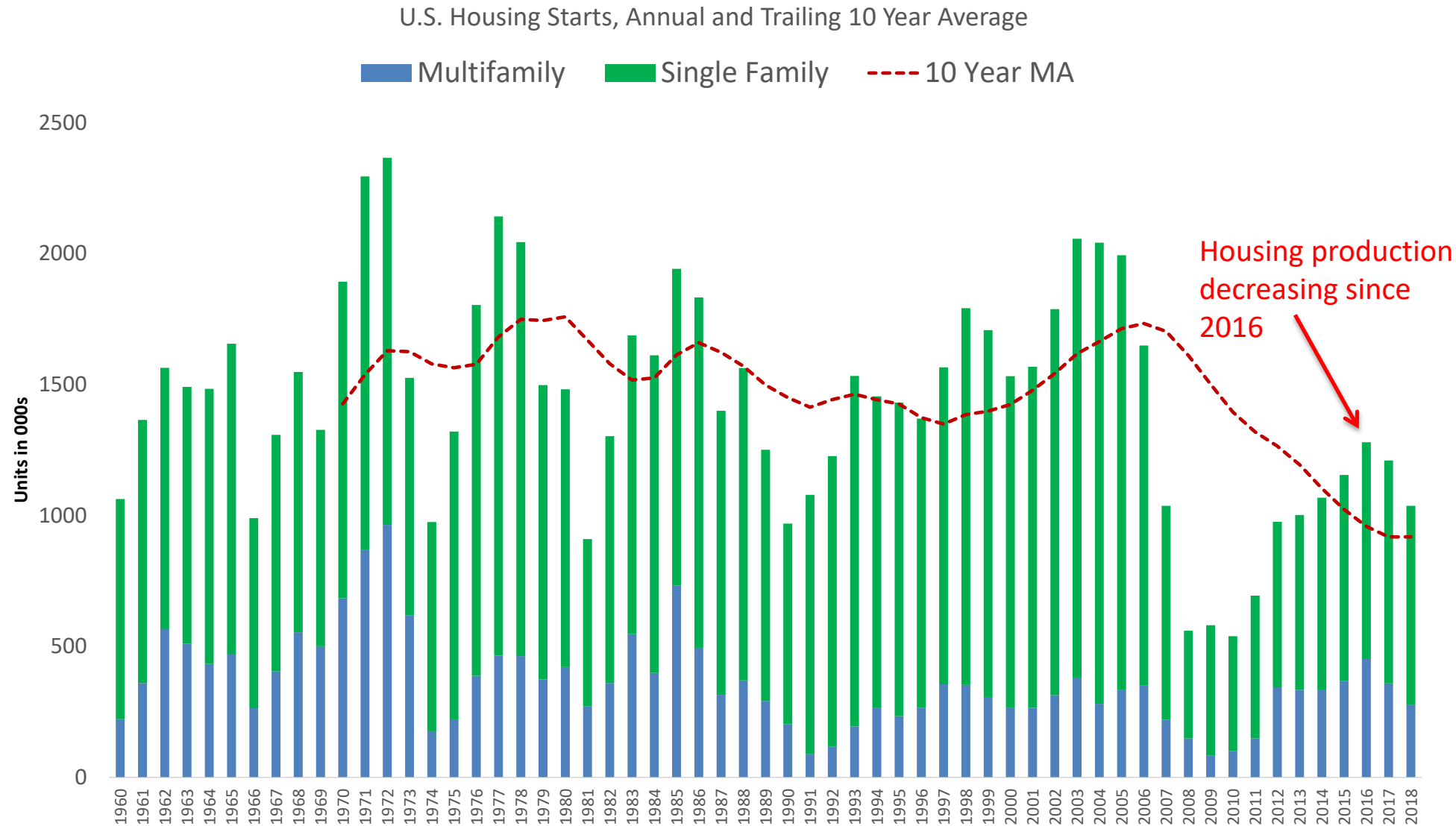


# Modeling the Impact of Housing Policy and Zoning Changes in REMI

January 22<sup>nd</sup>, 2020 REMI Webinar

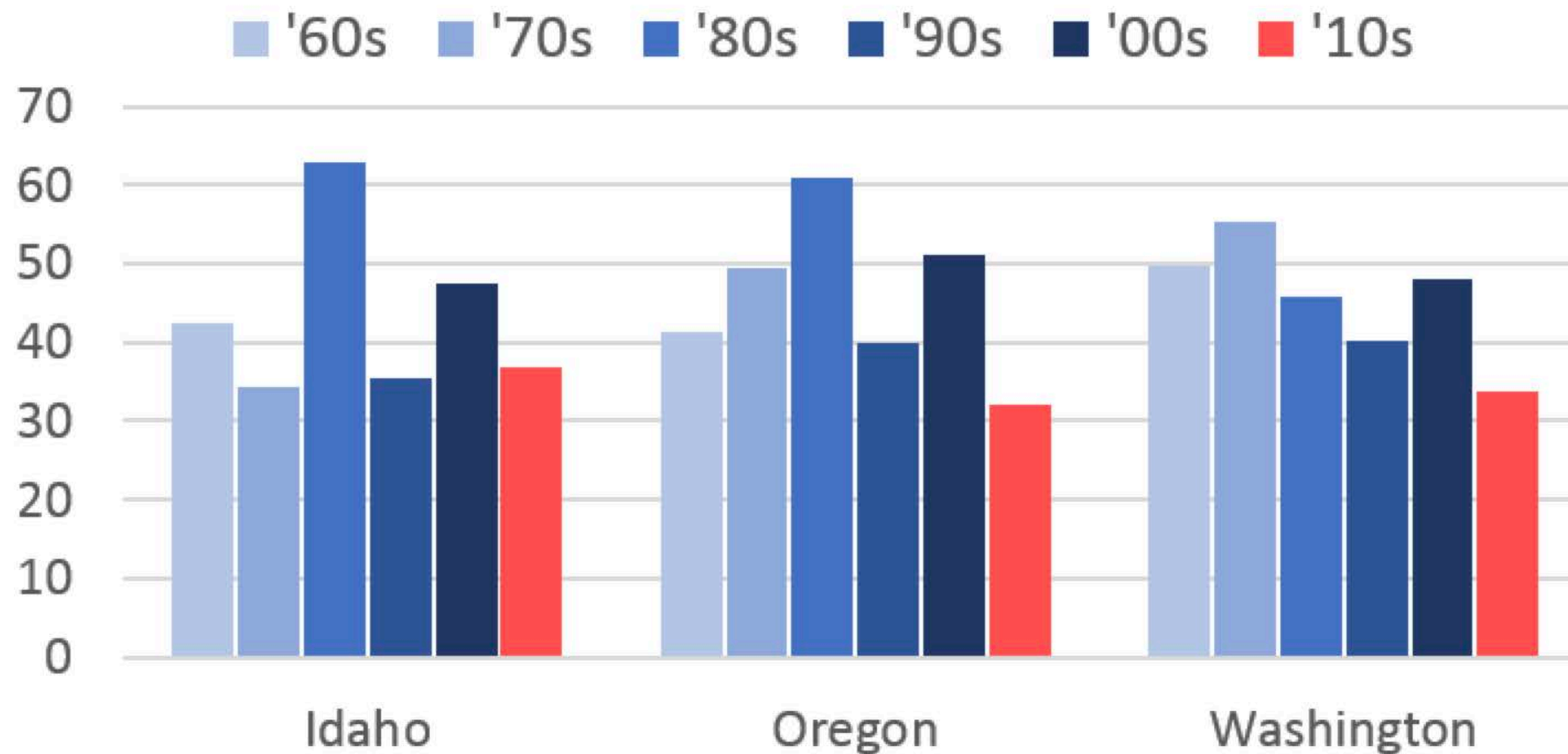
# The last ten years has seen the fewest housing units built in U.S. since the 1960's



# Housing production is not keeping up with household

## New Construction in the PNW

New Units per 100 New Residents



Source: Census, Oregon Office of Economic Analysis

# Policy responses to housing affordability crises



Business Markets World Politics TV More

BIG STORY 10 APRIL 8, 2019 / 5:08 AM / 6 MONTHS AGO

## In U.S. first, Minneapolis rethinks housing density to make homes cheaper

Carey L. Biron

7 MIN READ



## Will Banning Single-Family Zoning Make for More Affordable Homes?

*Minneapolis effectively eliminated single-family zoning in order to undo decades of segregation and create more affordable housing options. Other states are watching closely.*



In December 2018, Minneapolis approved a plan that allows for duplexes and triplexes, effectively eliminating the future of building more single-family housing.

