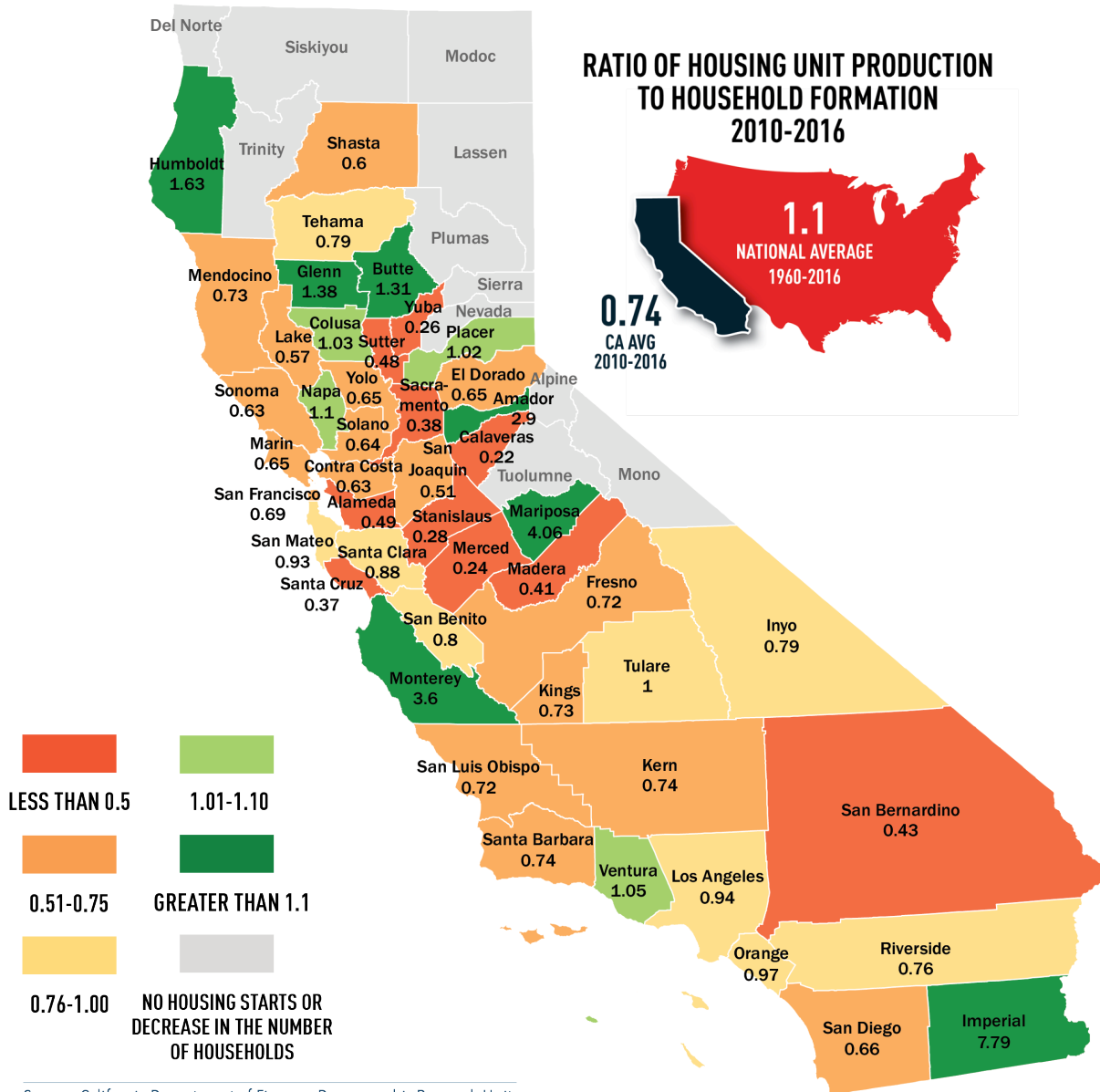# 2008 TO 2018 PRODUCED THE FEWEST UNITS OF HOUSING OVER 10 YEARS

U.S. HOUSING STARTS, ANNUAL AND TRAILING 10-YEAR AVERAGE

Legend: Multifamily · Single Family · 10-Year Moving Average

HOUSING PRODUCTION DECREASING SINCE 2016

Source: U.S. Census, HUD

U.S. HOUSING STARTS TO HOUSEHOLD FORMATION (5 YEAR MOVING AVERAGE)

UNDERPRODUCTION FROM 2011 TO 2018

1.1 IS THE LONG RUN RATIO OF HOUSING STARTS PER HOUSEHOLD FORMED NATIONALLY

2010 to 2018 – 0.9 Units per Household

2000 to 2018 - 1 Units per Household

Since 1960 - 1.1 Units per Household

Source: U.S. Census Bureau and HUD

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Left map: RATIO OF HOUSING UNIT PRODUCTION TO HOUSEHOLD FORMATION 2010-2016

- National Average 1960-2016: **1.1**
- CA AVG 2010-2016: **0.74**

County values (left map):
- Humboldt 1.63
- Shasta 0.6
- Tehama 0.79
- Mendocino 0.73
- Glenn 1.38
- Butte 1.31
- Colusa 1.03
- Yuba 0.26
- Lake 0.57
- Sutter 0.48
- Placer 1.02
- Sonoma 0.63
- Yolo 0.65
- El Dorado 0.65
- Amador 2.9
- Napa 1.1
- Sacramento 0.38
- Calaveras 0.22
- Marin 0.65
- Solano 0.64
- San Joaquin 0.51
- Contra Costa 0.63
- Mariposa 4.06
- San Francisco 0.69
- Alameda 0.49
- Stanislaus 0.28
- San Mateo 0.93
- Santa Clara 0.88
- Merced 0.24
- Santa Cruz 0.37
- San Benito 0.8
- Madera 0.41
- Fresno 0.72
- Inyo 0.79
- Monterey 3.6
- Kings 0.73
- Tulare 1
- San Luis Obispo 0.72
- Kern 0.74
- San Bernardino 0.43
- Santa Barbara 0.74
- Ventura 1.05
- Los Angeles 0.94
- Orange 0.97
- Riverside 0.76
- San Diego 0.66
- Imperial 7.79

Legend (left):
- LESS THAN 0.5
- 0.51-0.75
- 0.76-1.00
- 1.01-1.10
- GREATER THAN 1.1
- NO HOUSING STARTS OR DECREASE IN THE NUMBER OF HOUSEHOLDS

Source: California Department of Finance, Demographic Research Unit

Right map: Statewide ratio of Primary Jobs to Housing Units in 2010 = 1 to 1
2010 to 2015 = 4.4

County values (right map):
- Trinity 2.3
- Tehama 2.5
- Mendocino 2.8
- Glenn 2
- Butte 2.5
- Colusa 6.1
- Yuba 8
- Sutter 8
- Placer 2.7
- Sonoma 7.8
- Napa 14.5
- Yolo
- Sacramento 4.9
- El Dorado 3
- Amador 0.3
- Alpine 0.6
- Marin 12.9
- Solano 5.7
- San Joaquin 4.8
- San Francisco 11.4
- Contra Costa 3.3
- Stanislaus 12.5
- Mariposa 0.3
- San Mateo 13.2
- Alameda 7.2
- Santa Clara 5.5
- Merced 7.1
- Madera 8.4
- Santa Cruz 9.3
- San Benito 3.2
- Fresno 1.6
- Monterey 10.7
- Kings 2.8
- Tulare 2.4
- Inyo 6.3
- San Luis Obispo 3.7
- Kern 3.2
- San Bernardino 4.9
- Santa Barbara 3.8
- Ventura 2.7
- Los Angeles 4
- Orange 4.3
- Riverside 2.7
- San Diego 3.3

Legend (right):
- LESS THAN 1
- 1.1-3.0
- 3.1-5.0
- 5.1-10.0
- GREATER THAN 10
- NO INCREASE IN JOBS OR DATA NOT AVAILABLE

NATIONAL RENTER COST BURDENING INCREASING OVER TIME
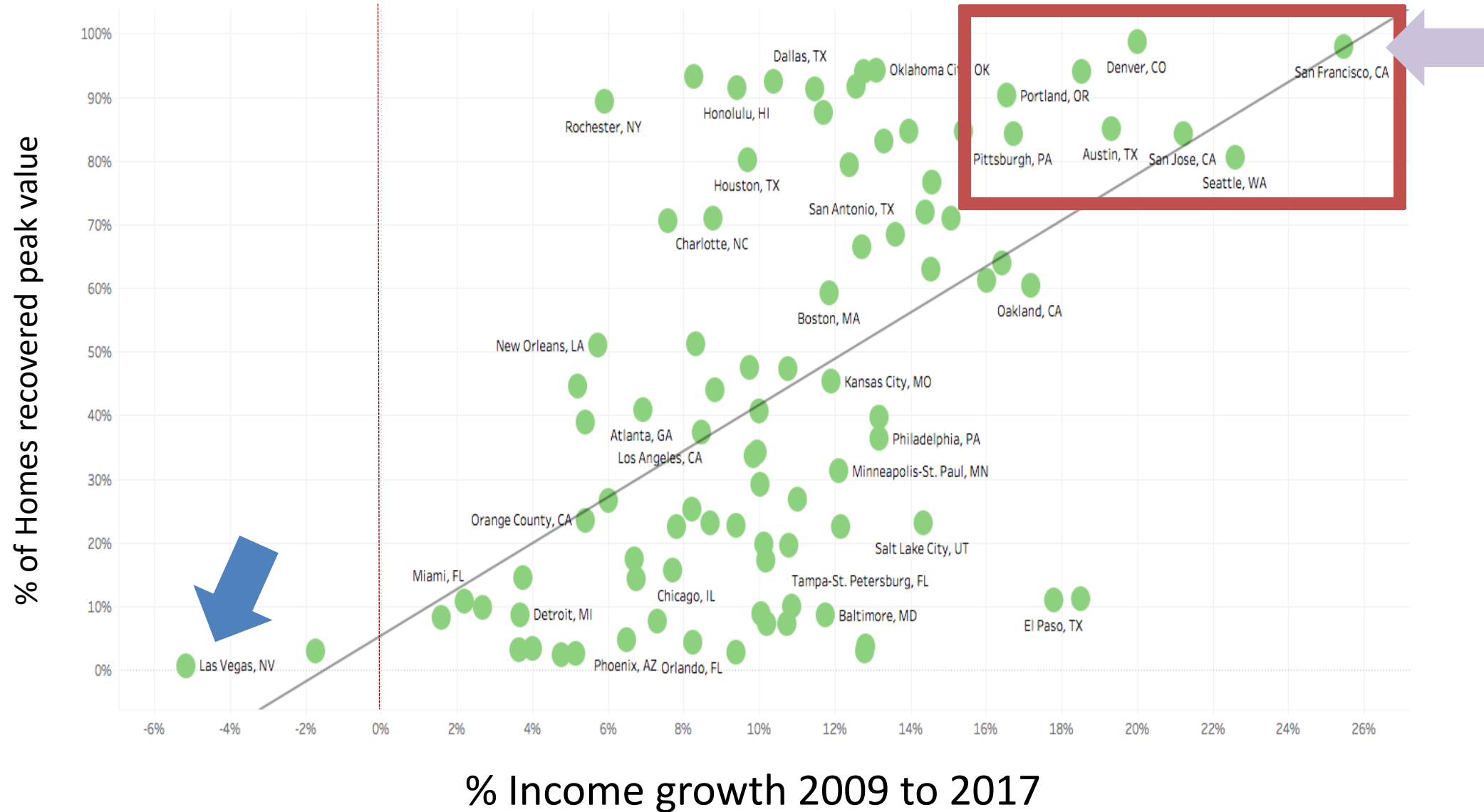

■ MODERATELY ■ SEVERELY

Moderate Rent Burden = 30% - 50% of Gross Income
Severe Rent Burden = 50%+ of Gross Income

1 in 4 renters nationally spend 50%+ of gross income on rent

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HOUSING DEMAND – INCOME AND MARKET PEAK PRICING

% of Homes recovered peak value

% Income growth 2009 to 2017

Source: Trulia

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COST BURDENING PREVALENT IN MARKETS WITH LARGEST INCOME GROWTH

Percent of Cost Burdened Households (Owner and Renter) by County, 2017

UNITS: (PERCENTAGE)

- ≤ 20.97
- ≤ 25
- ≤ 30
- ≤ 35
- ≤ 55
- NO DATA AVAILABLE
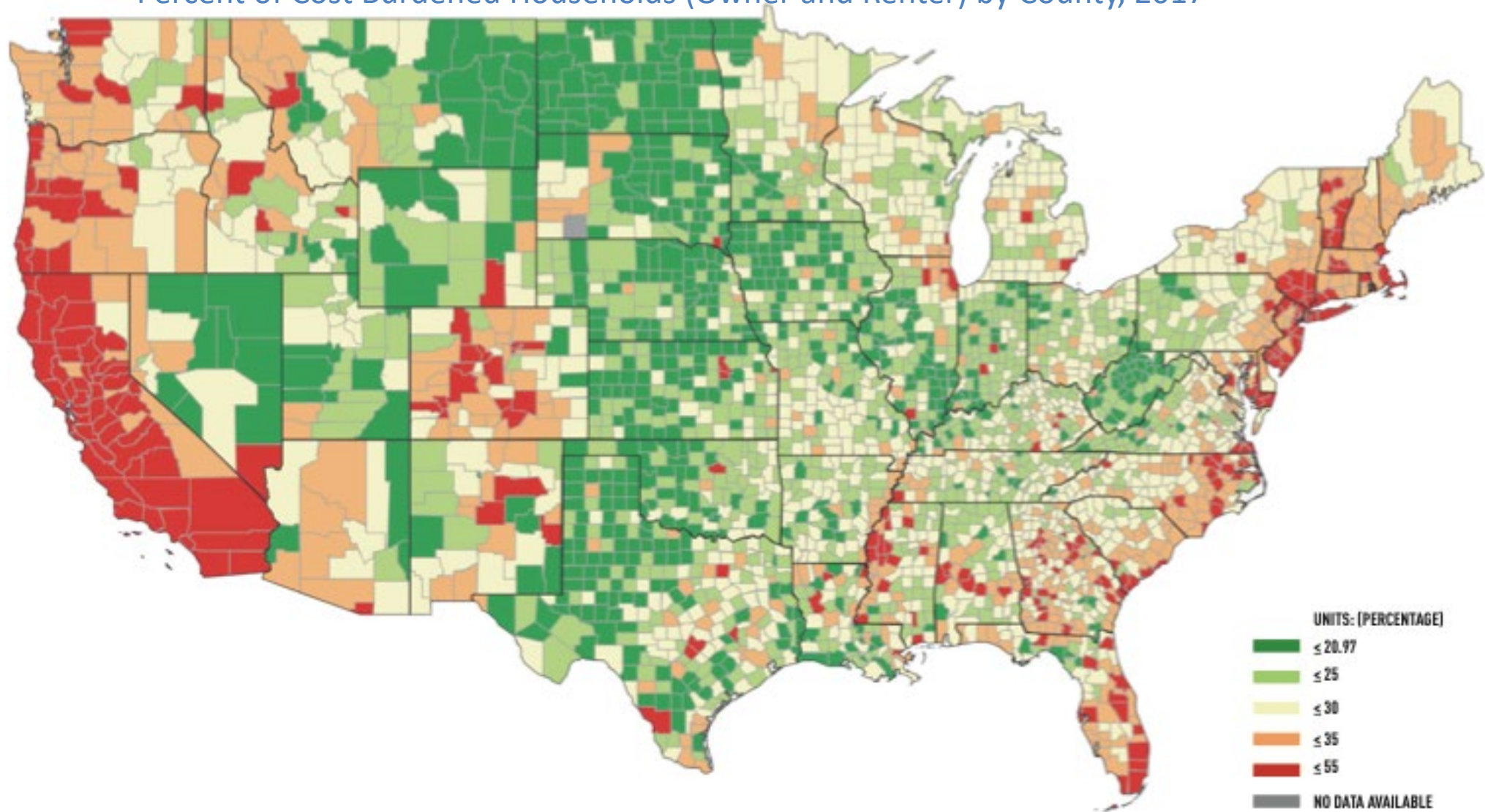
LARGER RENT INCREASES IN MARKETS WITH MORE REGULATION