Photo by Kubrak78/Getty Images



# Policy responses to housing affordability crises



AFFORDABLE HOUSING

## Oregon just enacted statewide rent control—and it could be a model for the country

*"It's the most immediate and effective way to stop displacement and gentrification at scale."*

By **Alissa Walker** | @awalkerinLA | Mar 8, 2019, 1:21pm EST



BROOKINGS

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THE AVENUE

## Oregon's new rent control law is only a band-aid on the state's housing woes

Jenny Schuetz · Friday, March 1, 2019

# Policy responses to housing affordability crises

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**U.S.**

## California Governor Signs Rent Law Amid Rising Housing Costs, Homelessness

Measure limits annual rent increases at 5%, plus the rate of inflation; critics want more done to address housing costs, shortage

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San Francisco has had rent control for decades, but it has not been spared from a housing squeeze and rising homelessness. A state law approved Wednesday aims to strengthen tenant protections.

Jim Wilson/The New York Times



## **Oregon Legislature Passes Nation's First State-wide Ban on Single-Family Zoning in Cities**

**Two- three- and four-unit buildings will now be allowed in urban Oregon neighborhoods on lots where only one home was previously allowed.**



Single-family housing in the Hollywood neighborhood (Walker Stockly)

# Need for integrated approach to land use modeling

## Upstream



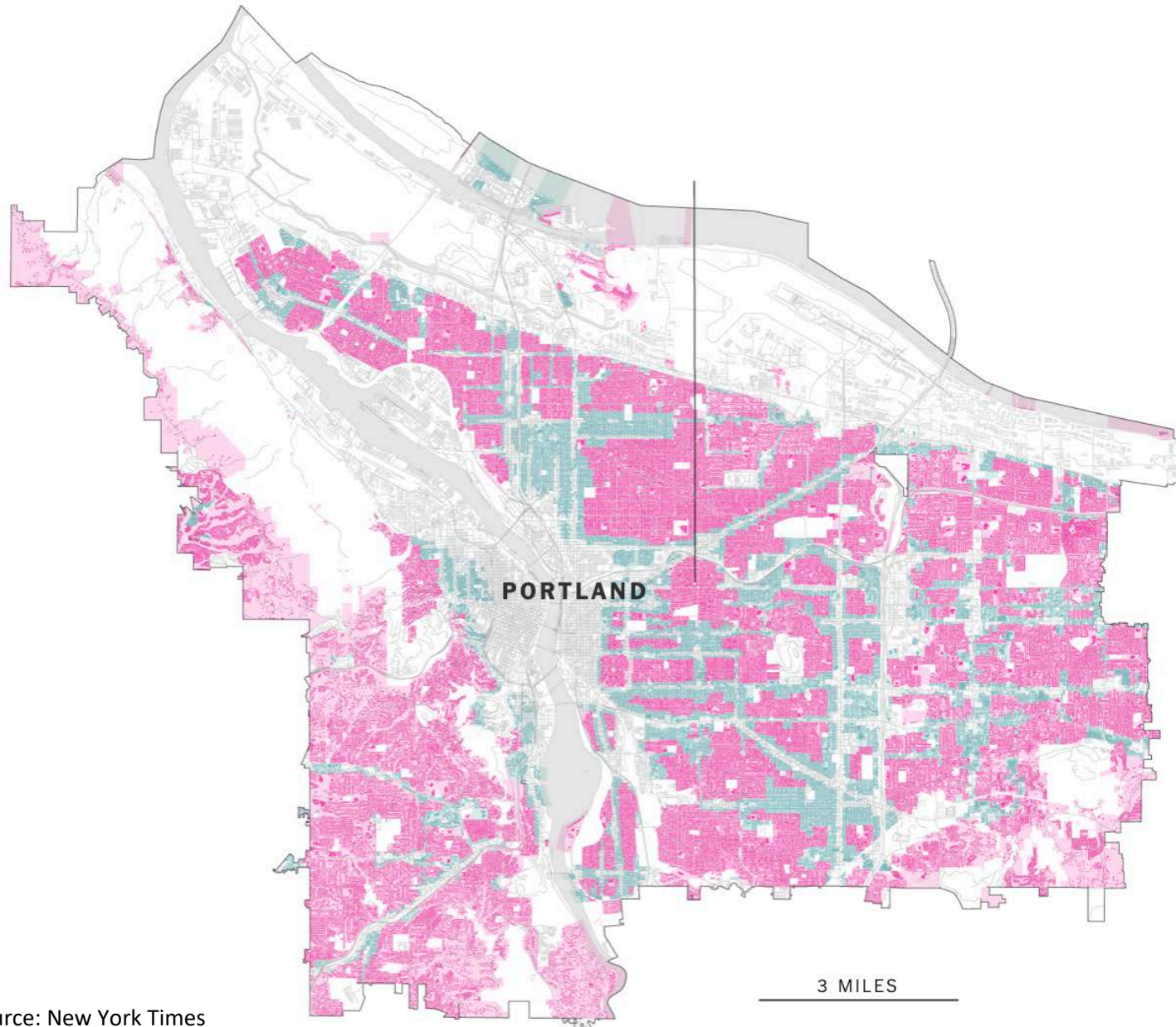
## Downstream





- “In cities with more than 25,000 residents, duplexes, triplexes, fourplexes, and “cottage clusters” would be allowed on parcels that are currently zoned exclusively for single-family detached units; in cities of at least 10,000, duplexes would be allowed in single-family zones.”
- Both large and small cities will need to update their existing codes and regulations to account for HB 2001

# What is the legislation hoping to achieve?



City of Portland  
77% of land is zoned for  
detached single-family homes



1. Will the legislation increase unit production?
2. Where?
3. What will it look like?
4. Will the new units be rental or ownership?
5. Will the rent/price be affordable to households earning less than the median family income?
6. What impact will it have on neighborhood composition, gentrification, displacement?
7. What are the economic, fiscal, and environmental impacts from the legislation?