Figure 1: Rent appreciates faster in more regulated cities

Updated to 2018 using CoStar Data

Average Market Rent Growth vs. WRLURI 2010 TO 2018
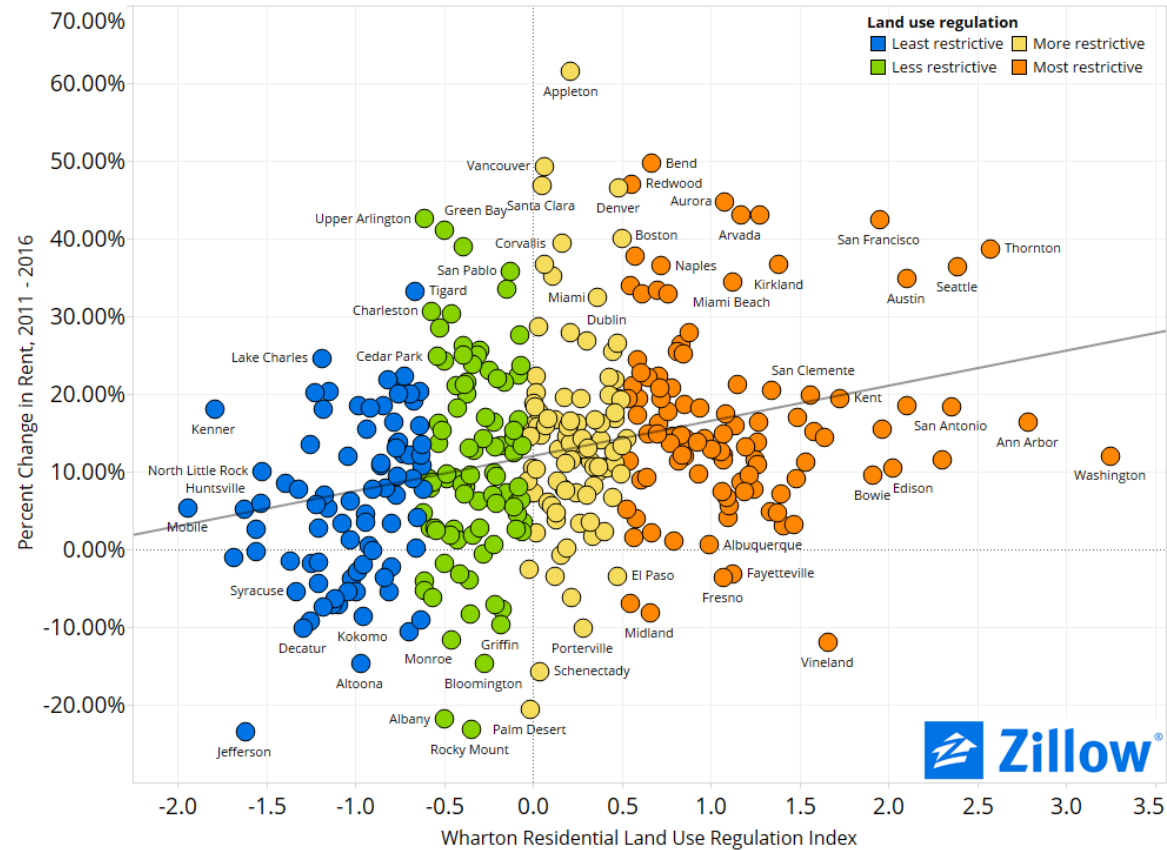
Source: Zillow analysis of data from the Wharton Residential Land Use Regulation Index, 2008, and Zillow Rent Index, January 2011 - January 2016.
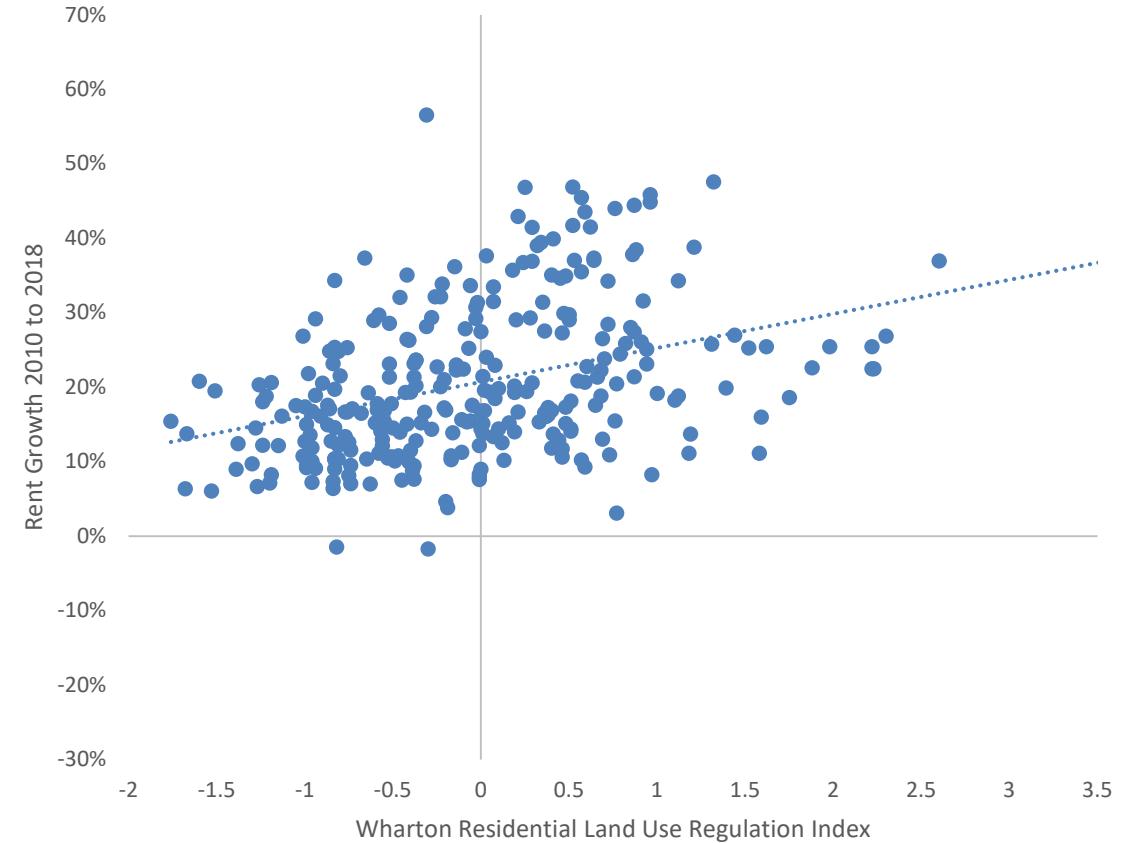
AVERAGE RENT IN PORTLAND INCREASING FASTER THAN INCOMES

1 Bedroom Avg. Rent in the City of Portland

100% MFI

60% MFI

2017 to 2018
Income + 9%
Rent + 2%

Average Monthly Rent
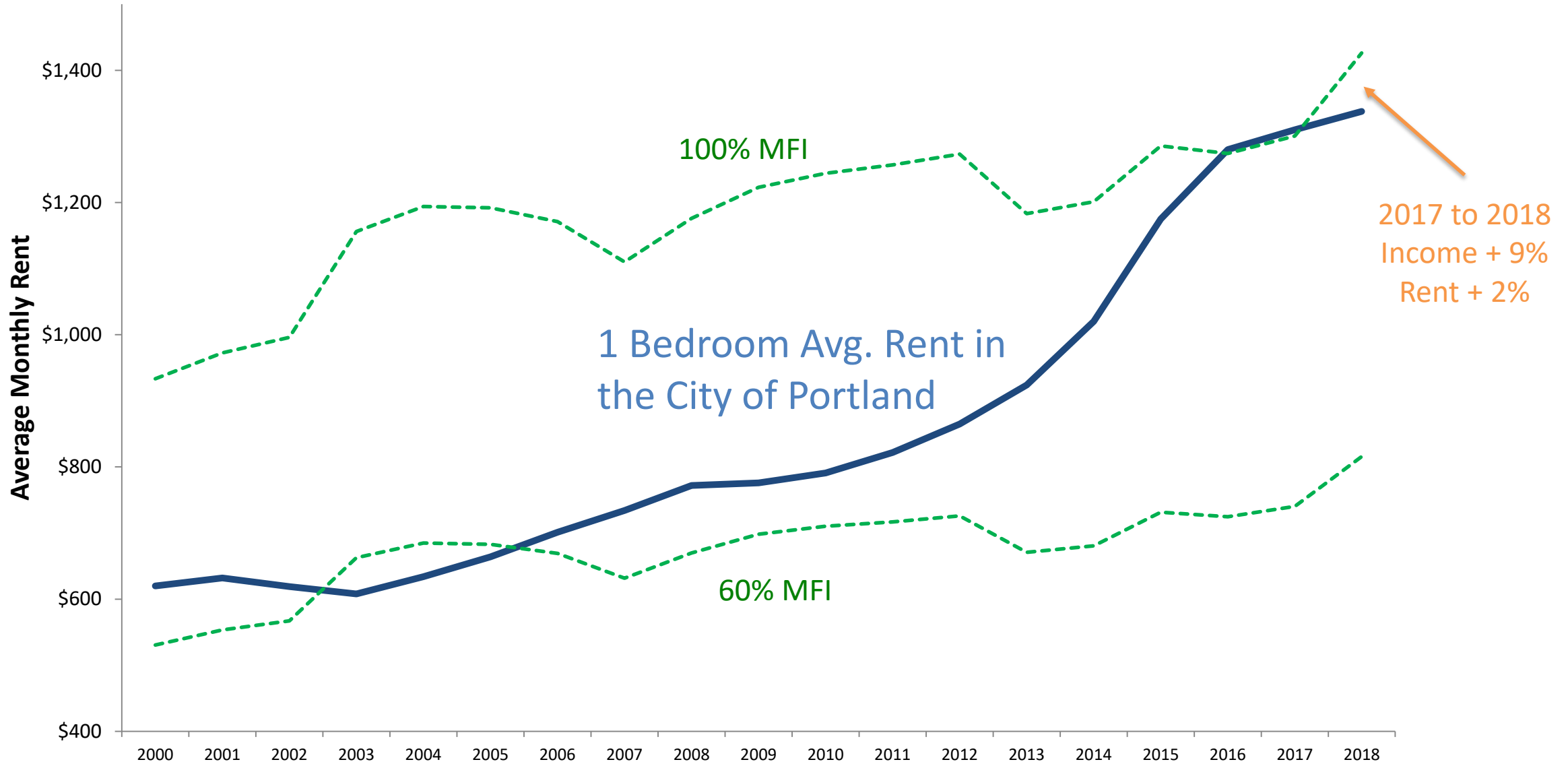
Source: Costar, HUD, ECONorthwest Calculations

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AVERAGE RENTS ARE INCREASING FASTER THAN INCOMES

Time Series of Affordability

Select Chart

Market Rent as Percent of AMI ▾

☑ Compare Multiple Cities

Select Unit Type

One bedroom ▾

Cross City Rent Comparison: 1BR (% of AMI)

— Denver
— San Francisco
— Seattle

Calculations by ECONorthwest with Data provided by CoStar

Select State

Colorado ▾

Select First City

Denver ▾

Select State of Second City

California ▾

Select Second City

San Francisco ▾

Select State of Third City

Washington ▾

Select Third City

Seattle ▾

https://www.upforgrowth.org/unit-affordability-over-time
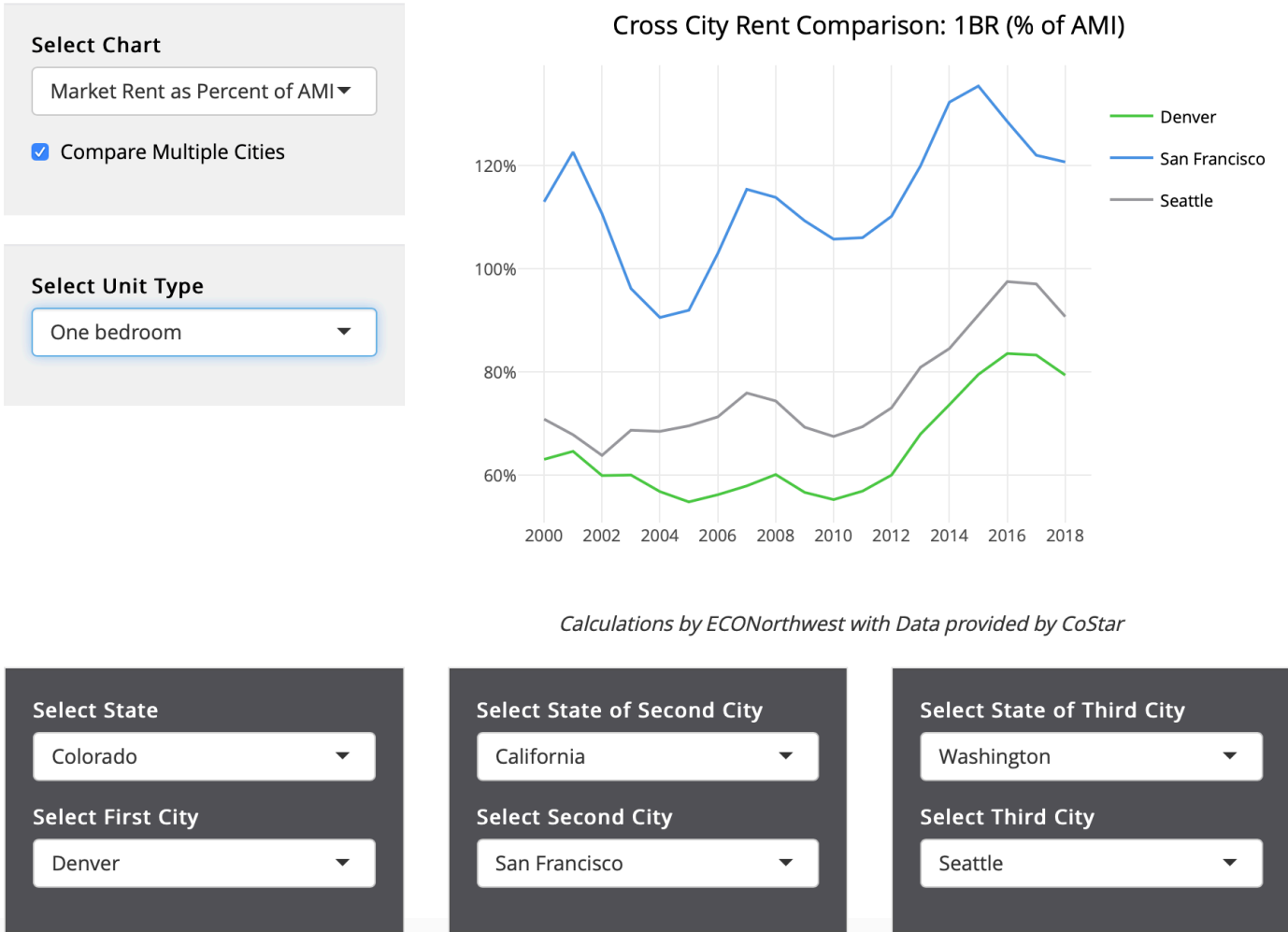
- Displays average rent by unit type as a percent of AMI (HUD assumptions)