# Legacy of exclusionary zoning dates back to redlining

Home Owners Loan Corporation (HOLC) produced residential security maps in the late 1930s

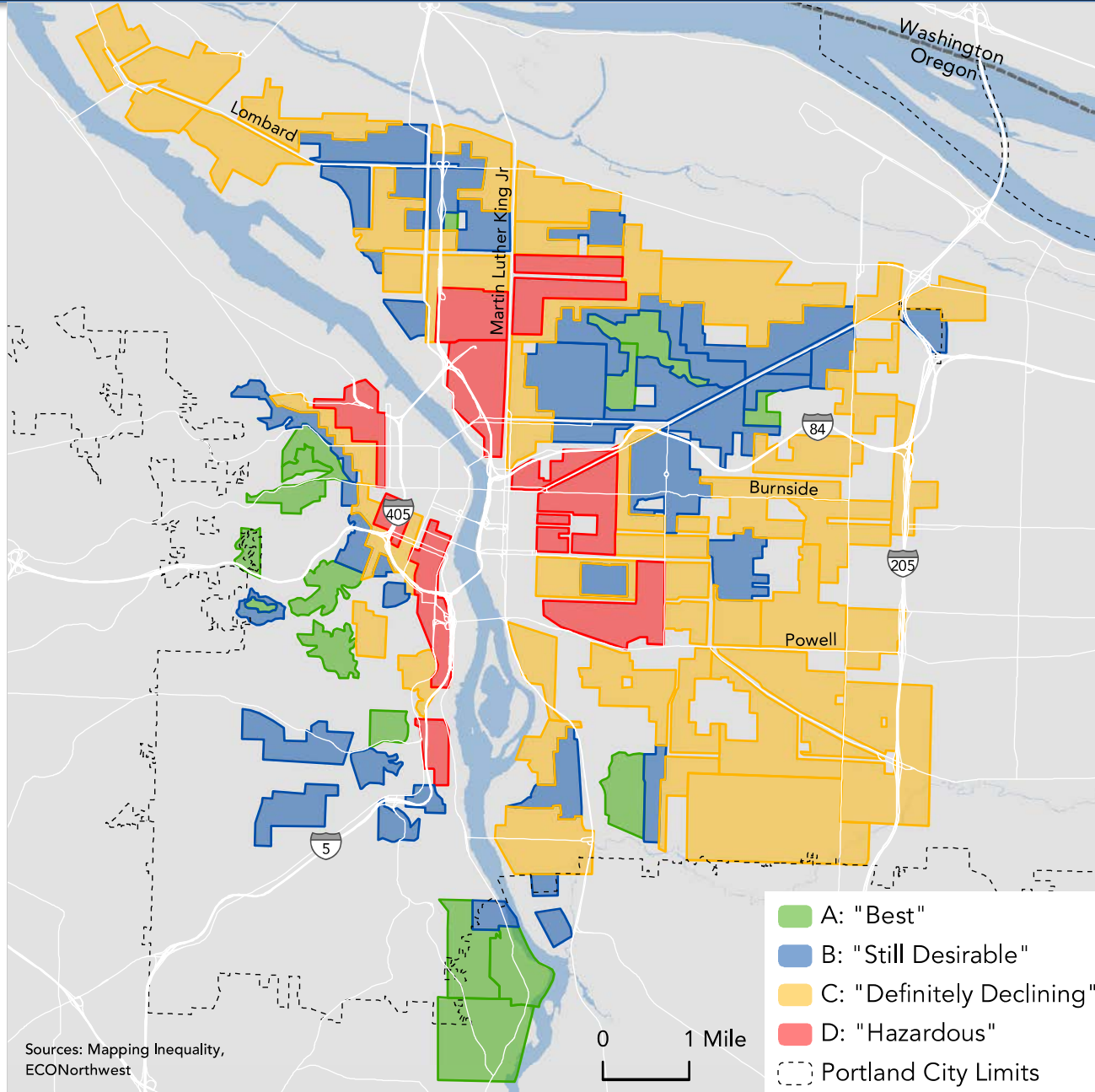
Residential security maps were produced to assess credit risk of neighborhoods

A "Best"

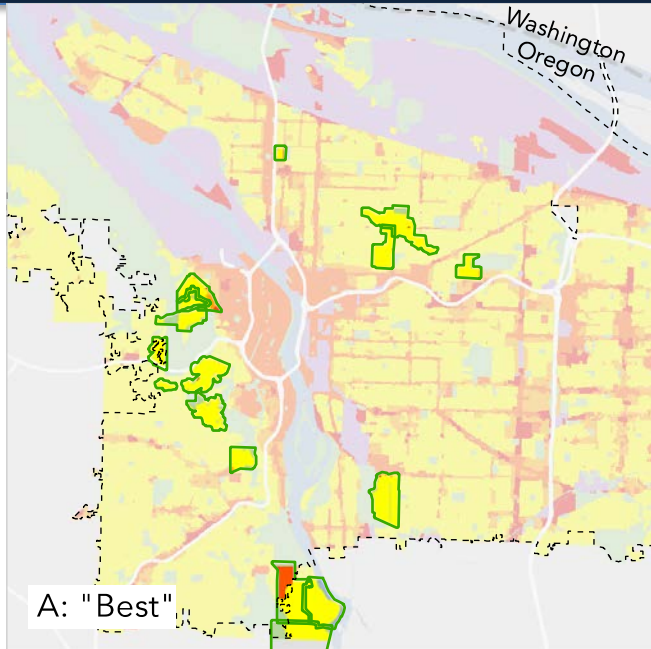
B "Still Desirable"

C "Definitely Declining"

D "Hazardous"



# Single family neighborhoods from the 1930's are still 80%+ exclusionary today



B: "Still Desirable"

Percent Exclusionary  
Single Family Zoned

A = 81%

B = 83%

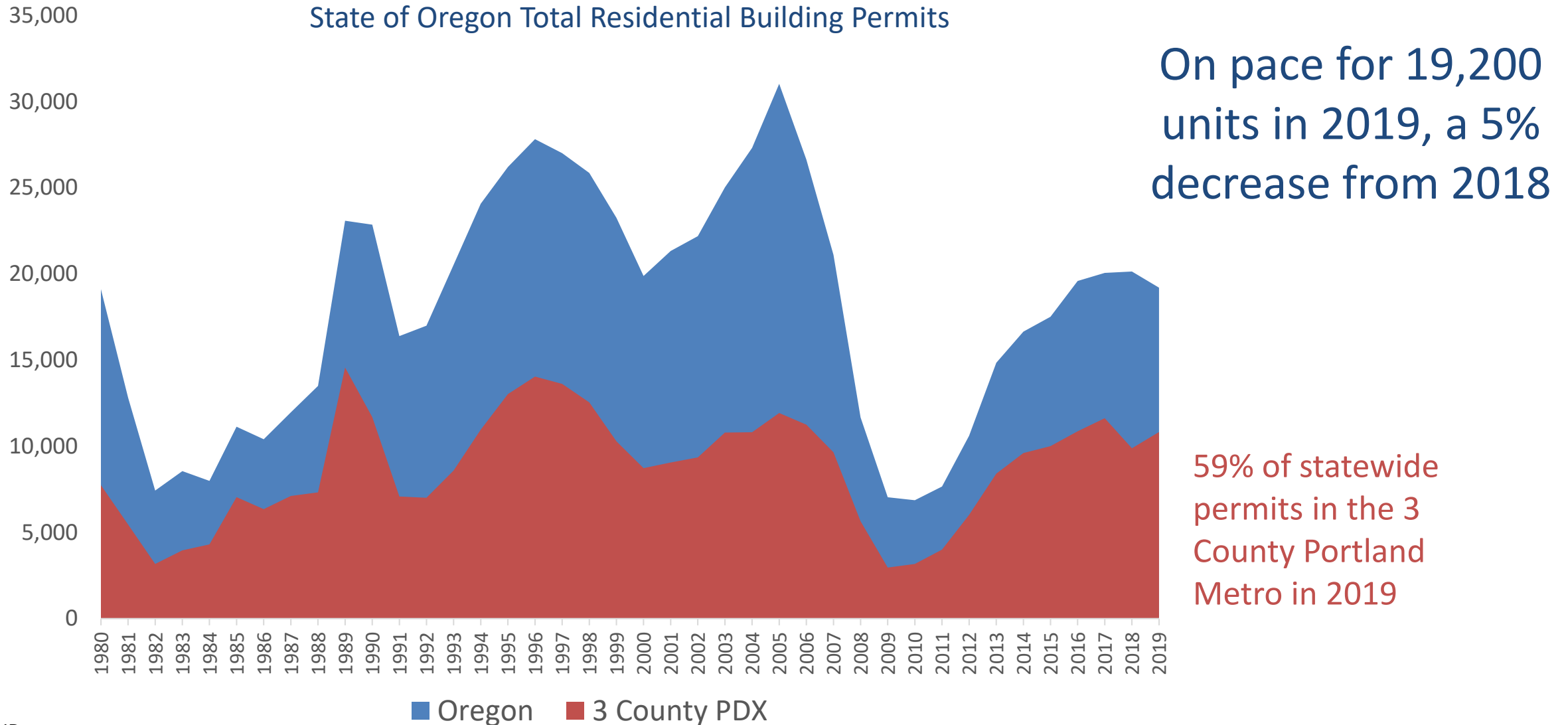
C = 65%

D = 46%

C: "Definitely Declining"

D: "Hazardous"

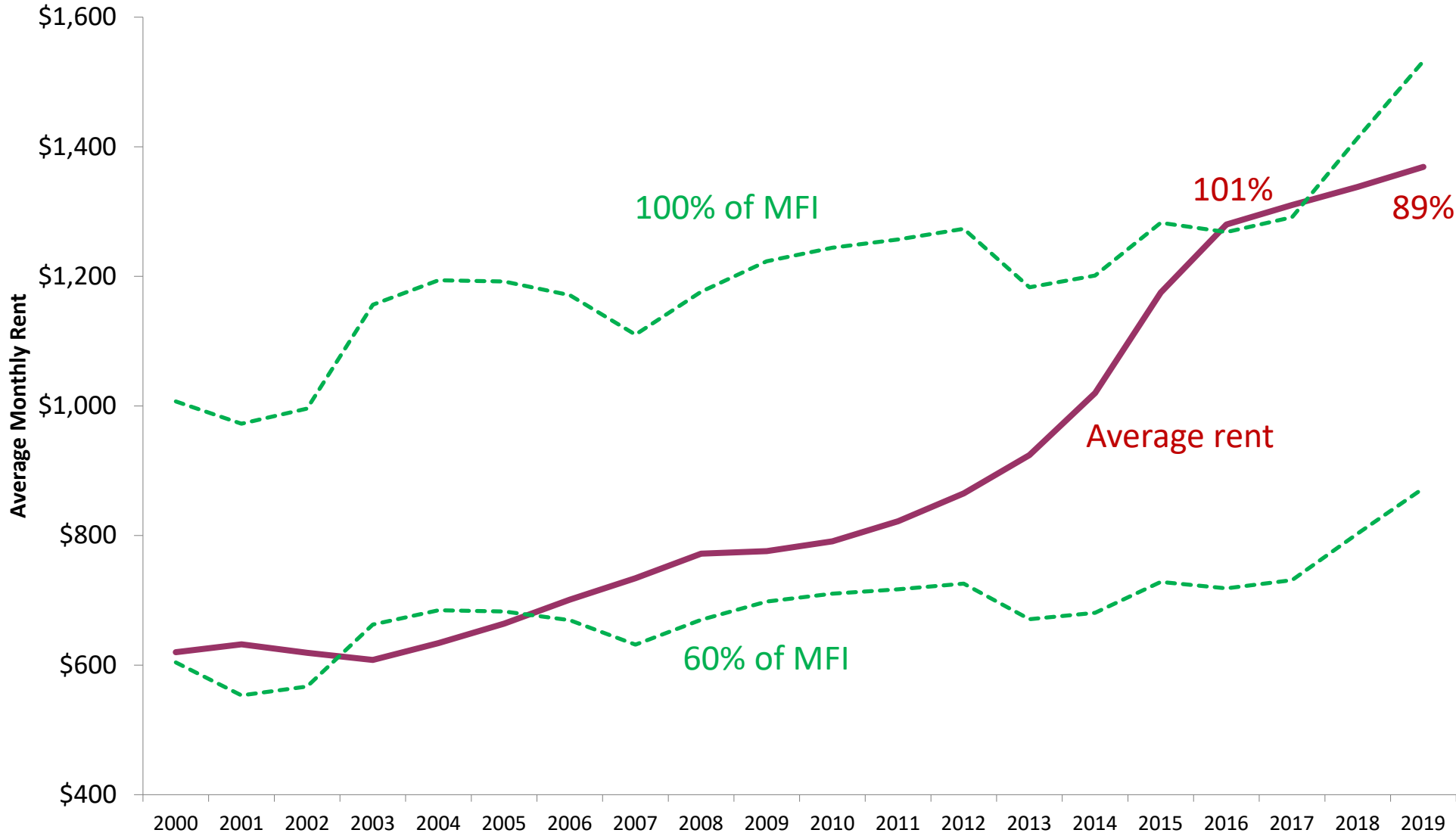
# The market is not delivering as many units as in previous





# Housing is not affordable, but worst of crisis is behind us

City of Portland -- Average 1 bedroom unit affordability



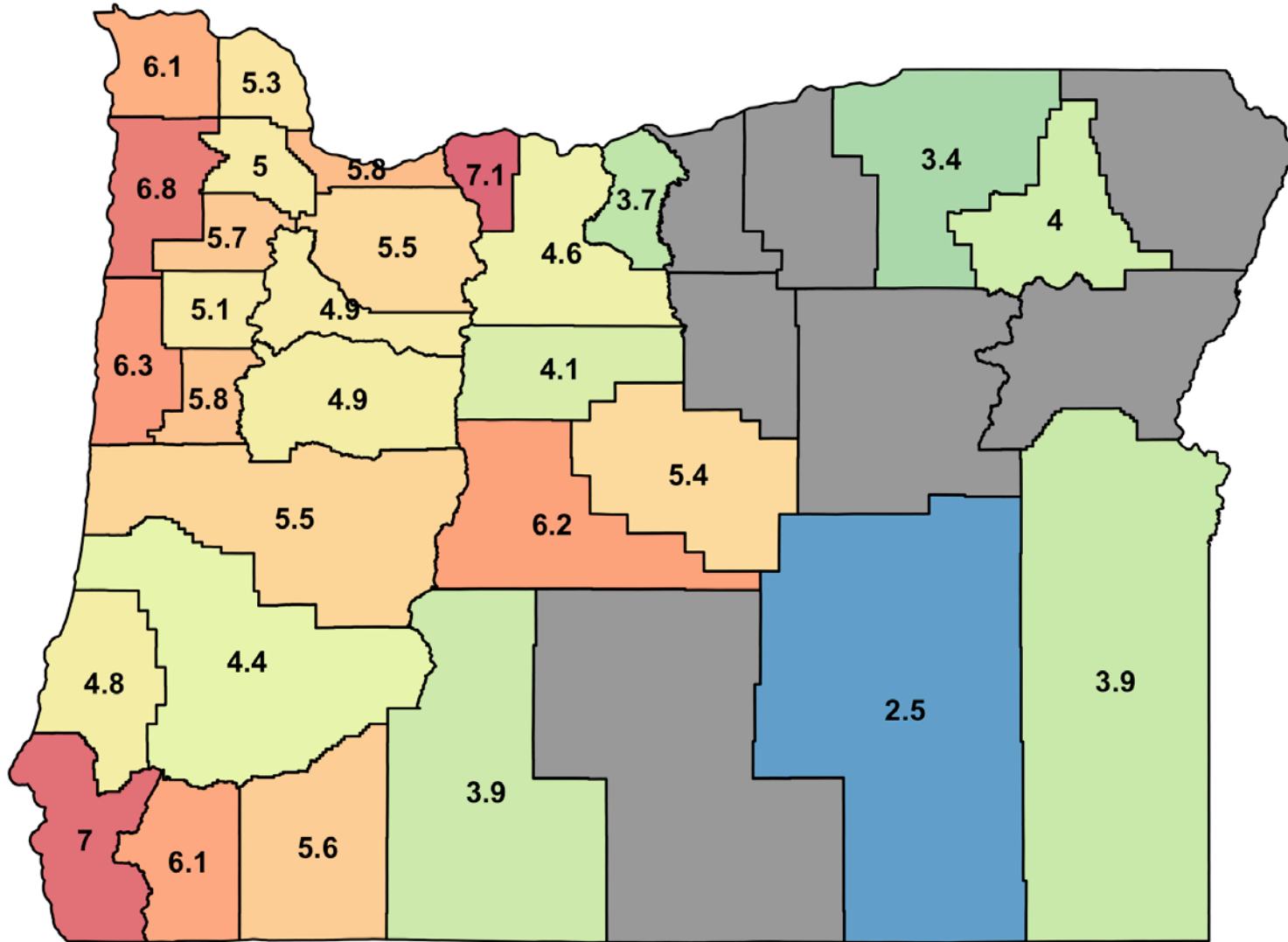
Affordability of 1 bedroom units as a percent of MFI