- Compare up to 3 markets

- Option to select view of nominal rent

AVERAGE RENTS ARE INCREASING FASTER THAN INCOMES

Time Series of Affordability

Select Chart

Nominal Rent ▼

☑ Compare Multiple Cities

Select Unit Type

One bedroom ▼

Cross City Rent Comparison: 1BR (Nominal Rent)
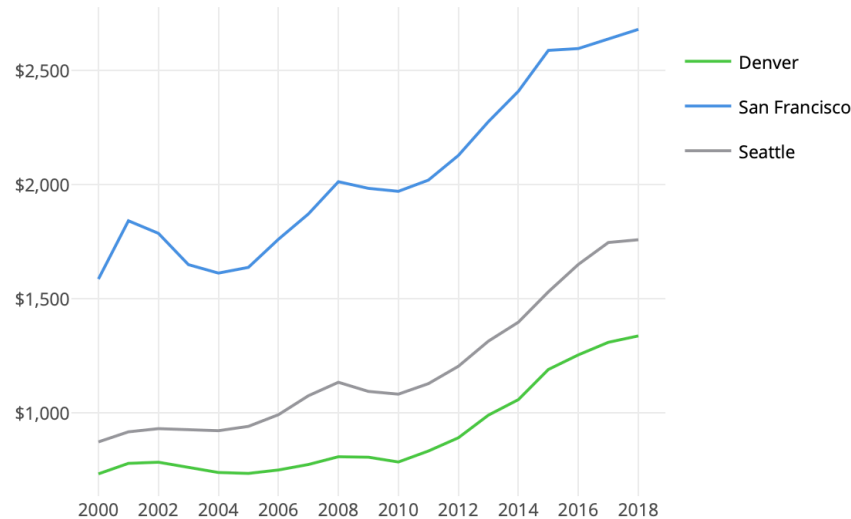
— Denver
— San Francisco
— Seattle

Calculations by ECONorthwest with Data provided by CoStar

Select State

Colorado ▼

Select First City

Denver ▼

Select State of Second City

California ▼

Select Second City

San Francisco ▼

Select State of Third City

Washington ▼

Select Third City

Seattle ▼

https://www.upforgrowth.org/unit-affordability-over-time

- Displays average rent by unit type as a percent of AMI (HUD assumptions)

- Compare up to 3 markets

- Option to select view of nominal rent

HOUSING UNDERPRODUCTION IN THE U.S.

Economic, Fiscal and Environmental Impacts of Enabling Transit-Oriented Smart Growth to Address America's Housing Affordability Challenge

UP FOR GROWTH
- national coalition -

ECONorthwest
ECONOMICS · FINANCE · PLANNING
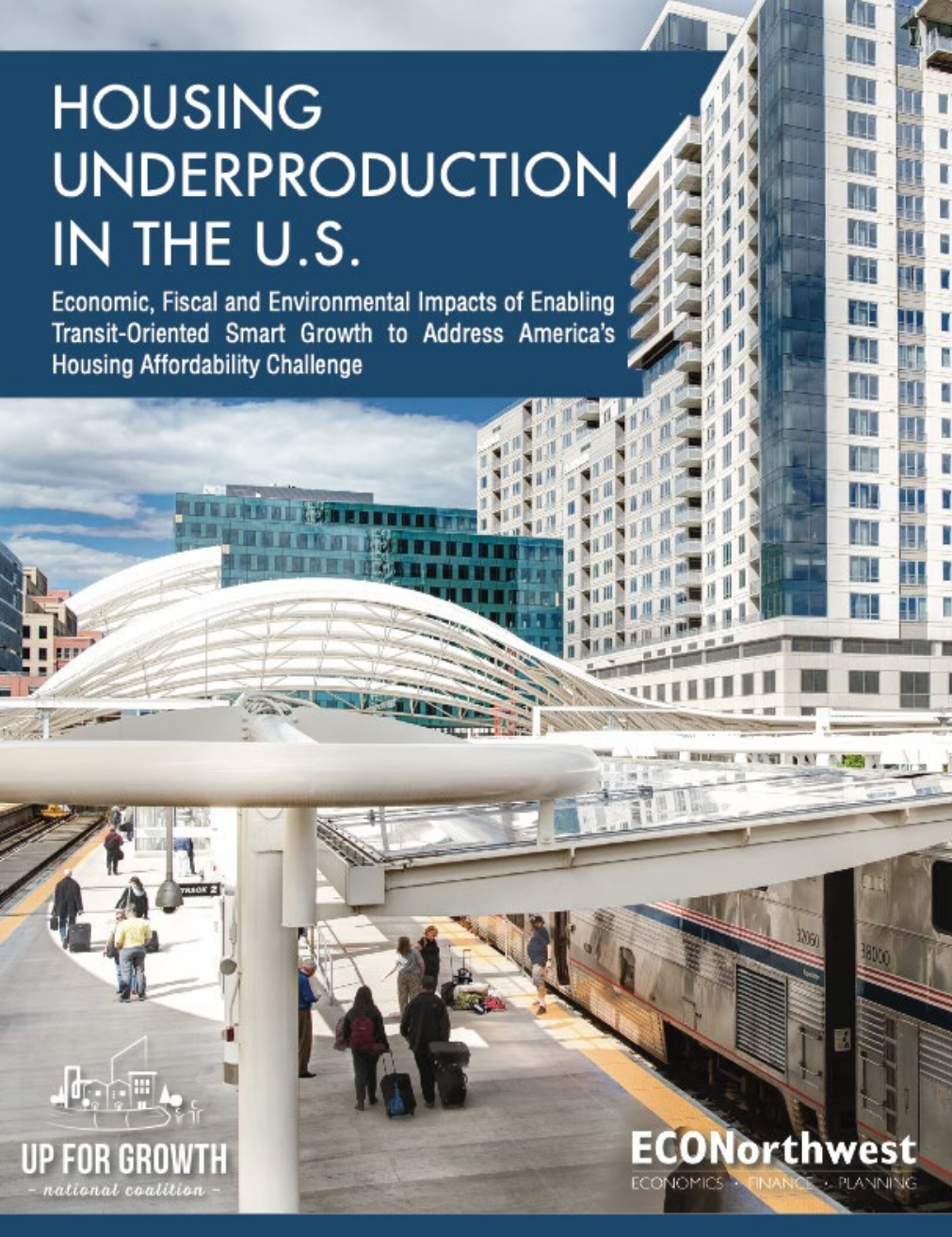
Contributes to existing literature through:

- Econometric model to calculate housing supply elasticity and underproduction of units nationally

- Create growth scenarios to analyze different economic, fiscal, and environmental impacts associated with increasing the production of housing

- Use REMI to model dynamic economic and fiscal impacts over a 20 year production period

Available for Download at:

www.upforgrowth.org

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Task 1) Quantify underproduction of housing

Task 2) Model growth scenarios

Task 3) Quantify economic, fiscal, and environmental impacts

23 STATES UNDERPRODUCED 7.3 MILLION UNITS FROM 2000 TO 2015

UNDERPRODUCTION OF HOUSING

MA
329,035

25,475

30,446

RI
55,043

176,187

CT
126,152

319,886

MD
259,556

DC
6,081

118,729

120,576

131,266

225,642

155,156

22,446

234,801

103,389

3,378,205

505,134

40,423

719,230

215,936

UNDERPRODUCTION AS %
OF 2015 HOUSING STOCK

- 2% - 5%
- 5.1% - 10%
- 10.1% - 15%
- More Than 15%
- No data
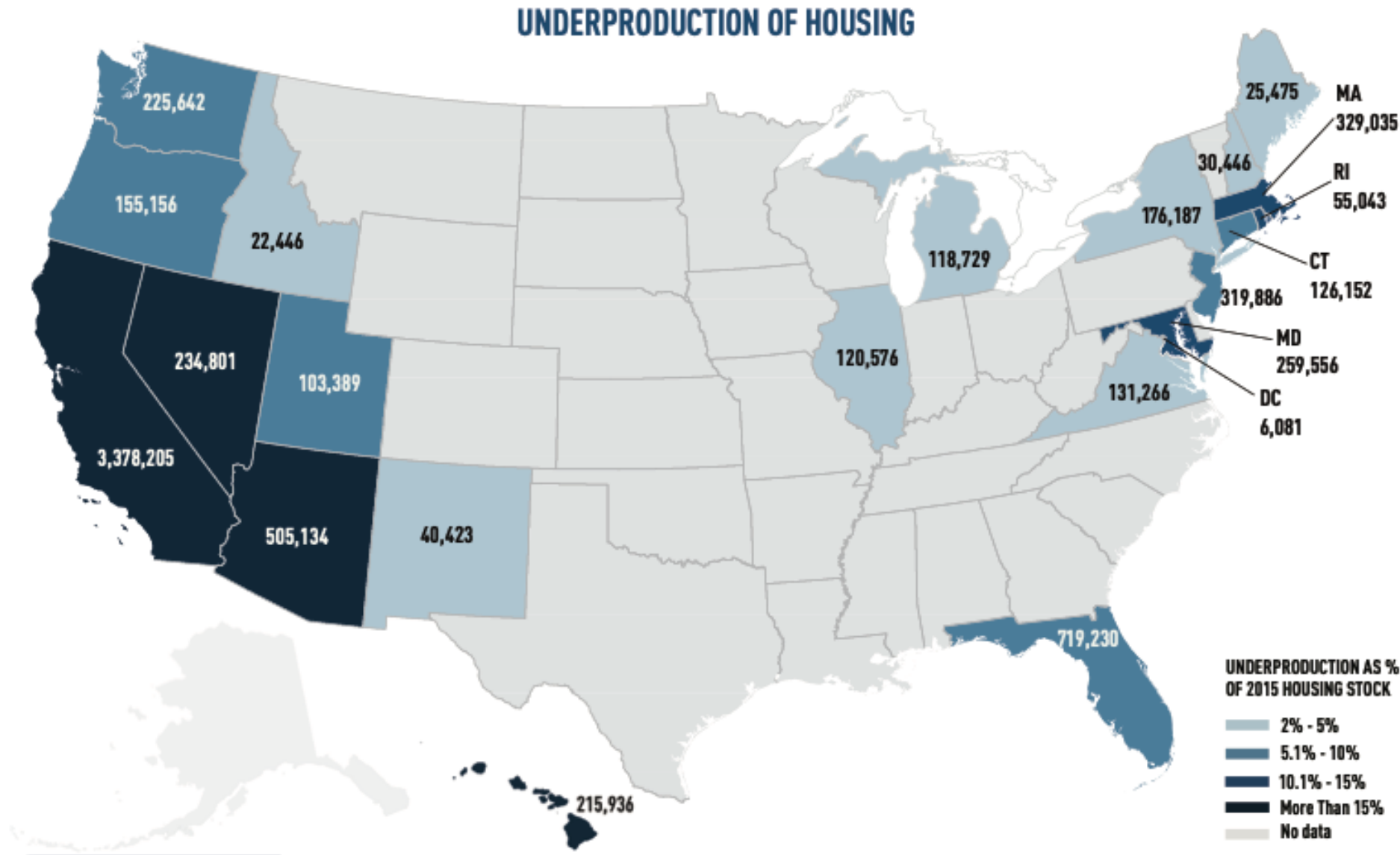
OBSERVE LOW SUPPLY ELASTICITY IN STATES WITH HIGHER COST BURDENING