Medford = 90%  
Bend = 101%  
Eugene = 102%

Affordability is improving except in Eugene

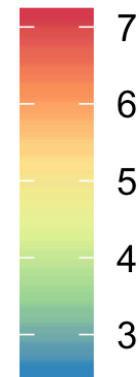
# Homeownership affordability challenging across the state

2018 Ratio of Home Value to Median Household Income



National historic target ratio is 3.0

Ratio Value/Income

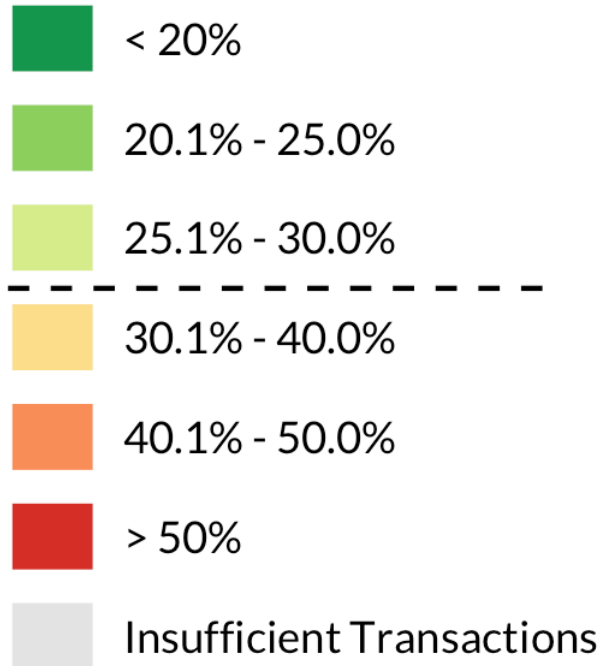