A STATE'S SUPPLY ELASTICITY MEASURES THE HOUSING MARKET'S RESPONSIVENESS TO PRICE (LOWER = LESS RESPONSIVE), AND IT IS CORRELATED TO THE LEVEL OF RENTER COST BURDENING (CORR = -0.48)
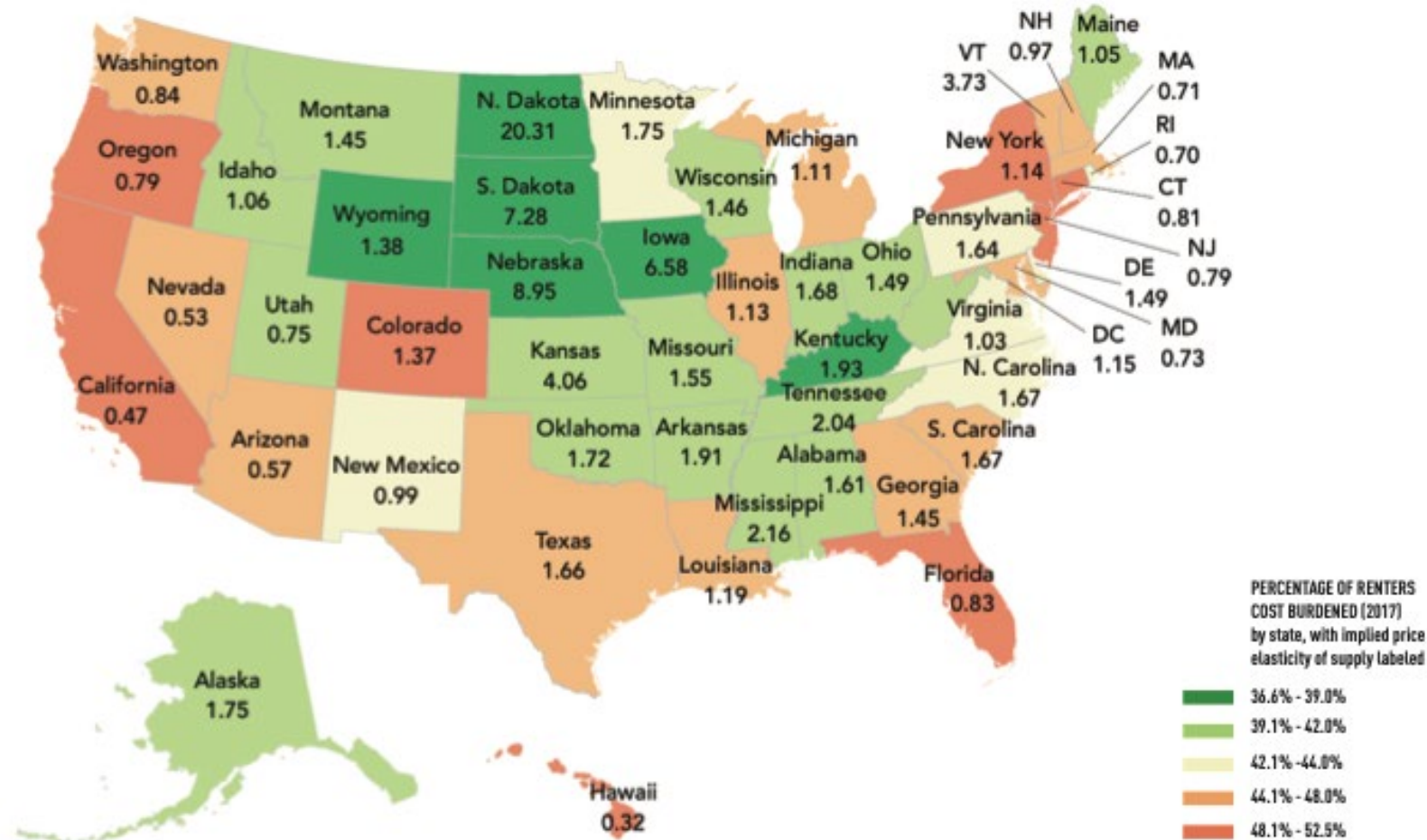
Source: ECONorthwest Calculations, U.S. Census Bureau

Task 1) Quantify Underproduction of Housing

Task 2) Model growth scenarios

Task 3) Quantify economic, fiscal, and environmental impacts

How = Housing Prototypes

Where = Growth Scenarios

HOUSING PROTOTYPES

Units are distributed as 3 prototypes:

Single Family
5 Units per Acre

Medium Density
Up to 5 stories
120 Units per Acre
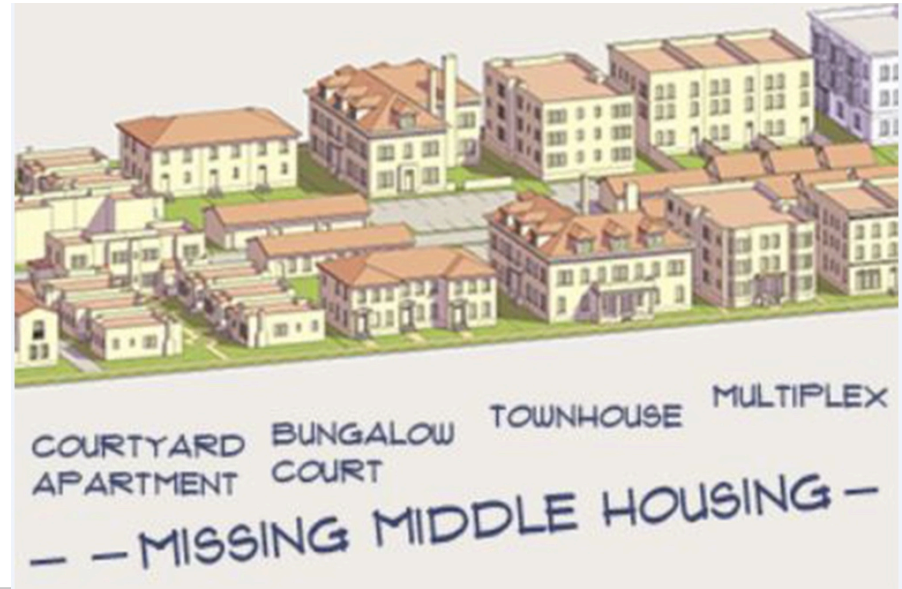
Tower
High Rise 6+ stories
240 Units per Acre

GROWTH SCENARIOS – WHERE TO ADD DENSITY

DUA= 150
Belltown Seattle
100% Tower

DUA= 30
South Waterfront Portland
75% Podium / 25% Tower
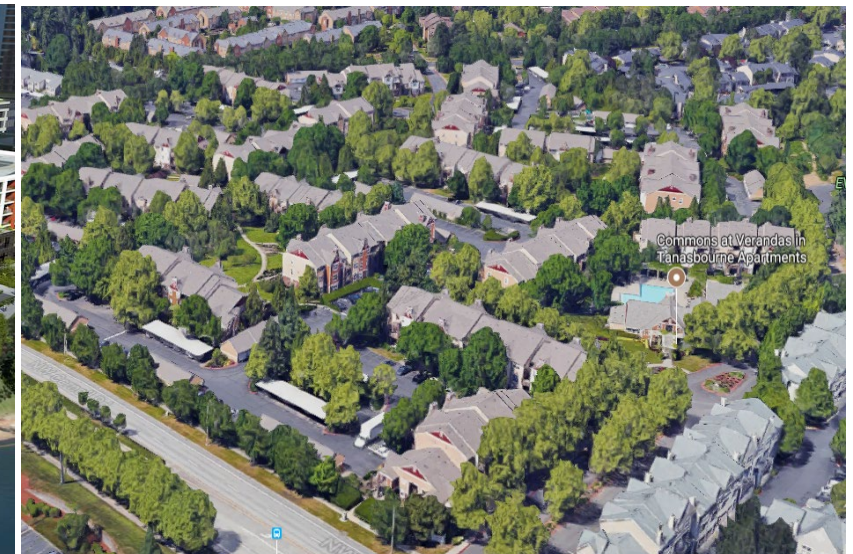
DUA= 12
Generic Suburbia
100% Medium Density
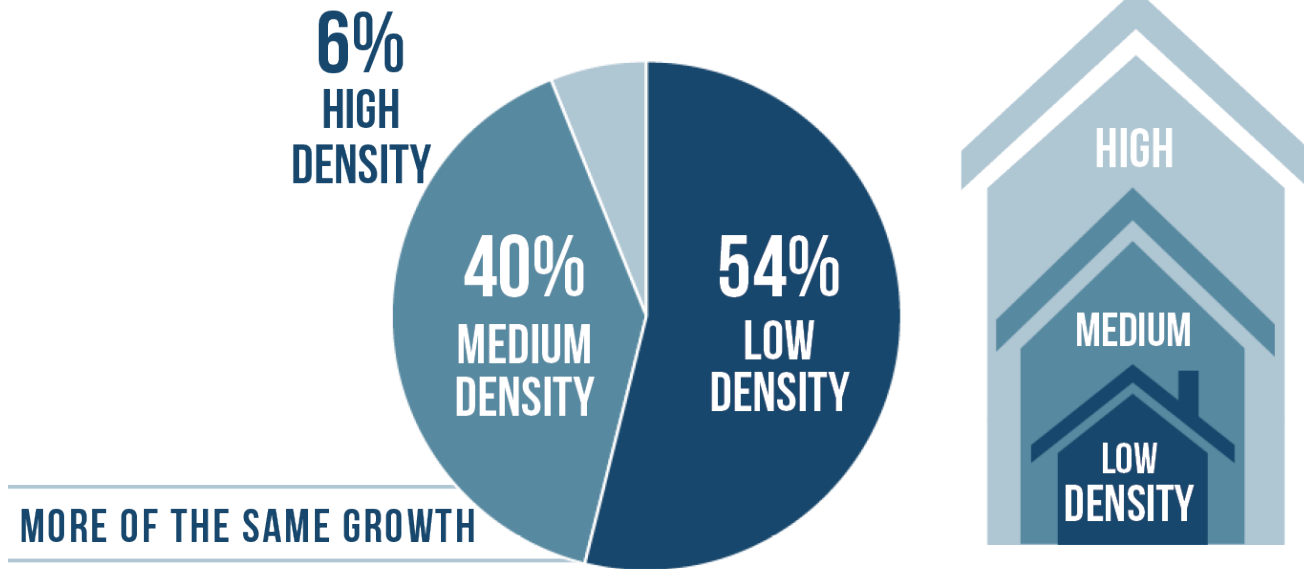
TRANSIT CORRIDORS ARE UNDERUTILIZED IN CALIFORNIA

THE MCKINSEY GLOBAL INSTITUTE HAS FOUND THAT CALIFORNIA HAS ROOM TO BUILD 5 MILLION NEW UNITS IN HOUSING "HOT SPOTS", 3 MILLION OF WHICH COULD BE LOCATED NEAR TRANSIT HUBS.
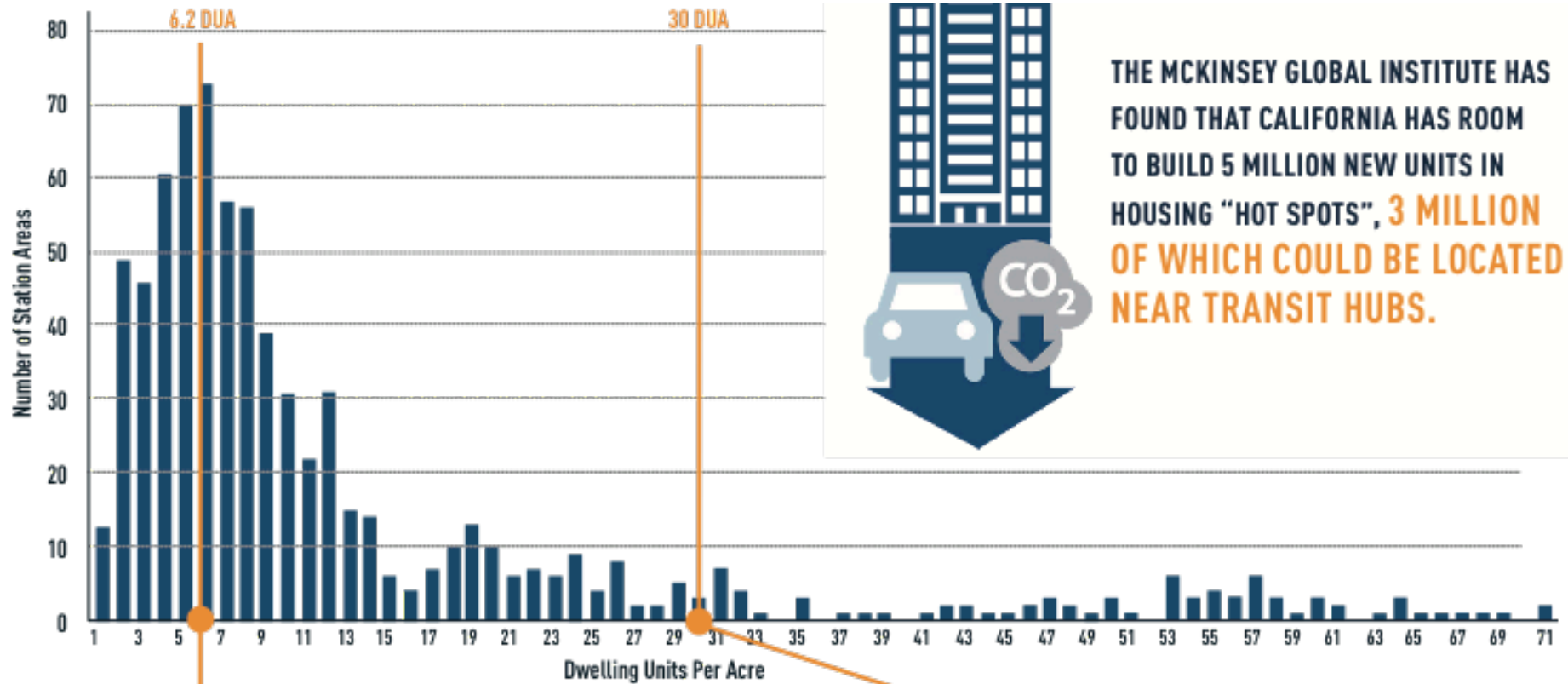
Land around CA transit stations is currently underdeveloped: current median unit density is 6.2 dwelling units per acre.

The Vertical Housing Program can increase median unit density around transit stations to 30 dwelling units per acre, which would effectively address the existing housing shortfall.

SMART GROWTH SCENARIOS IN THE BAY AREA AND LOS ANGELES

**SMART GROWTH
TOTAL UNITS ADDED**

- LESS THAN 1,000
- 1,001-2,000
- 2,001-3,000
- 3,001-4,000
- MORE THAN 4,000
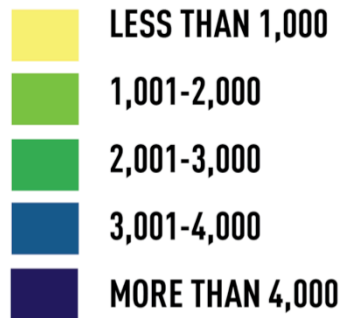
SMART GROWTH

300% INCREASE IN DENSITY UP TO 150 UPA
WITHIN ¼ MILE OF TRANSIT STATIONS

200% INCREASE IN DENSITY UP TO 120 UPA
FROM ¼ TO ½ MILE OF TRANSIT STATIONS

Bay Area

Los Angeles
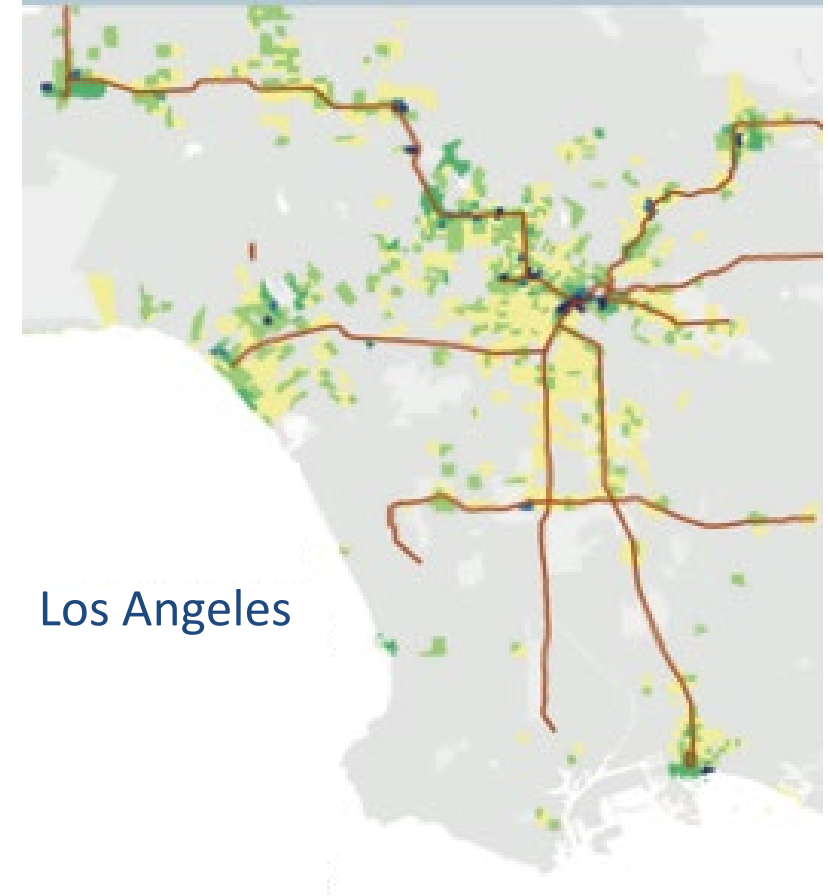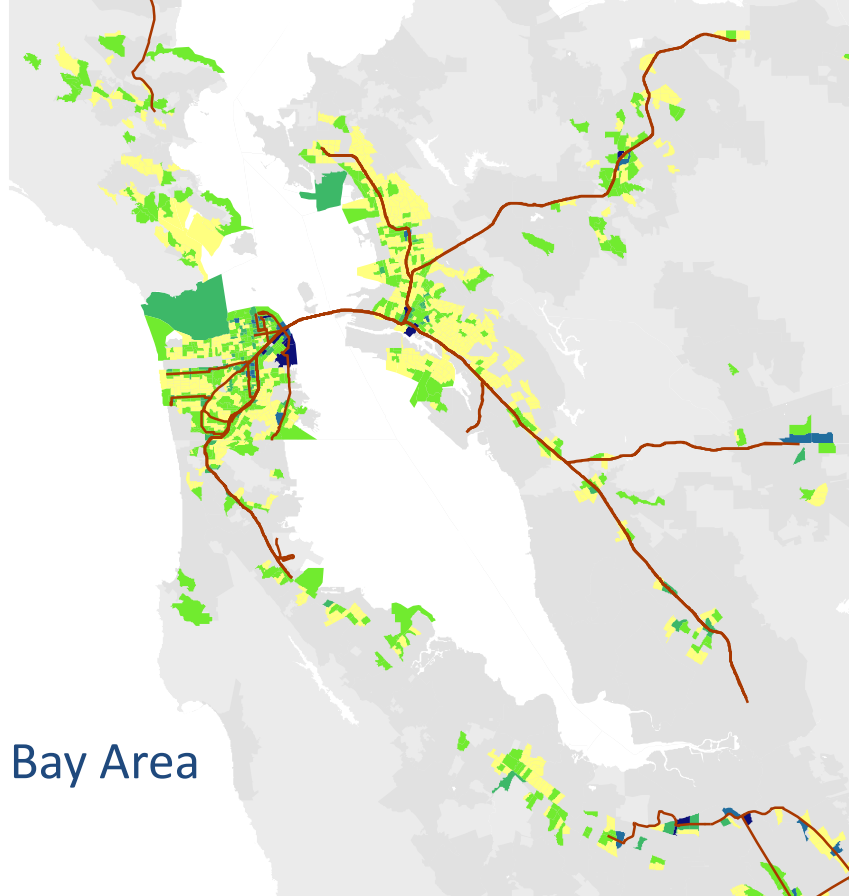
Current stock of 5+ units in California is only 23%
Since 2010, 50% of units built in California were multifamily (5+ units)

Source: ECONorthwest Calculations

Task 1) Quantify Underproduction of Housing

Task 2) Model growth scenarios

**Task 3) Quantify economic, fiscal, and environmental impacts**

- If additional housing were built in each scenario (task 2) to meet underproduction amounts (task 1), what economic, fiscal, and environmental impacts would be supported?

- Use REMI PI+ model to estimate impacts related to increased housing production

- Produced national VMT model at the census tract to estimate environmental impacts

WHAT IS THE REMI PI+ MODEL?

REMI Model Linkages (Excluding Economic Geography Linkages)
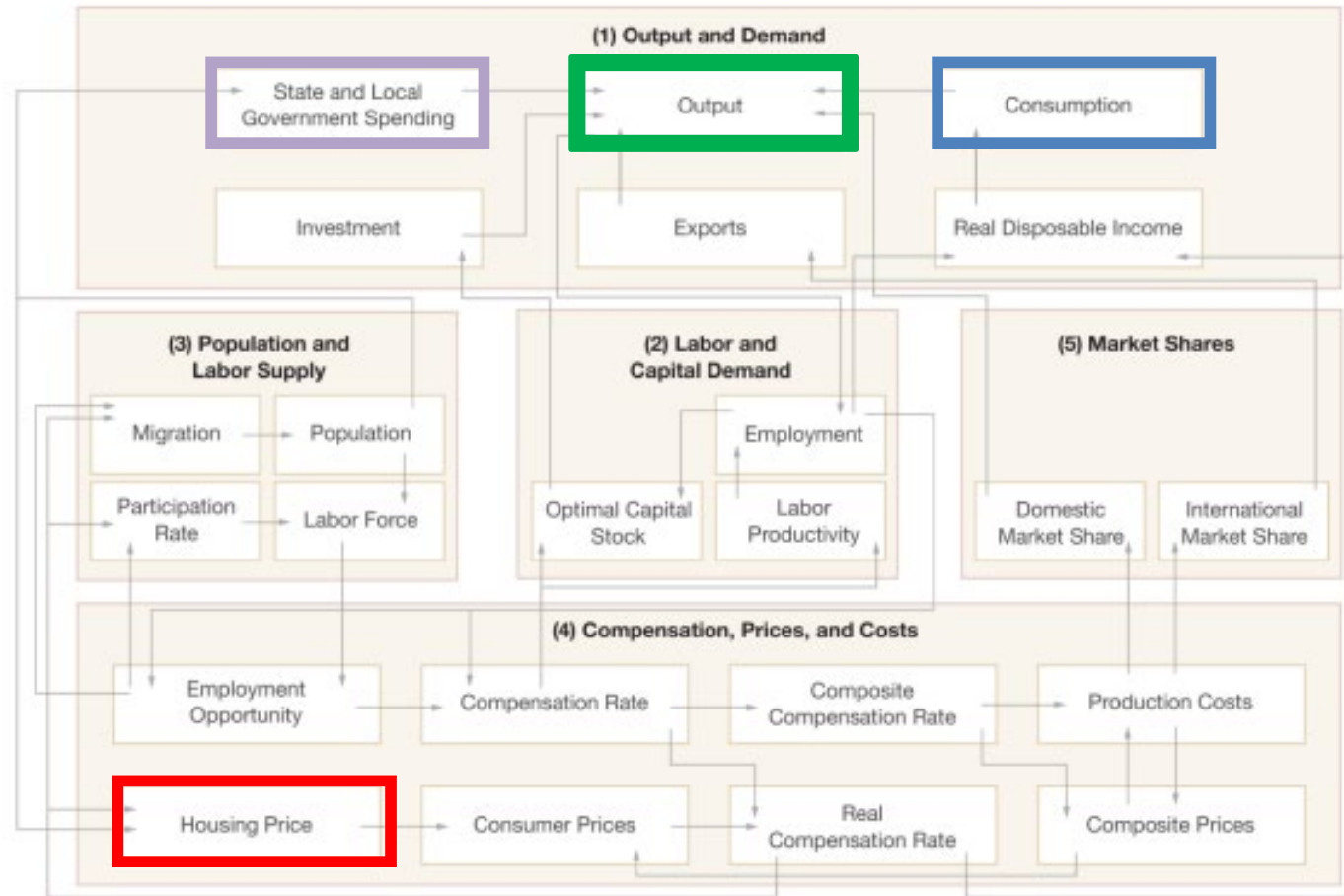
HOW LONG WOULD IT TAKE TO PRODUCE 7.3 MILLION UNITS?

- 1.04 Million Starts in 2018, 1.15 million average last 5 years
- Industry needs time to train labor to ramp up production
- Created 20 year production function
  - 1/20th of total underproduction is 366,000 units
  - Represents a 26% increase in current unit production

Additional Housing Production Per Year
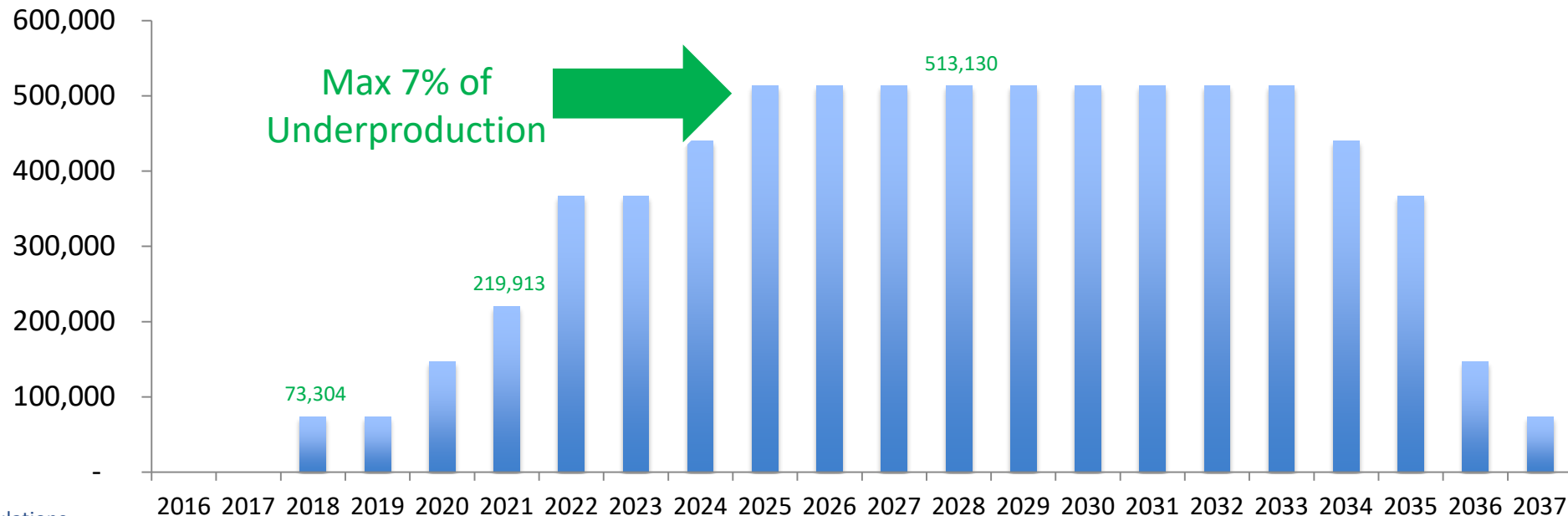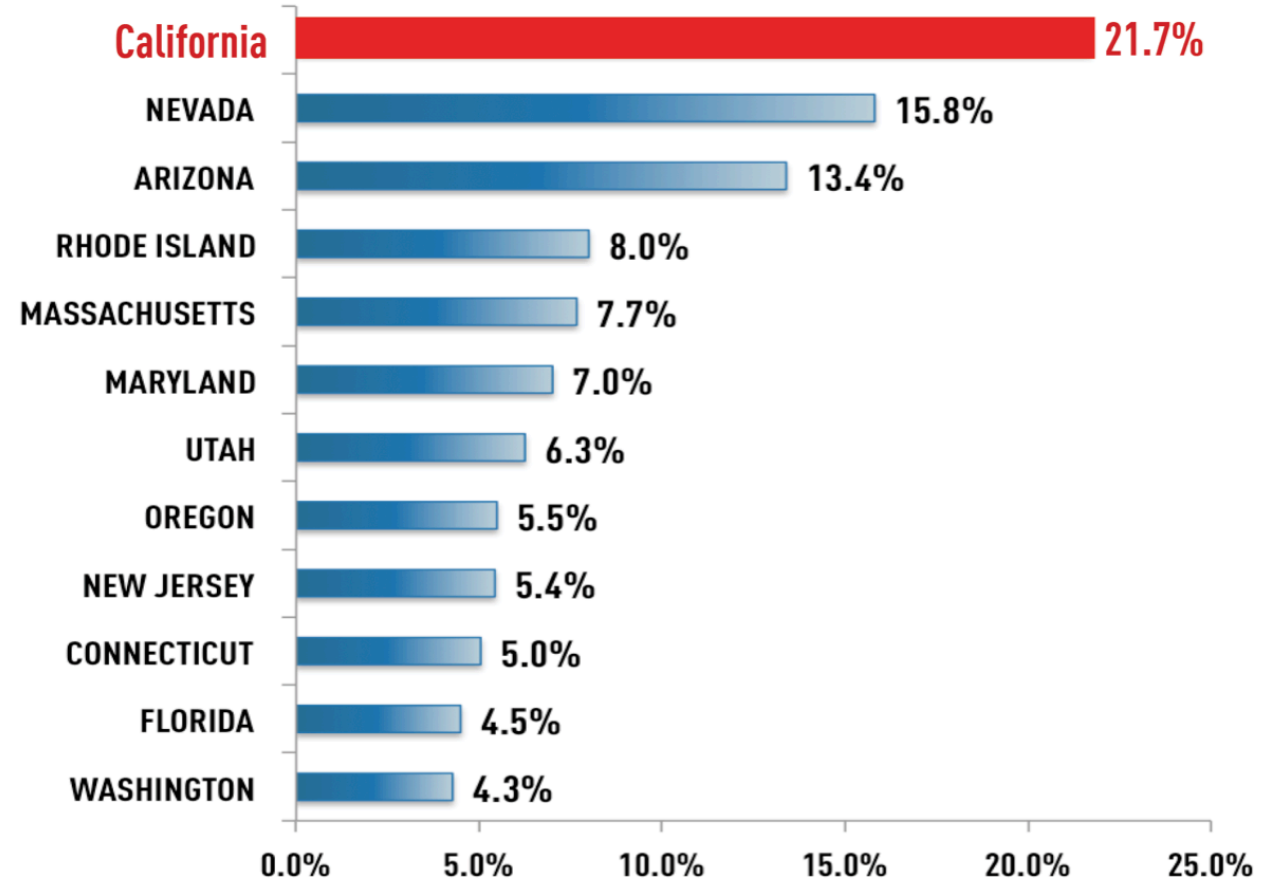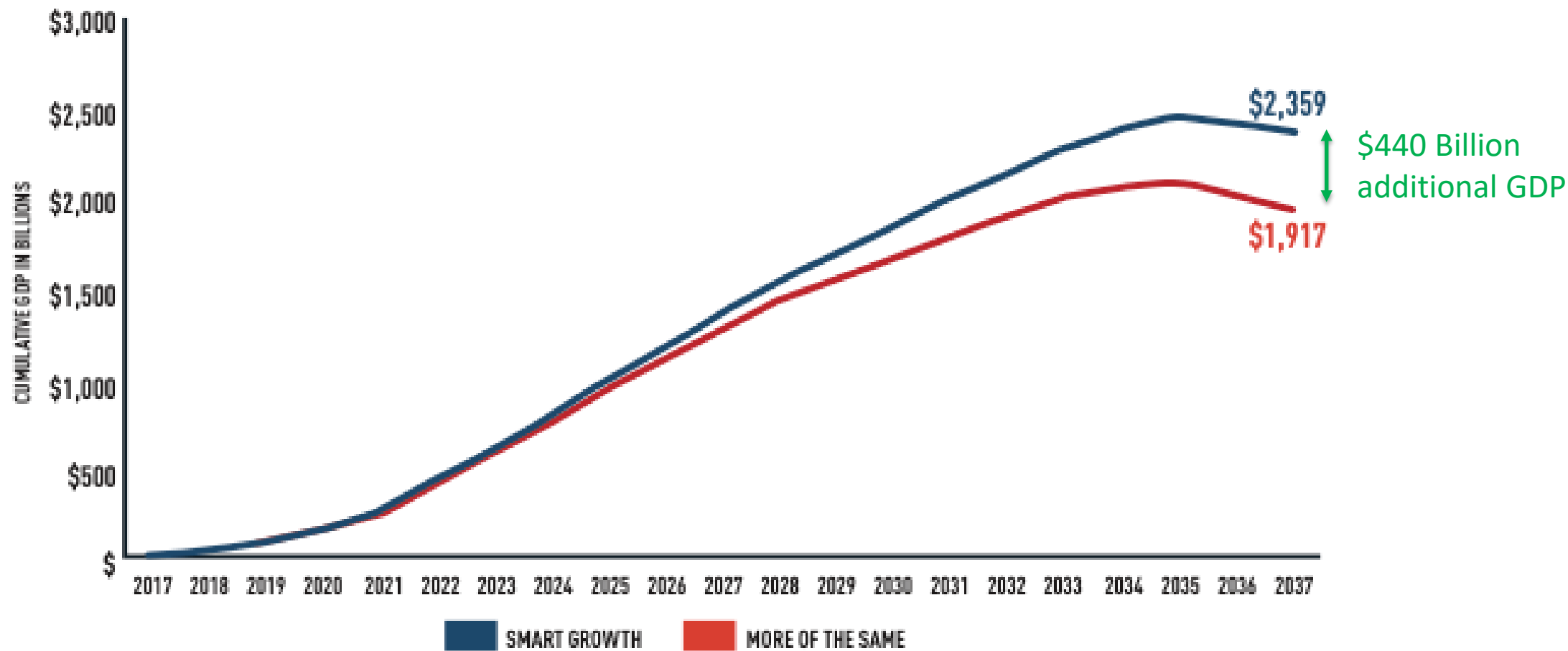
SMART GROWTH PRODUCES $440 BILLION ADDITIONAL GDP OVER 20 YEARS