# Home affordability in 2019 with 20% down payment

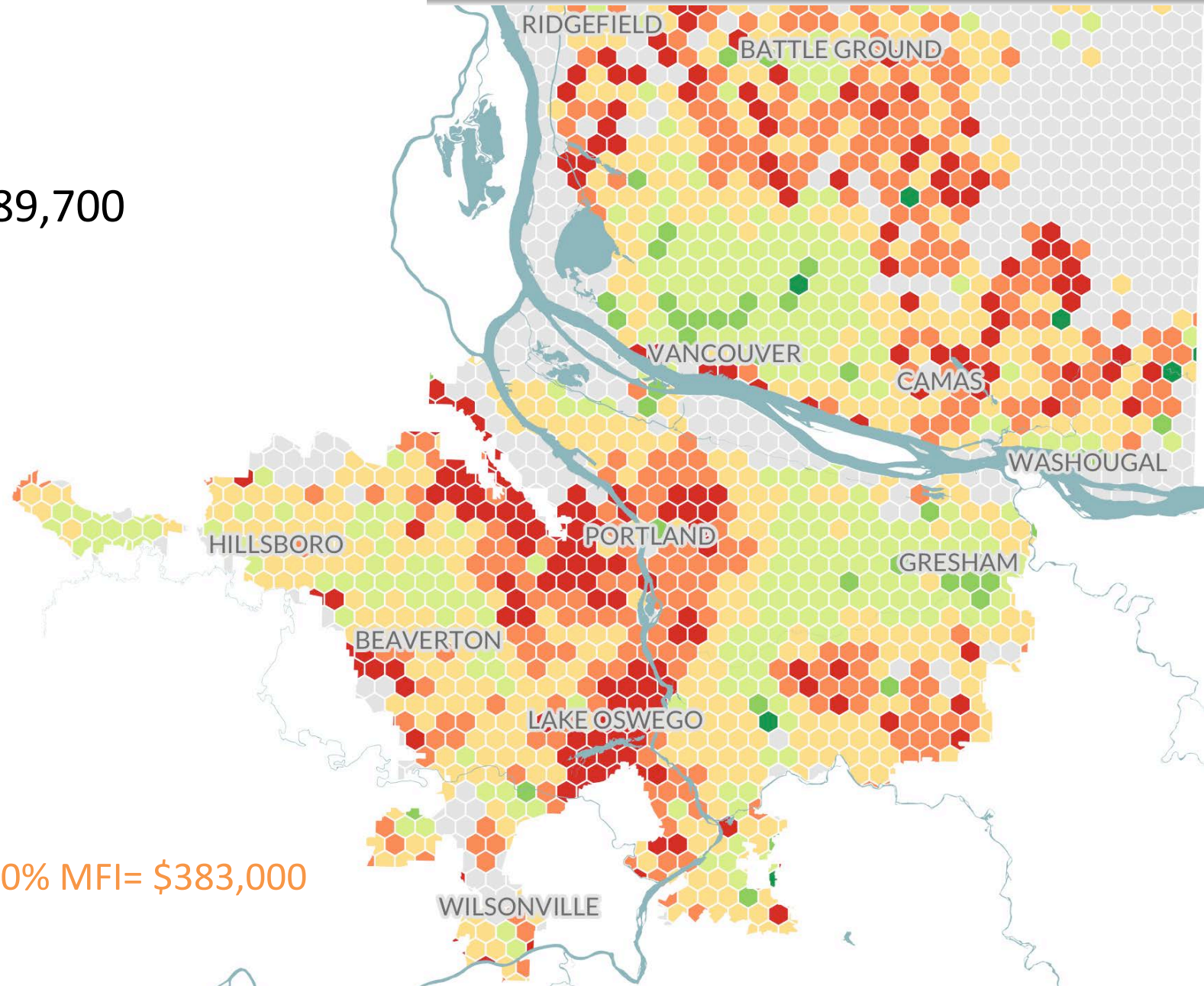
2019 Home Affordability

20% down payment

Median Family Income = \$89,700

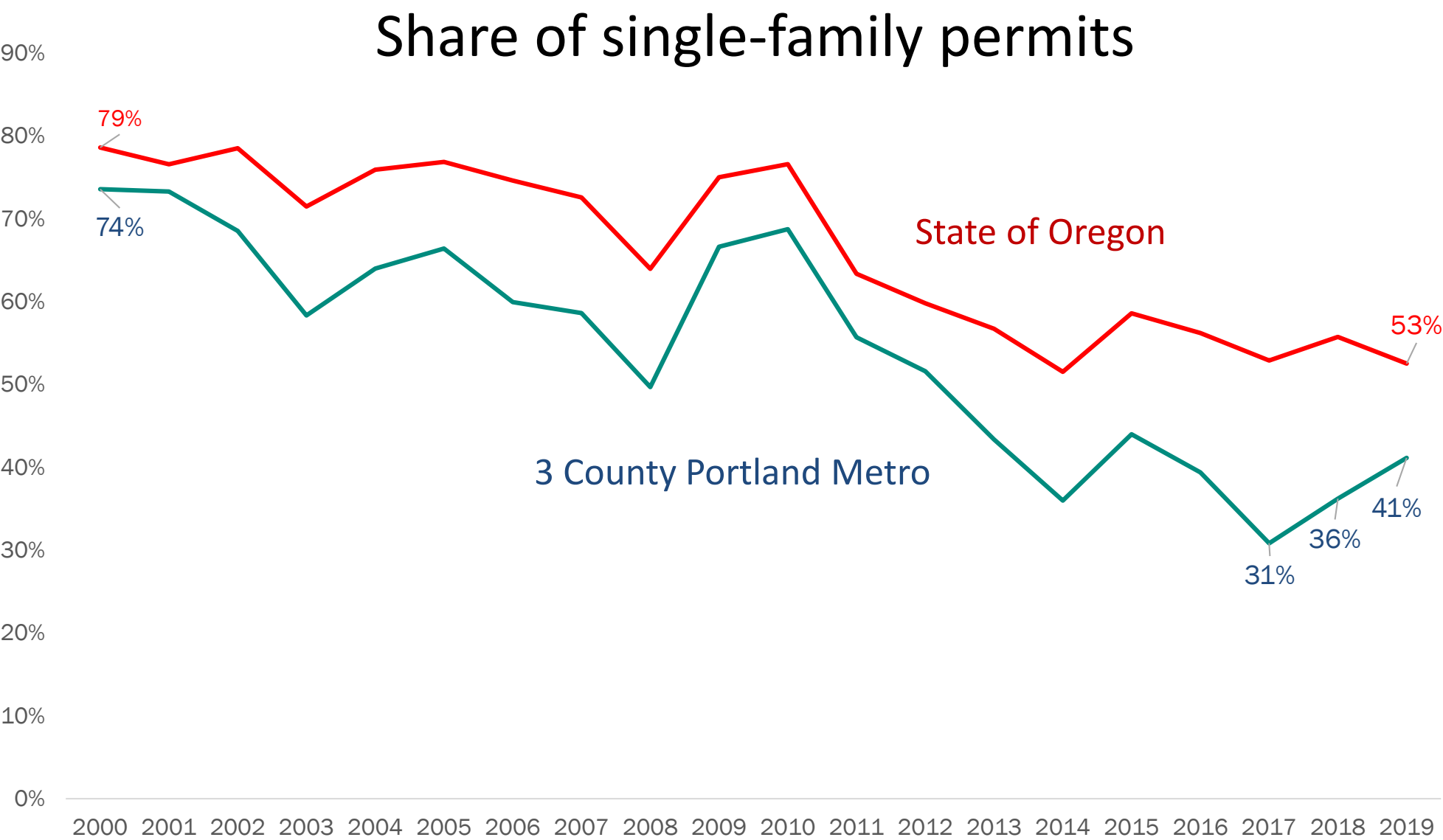


Maximum affordable price at 100% MFI= \$383,000



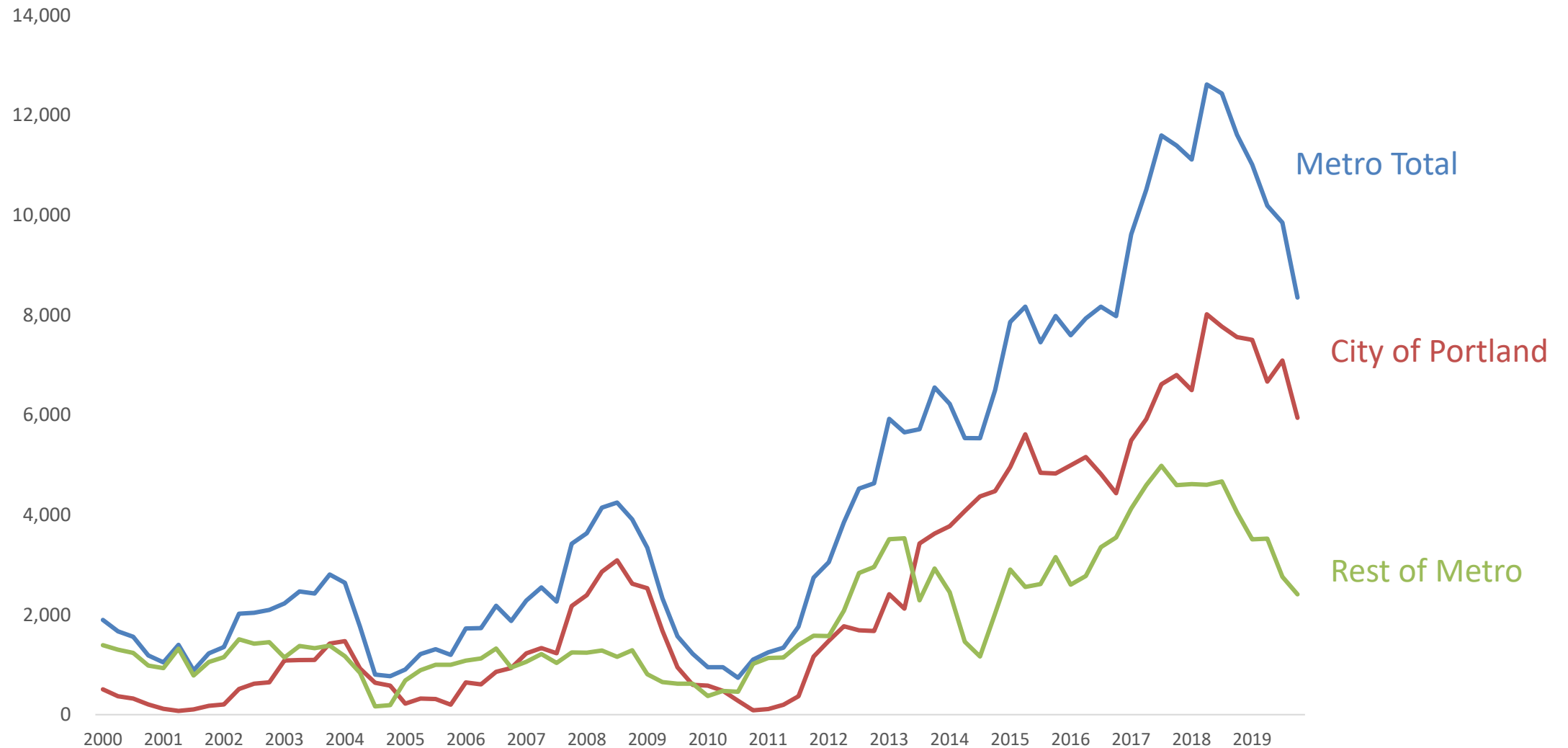


# Housing production has dramatically shifted to multifamily statewide



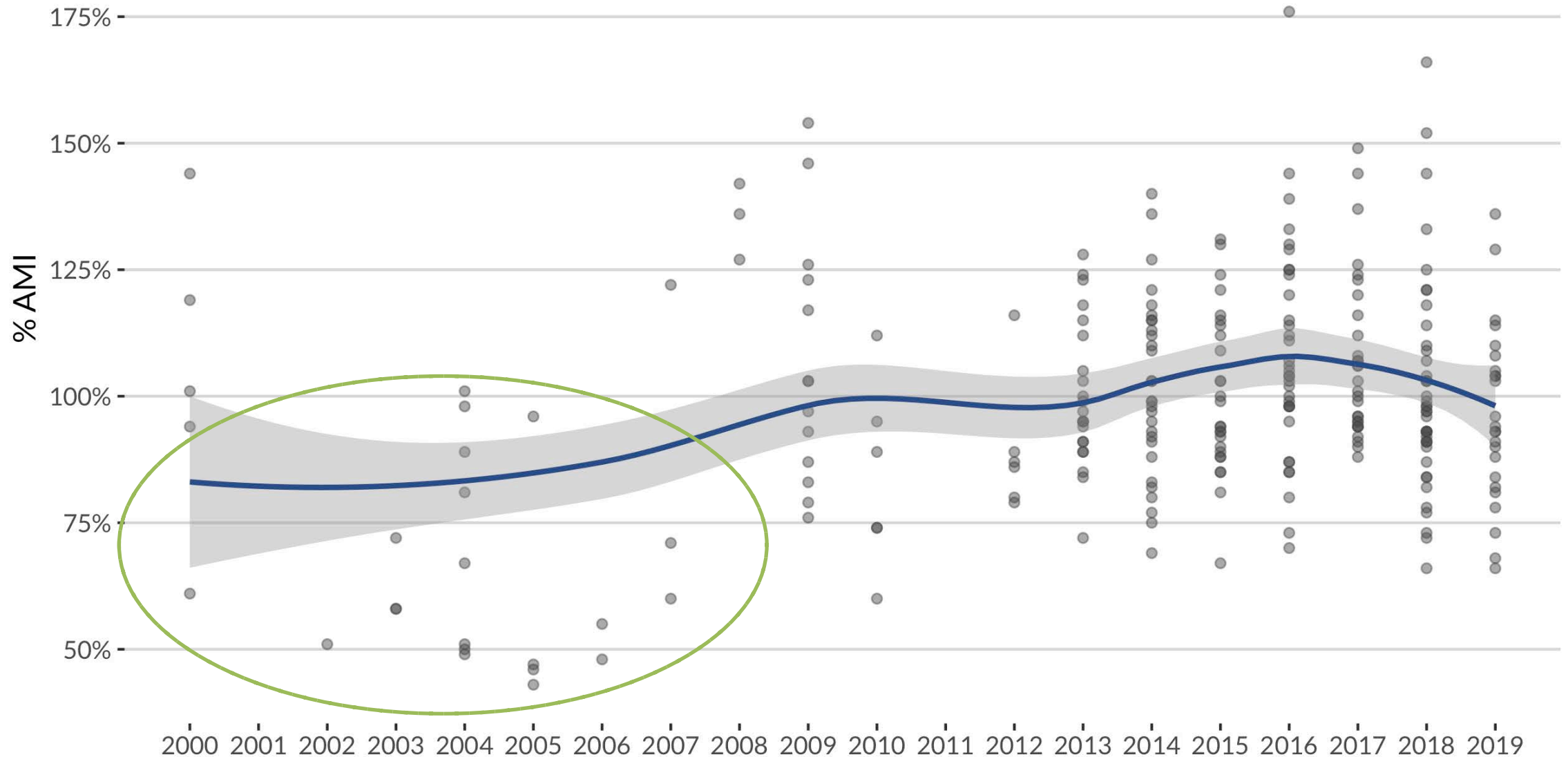
# Despite continued strong economic growth, apartment construction declining

Market Rate Apartment Units Under Construction  
4 County Portland MSA



# Have new apartments ever provided workforce housing?

## New apartment rent as a percent of AMI – City of Portland



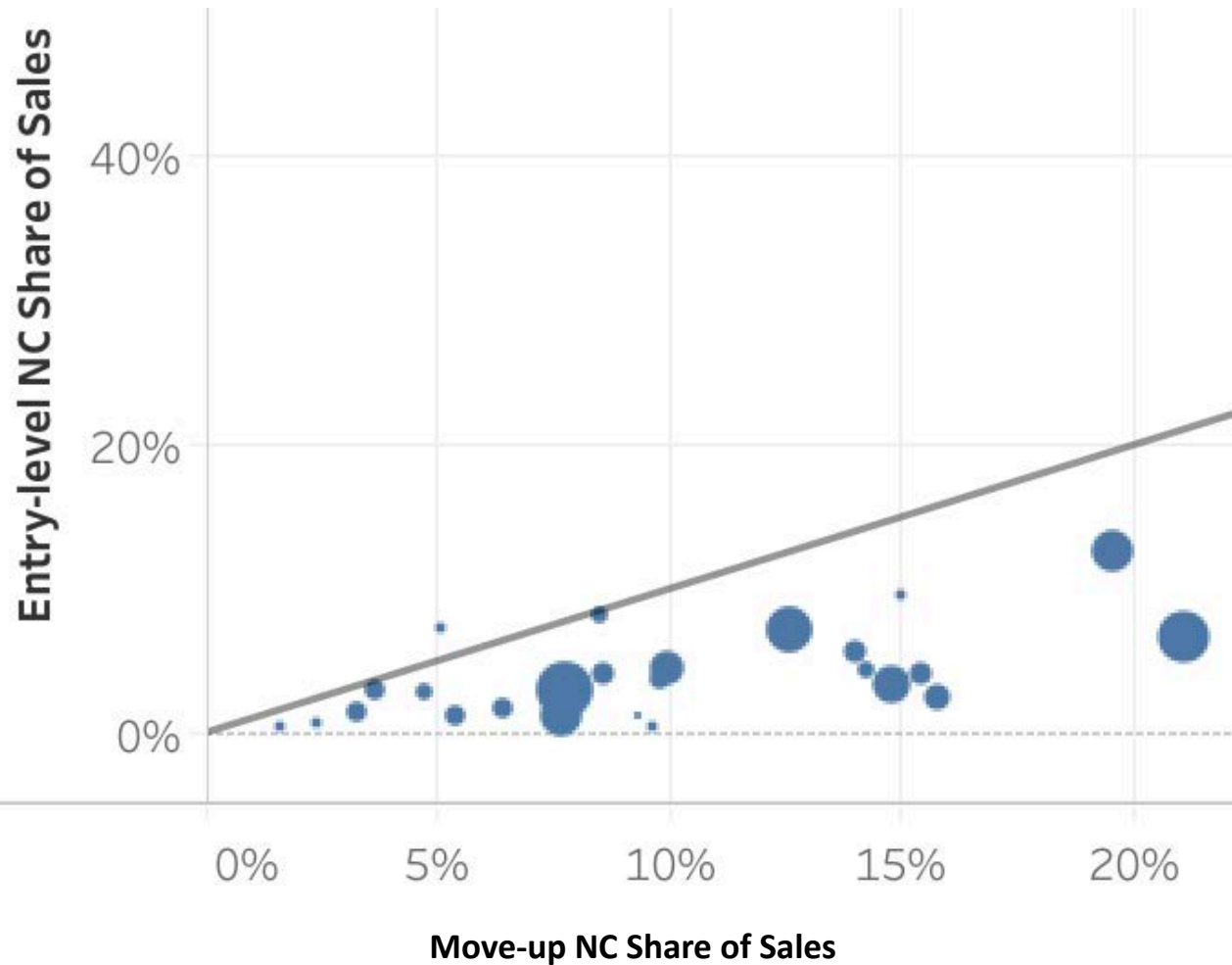
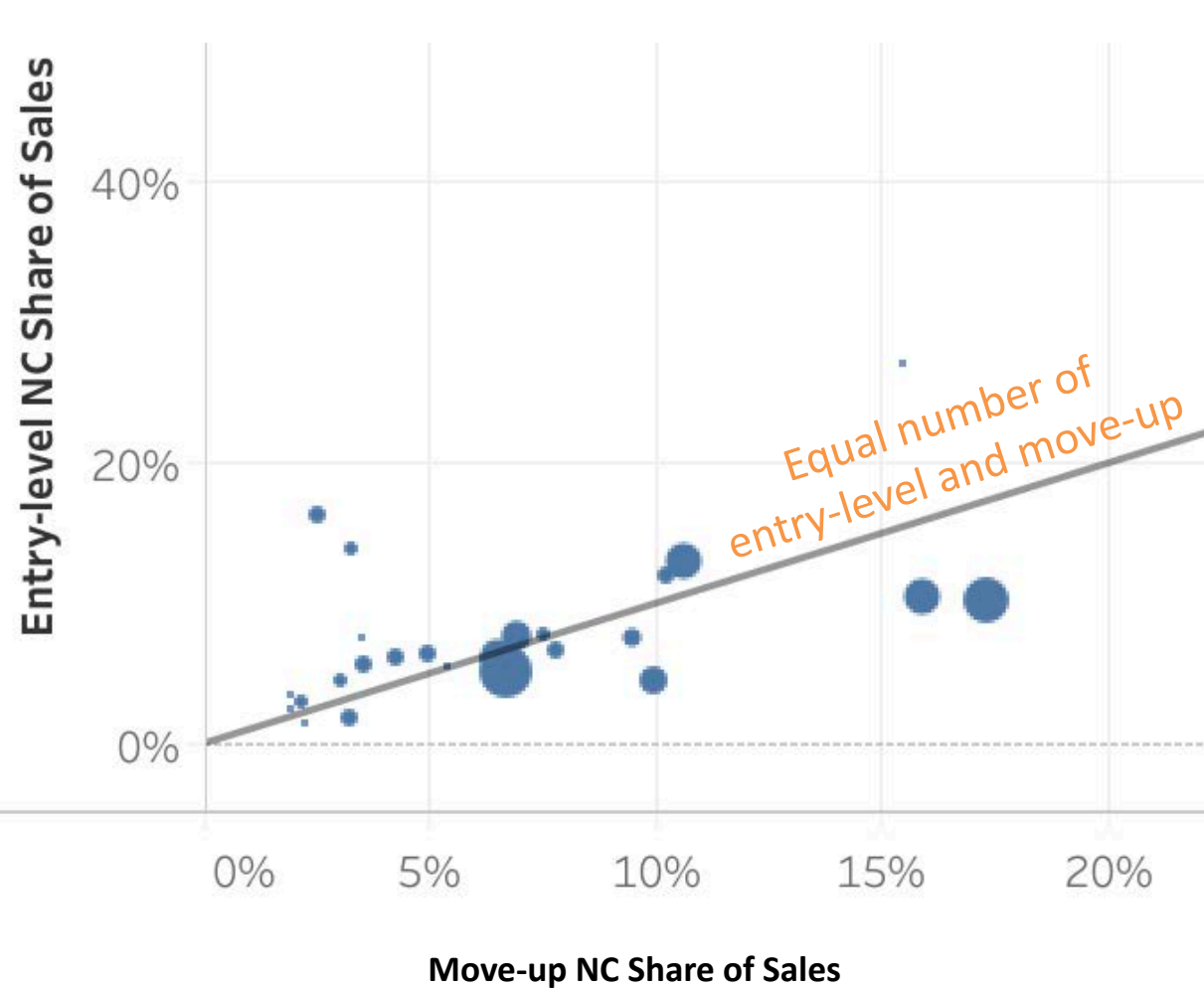