U.S. CUMULATIVE GDP BY SCENARIO
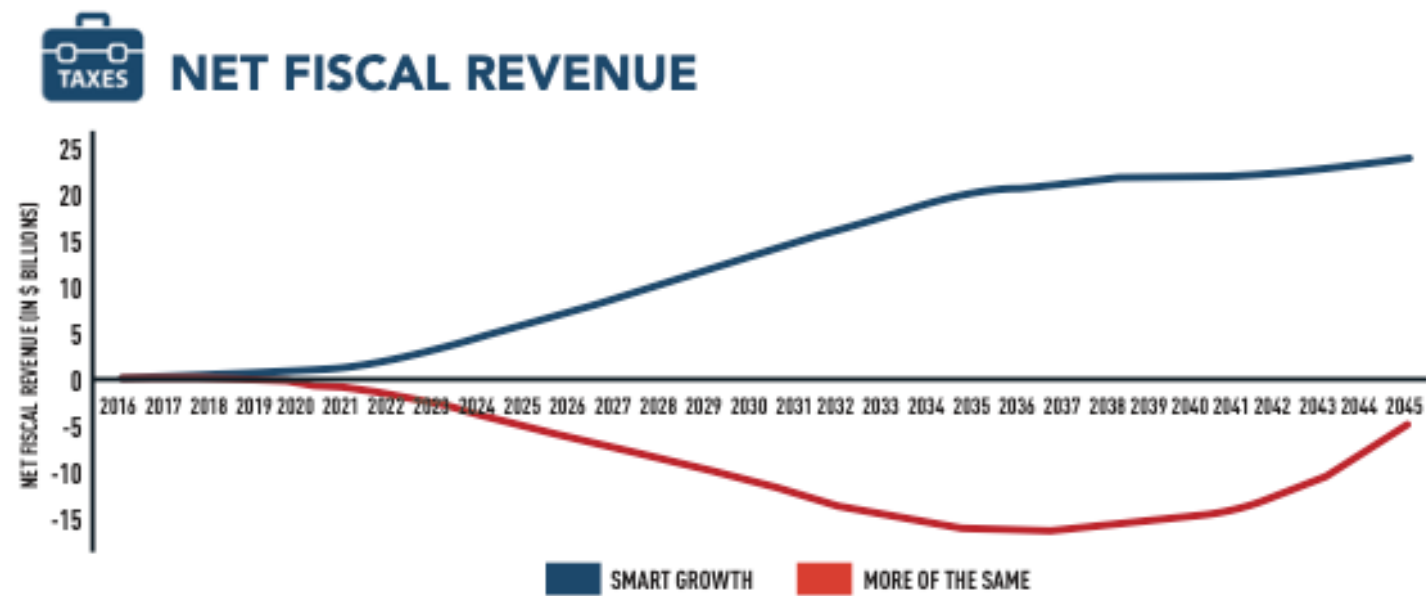20-YEAR PRODUCTION PERIOD COMPARED TO BASELINE

$2,359

$440 Billion additional GDP

$1,917

Legend: SMART GROWTH, MORE OF THE SAME

FISCAL IMPACTS- NET POSITIVE REVENUE FOR SMART GROWTH

NET FISCAL REVENUE

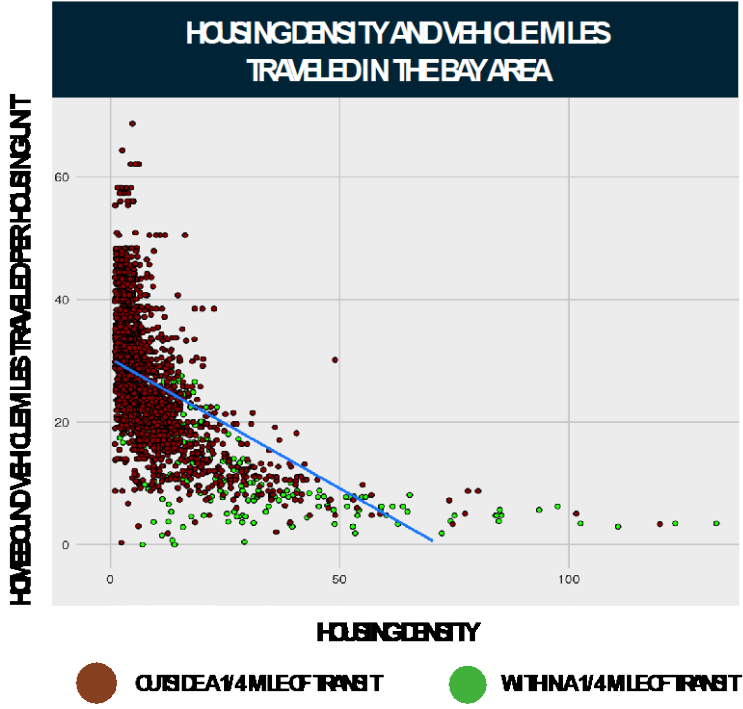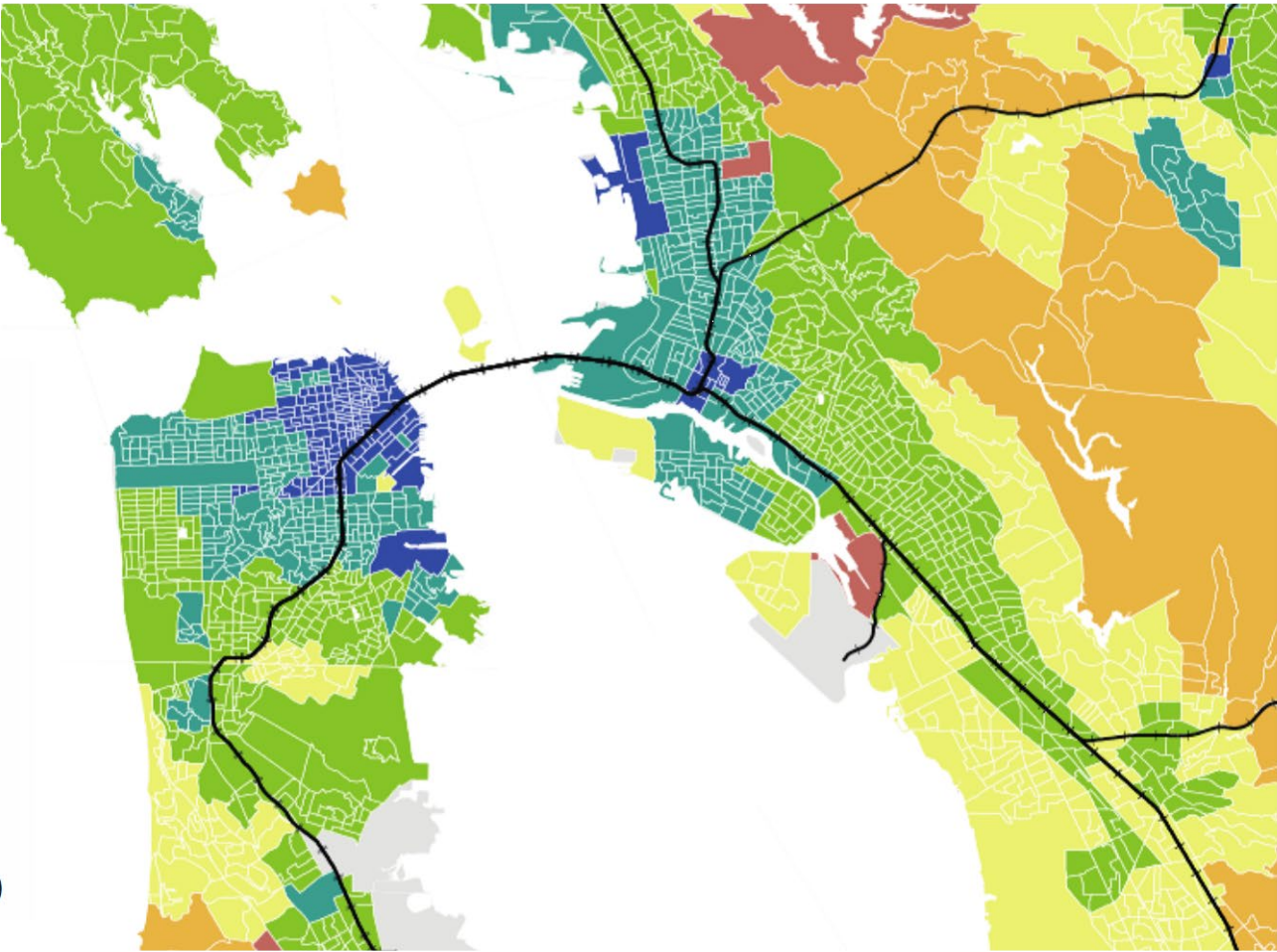| GROWTH SCENARIO		MORE OF THE SAME	SMART GROWTH	% OF TOTAL DIFFERENCE
GOVERNMENT REVENUES	Total Impact Fees	$54B	$40B	-26%
	Property Tax Revenue (20 Yrs)	$204B	$225B	10%
	TOTAL	$258B	$265B	3%
GOVERNMENT EXPENDITURES	Total Infrastructure Spend	$612B	$85B	-86%
	Total O&M Spend	$14B	$4B	-71%
	TOTAL	$626B	$89B	-86%
NET REVENUE (REVENUES – EXPENDITURES)		**($368)B**	**$177B**	**N/A**

Source: ECONorthwest Calculations

ENVIRONMENTAL IMPACT OF SMARTER GROWTH:
LOWER VEHICLE MILES TRAVELED

HOME-BASED VMT PER HOUSING UNIT

- Less Than 10
- 10-20
- 20-30
- 30-40
- 40-50
- Greater Than 50

HOUSING DENSITY AND VEHICLE MILES TRAVELED IN THE BAY AREA

- OUTSIDE A 1/4 MILE OF TRANSIT
- WITHIN A 1/4 MILE OF TRANSIT

IN THE BAY AREA

	MEDIAN HOUSING DENSITY	99TH % HOUSING DENSITY
TRANSIT CORRIDOR	12	125
NON-TRANSIT CORRIDOR	5	43
	MEDIAN VMT	99TH % VMT
TRANSIT CORRIDOR	18	44
NON-TRANSIT CORRIDOR	28	57

Source: ECONorthwest Calculations

CREATED NATIONAL CENSUS TRACT VMT MODEL TO ESTIMATE ENVIRONMENTAL IMPACTS
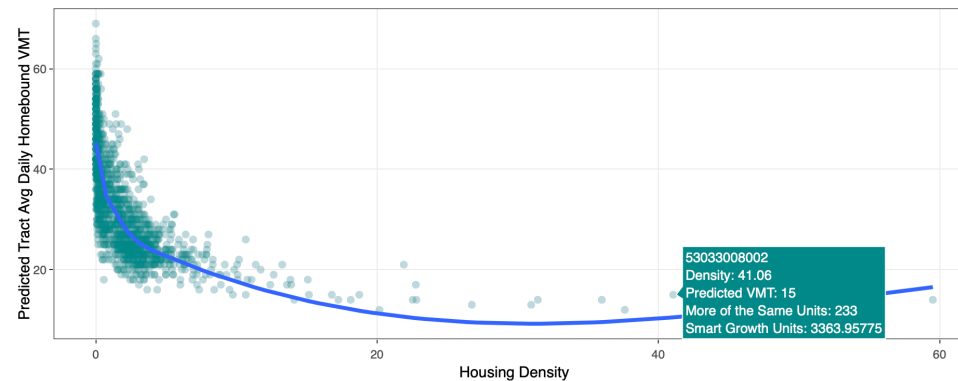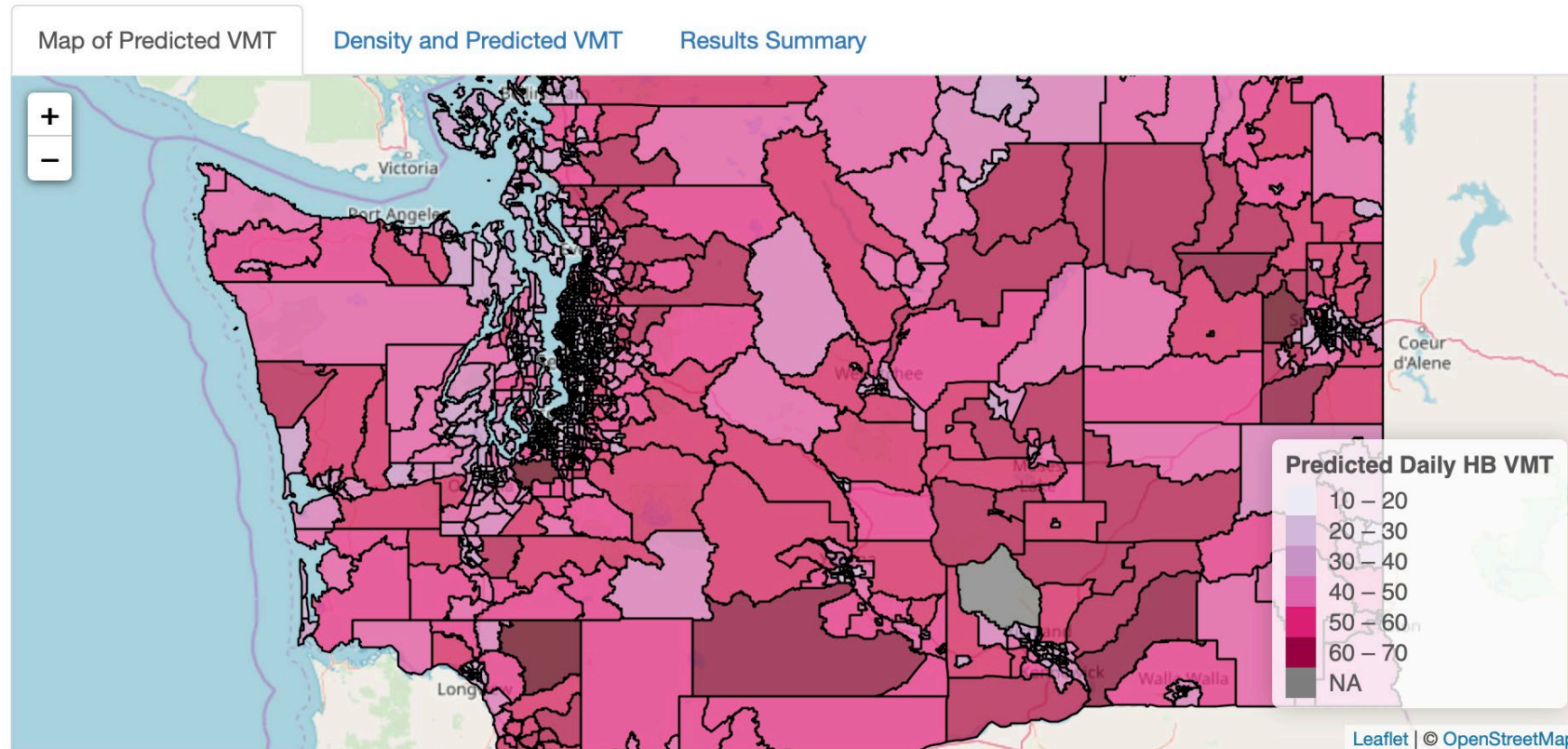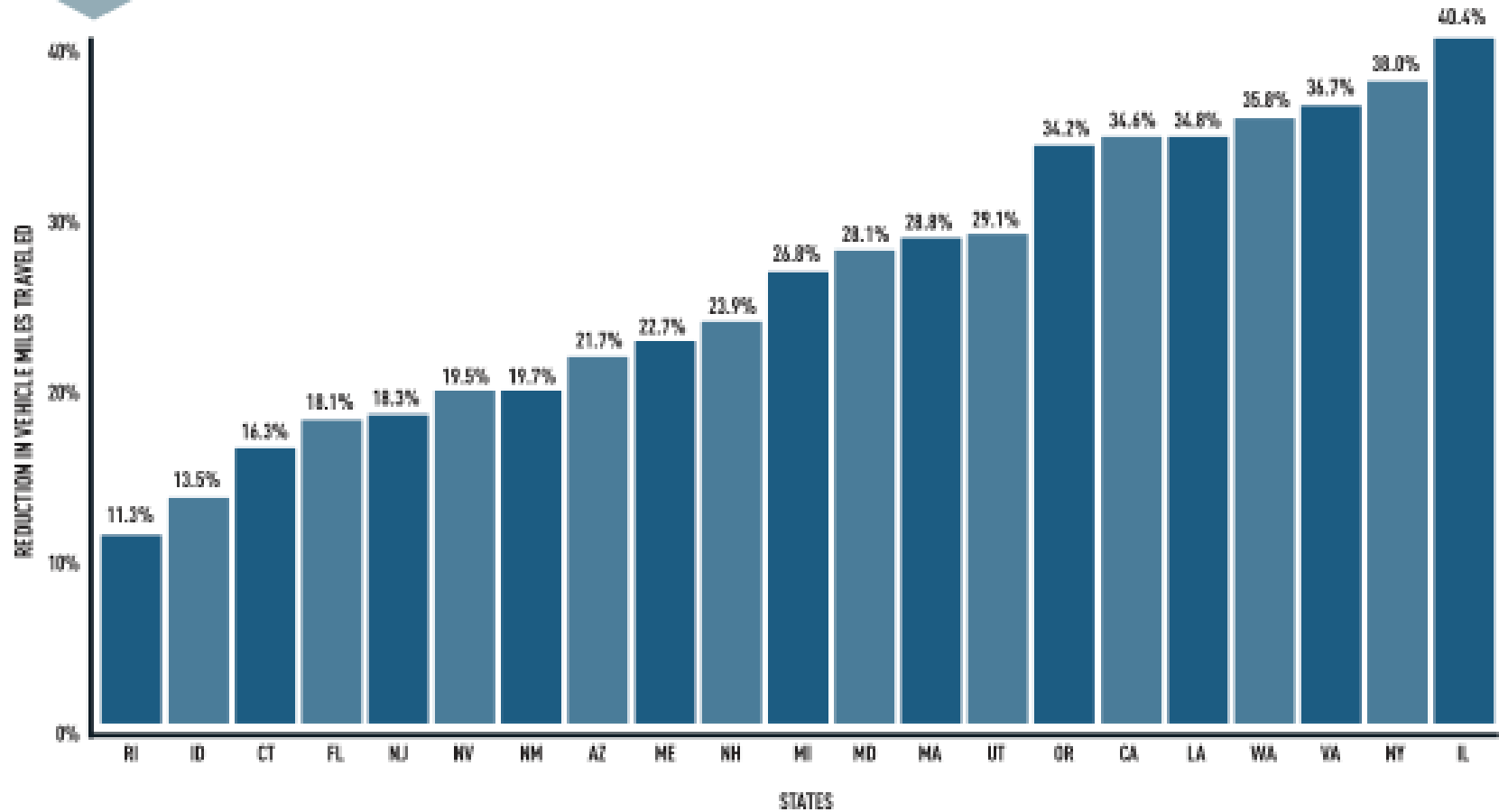

Source: ECONorthwest Calculations

ENVIRONMENTAL BENEFITS: REDUCED CO2 AND CARS ON THE ROAD

VMT REDUCTION WHEN SHIFTING FROM MORE OF THE SAME TO SMART GROWTH

Bar chart — Reduction in Vehicle Miles Traveled by State:

- RI: 11.3%
- ID: 13.5%
- CT: 16.3%
- FL: 18.1%
- NJ: 18.3%
- NV: 19.5%
- NM: 19.7%
- AZ: 21.7%
- ME: 22.7%
- NH: 23.9%
- MI: 26.8%
- MD: 28.1%
- MA: 28.8%
- UT: 29.1%
- OR: 34.2%
- CA: 34.6%
- LA: 34.8%
- WA: 35.0%
- VA: 36.7%
- NY: 38.0%
- IL: 40.4%

SMART GROWTH BENEFITS

7.3 MILLION UNITS UNDERPRODUCED NATIONALLY

	VMT PER DAY	CARS PER YEAR
MORE OF THE SAME	222 M	6.0 M
SMART GROWTH	156 M	4.2 M
DIFFERENCE	66 M	1.8 M

NATIONALLY

	MEDIAN HOUSING DENSITY	99TH % HOUSING DENSITY
TRANSIT CORRIDOR	26.8	185
NON-TRANSIT CORRIDOR	2.8	45

	MEDIAN VMT	99TH % VMT
TRANSIT CORRIDOR	23.1	40.0
NON-TRANSIT CORRIDOR	31.0	60.2

POLICY RECOMMENDATIONS

1 BY-RIGHT APPROVAL
Establish "by-right" high-density development in a half-mile radius around a transit station (roughly 5 percent of a metropolitan region's land area).

2 IMPACT FEE RECALIBRATION
Recalibrate impact fees to reflect actual costs of infrastructure service for high-density development.

3 PROPERTY TAX ABATEMENT
Use property tax abatement as a gap financing tool to enable denser and more affordable housing production.

4 VALUE CAPTURE
Establish mechanisms to capture value created through up-zones and tax abatement investments to be used as dedicated funding for a range of housing programs.

STATE LEGISLATION ENABLING HIGHER DENSITY DEVELOPMENT

California

- More Homes Act
- SB 50
- Upzone in job rich areas and transit corridors
- Excludes areas vulnerable to displacement

Oregon

- HB 2001
- Eliminates single family exclusionary zoning allowing missing middle up to cottage clusters
- SB 10
- Upzoning in transit corridors

Washington

- SB 5769
- Minimum Density standards
- 6 unit per acre minimum
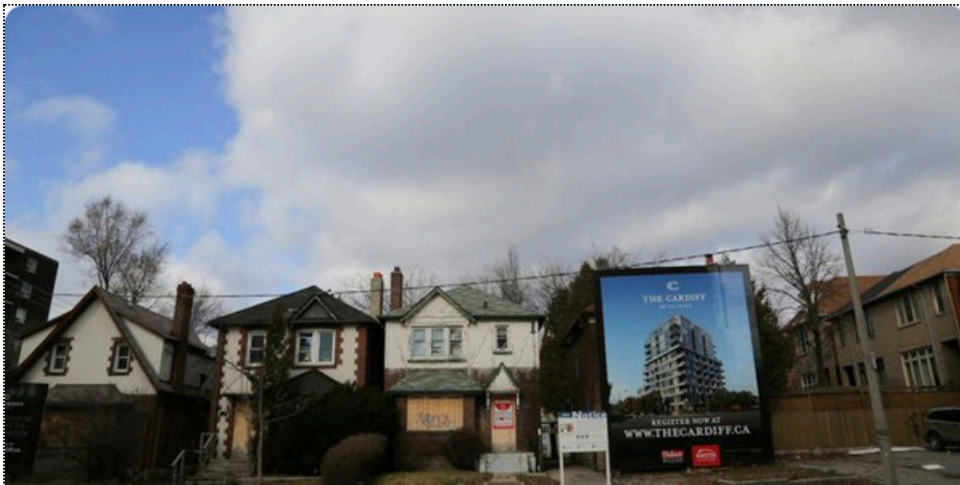- Upzoning in Transit corridors
- Exempt from SEPA

FUTURE RESEARCH NEEDED

Richard Florida ✔
@Richard_Florida

Follow

Upzoning Will Not Solve the Housing Crisis - My @CityLab take on the important new @yfreemark study:

Does Upzoning Boost the Housing Supply and Lower Prices? Maybe Not.
A new study of zoning changes in Chicago finds that they led to higher, not lower, local home prices, while having no discernible impact on local housing supply.
citylab.com

Yonah Freemark ✔
@yfreemark

Replying to @yfreemark @UrbanAffairsRev

Before I get barraged w/ critiques, four points: a) I didn't expect nor "want" this conclusion. b) 5 yrs may not be enough time for full upzoning effects. c) Upzonings are still probably good for affordability @ metro scale. d) We need to approach neighborhood rezoning carefully.

♡ 83   9:14 AM - Jan 29, 2019
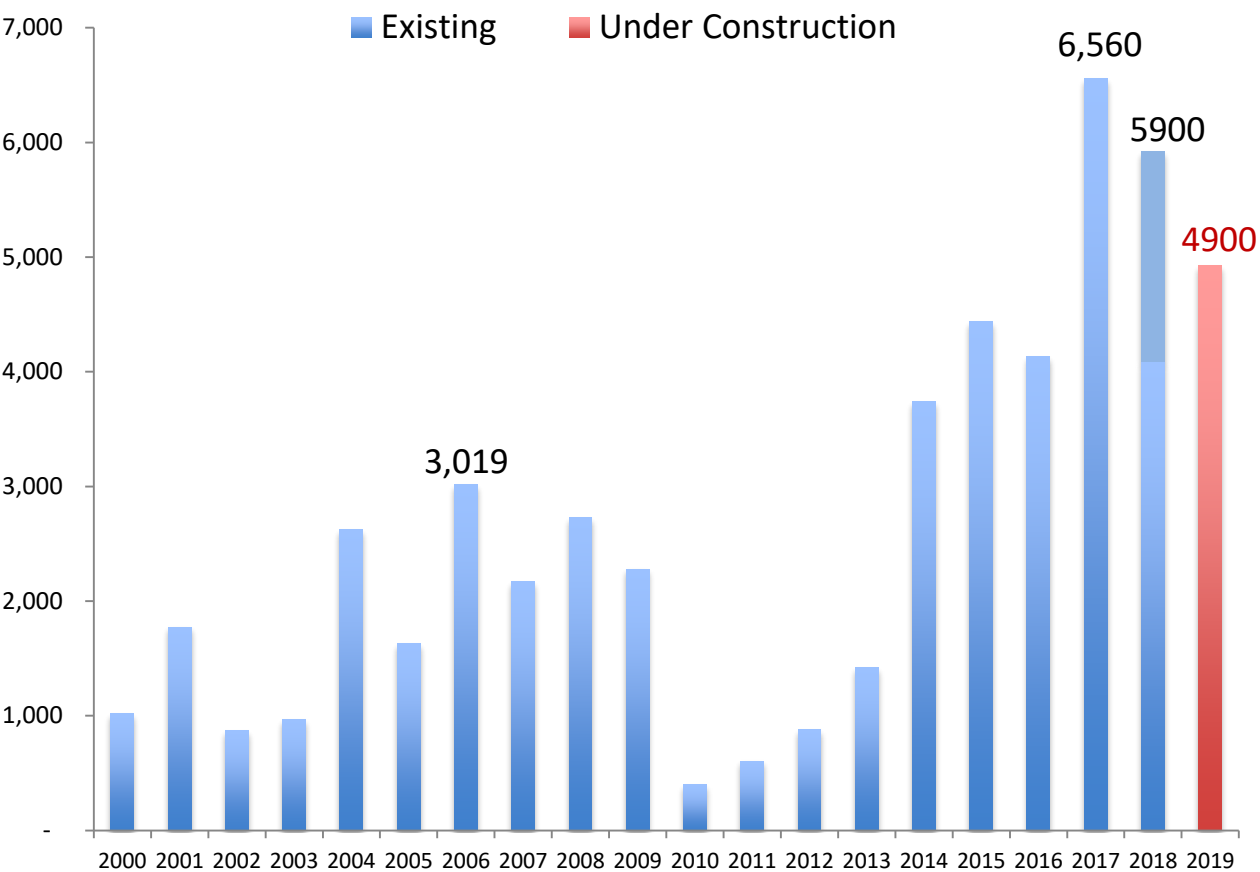
💬 22 people are talking about this

(my thoughts, not Freemark, to be clear)
e) Land transactions occurring at a higher price isn't indicative of less development occurring, it could be a positive outcome
f) 0.5 FAR increase in entitlements isn't impactful upzoning
g) Elimination of a parking ratio could be more impactful on project feasibility than 0.5 additional FAR (not reflected in studies findings)
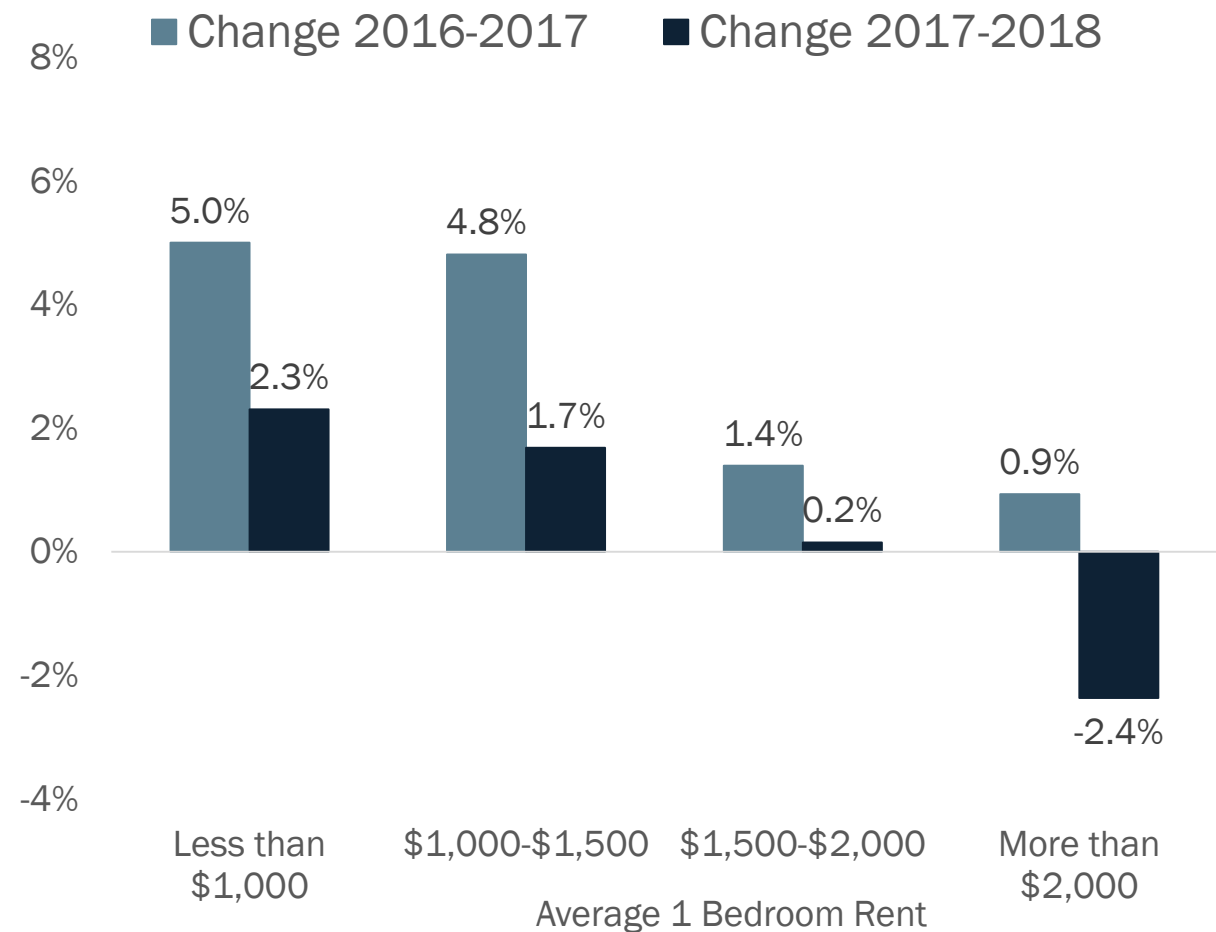
DOES INCREASED APARTMENT CONSTRUCTION REDUCE RENT GROWTH?

City of Portland Multifamily Units

- Existing
- Under Construction

Year	Value
2006	3,019
2017	6,560
2018	5900
2019	4900

Building Level Year over Year 1 Bedroom Change

- Change 2016-2017
- Change 2017-2018

Average 1 Bedroom Rent	Change 2016-2017	Change 2017-2018
Less than $1,000	5.0%	2.3%
$1,000-$1,500	4.8%	1.7%
$1,500-$2,000	1.4%	0.2%
More than $2,000	0.9%	-2.4%

Housing Underproduction and How to Make It Up
Discussion, David Barker

2019 NMHC Research Forum
April 2-3, 2019
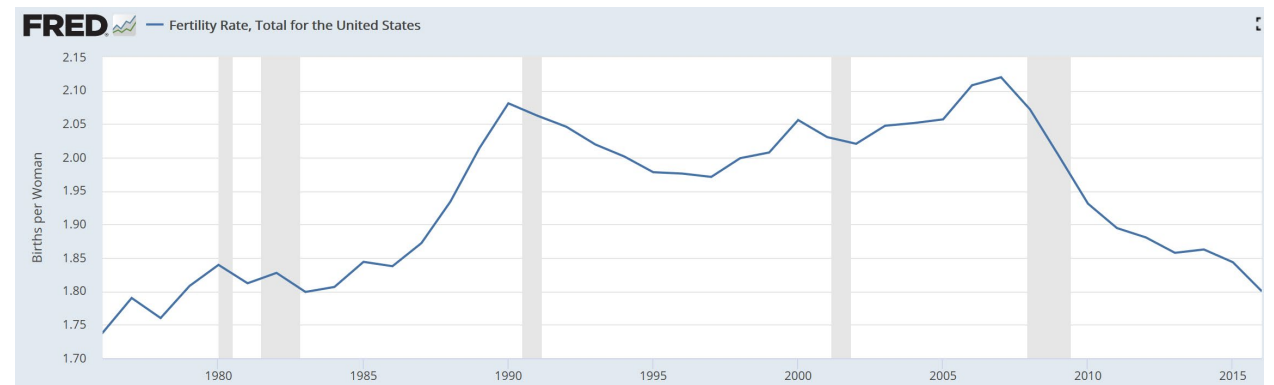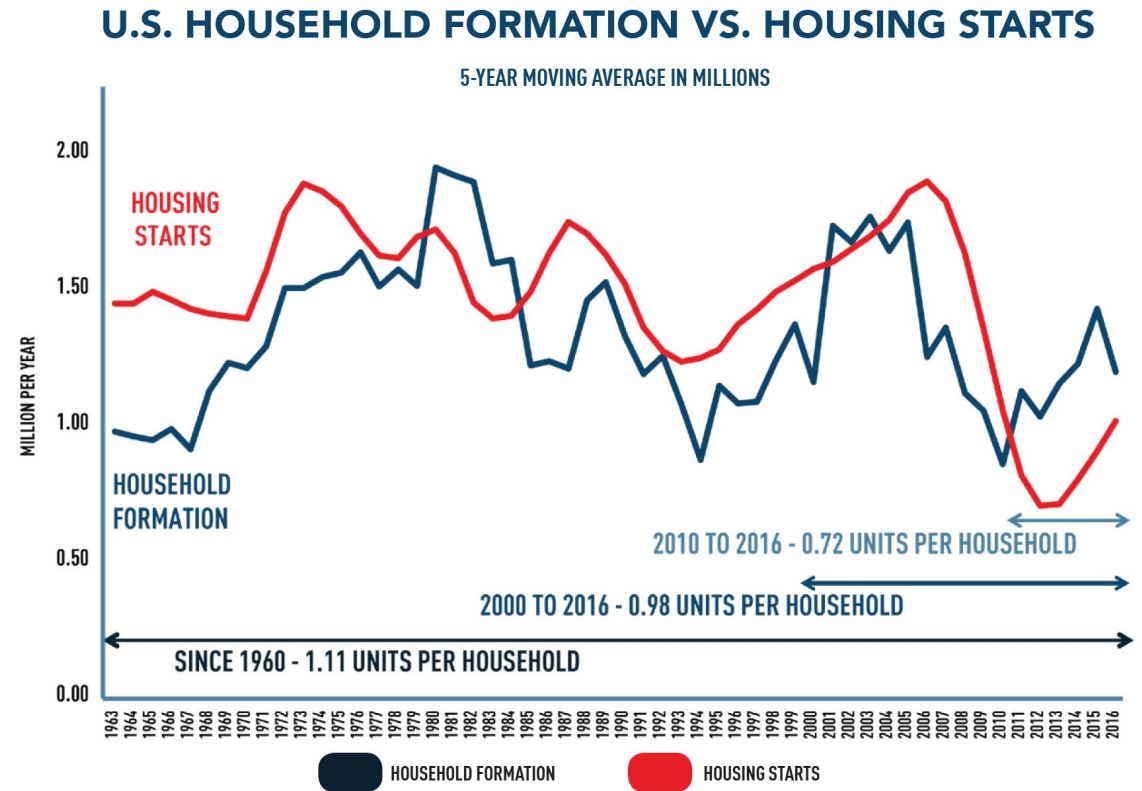
@ApartmentWire
#NMHCresearch

SUMMARY

- Too few housing units are being built
- New housing could be distributed:
  - Same as current housing stock
  - With highest density possible
  - Based on density and public transportation – "smart"
- "Smart" distribution better for environment and public finances
- Incentives for "smart" growth are needed
  - Zoning
  - Impact fees
  - Tax abatement
  - Funding

TOO FEW UNITS?

- 2010-2016 starts < formation
  - compensating for 2003-2010?
- Demographics
  - Show need for more housing?
  - fertility is declining, immigration controversial
  - 2000 baseline might not be appropriate now

U.S. HOUSEHOLD FORMATION VS. HOUSING STARTS
5-YEAR MOVING AVERAGE IN MILLIONS

HOUSING STARTS
HOUSEHOLD FORMATION

2010 TO 2016 - 0.72 UNITS PER HOUSEHOLD
2000 TO 2016 - 0.98 UNITS PER HOUSEHOLD
SINCE 1960 - 1.11 UNITS PER HOUSEHOLD

HOUSEHOLD FORMATION   HOUSING STARTS

FRED — Fertility Rate, Total for the United States

PUBLIC FINANCE IMPACT

- REMI – does the model take account of:
  - Diversion of investment from other projects?
  - Cost of acquiring demolished buildings?
  - Cost of public transit?
    - US vs France subway station cost: 6.5 times higher
    - See https://pedestrianobservations.com/2019/03/03/why-american-costs-are-so-high-work-in-progress/

- Does revenue model include:
  - Education as infrastructure cost? Unfair to low density
  - Sales tax? Residential generates, models often overlook
  - Incentives that are being proposed?

DENSITY

- Objections:
  - Change neighborhood character
  - Replace historic buildings
  - Affordability
    - Housing costs overall lower
    - But units built are higher value
- Strengths
  - Less land use
    - Protect scenic, agriculture, recreation, quiet residential uses
  - Agglomeration economies
  - Better use of infrastructure
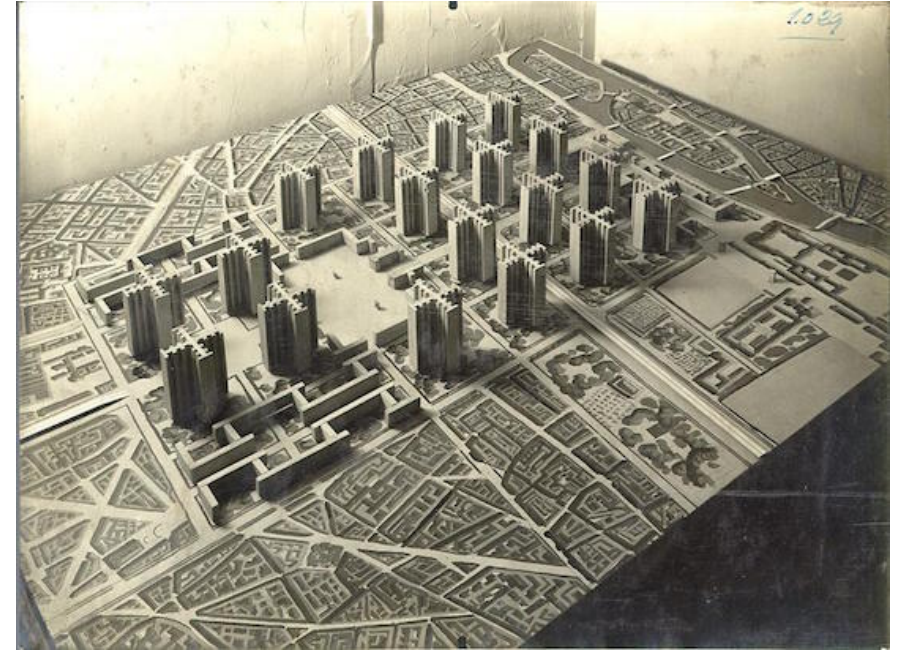
POLITICS

- Freshmen Democrats: future of politics?

- AOC's Democrat opponent supported Queens project
  - He pushed for low-income set asides
  - AOC said wasn't enough, was a corrupt deal

- After her win, politicians withdrew support
  - Project is going forward –
  - but without low income set asides

- Any REMI model would show Amazon having positive impact
  - Opposed, defeated by many local politicians