# New construction shifted from entry-level to move-up buyers

2012

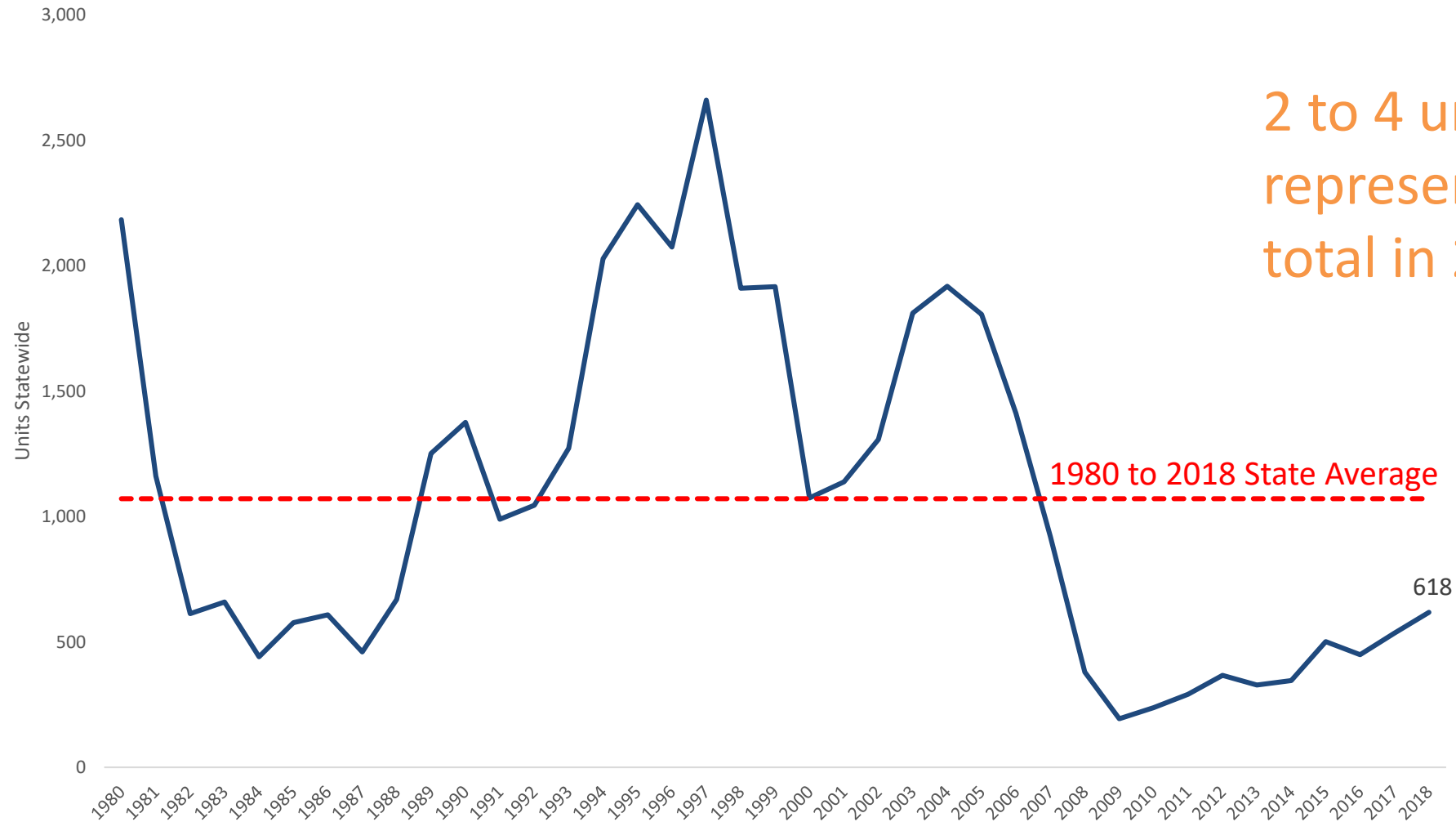
Each dot represents a County in Oregon

2018



# Why are small unit developments called the missing middle?

2 to 4 unit building permits -- State of Oregon



2 to 4 unit production represent 3% of state total in 2018

3 County PDX Metro produced 60% of units statewide by only 30% of duplex to quad units



What does middle housing look like?

# Static approach to modeling impacts for City of Portland

City of Portland – Residential Infill Project  
**SUMMARY OF PREDICTED DEVELOPMENT ACTIVITY**  
**WITH PROPOSED MODIFICATIONS IN ZONING CODES**  
**20 Year Study Period , No Pricing Changes**

	Predicted Development Yield				
	Construction Investment	New Units	Replaced Units	Net Units	Average Rent
<b>BASELINE</b>					
New Construction	\$5,233,460,967	13,665	(1,384)	12,281	\$4,159
<b>NEW ZONING</b>					
New Construction	\$6,105,186,215	38,115	(1,501)	36,614	\$1,823
<b>NET IMPACT</b>					
Total	<b>\$871,725,248</b>	<b>24,450</b>	<b>-117</b>	<b>24,333</b>	<b>-\$2,336</b>
% Change	17%	179%	8%	198%	-56%

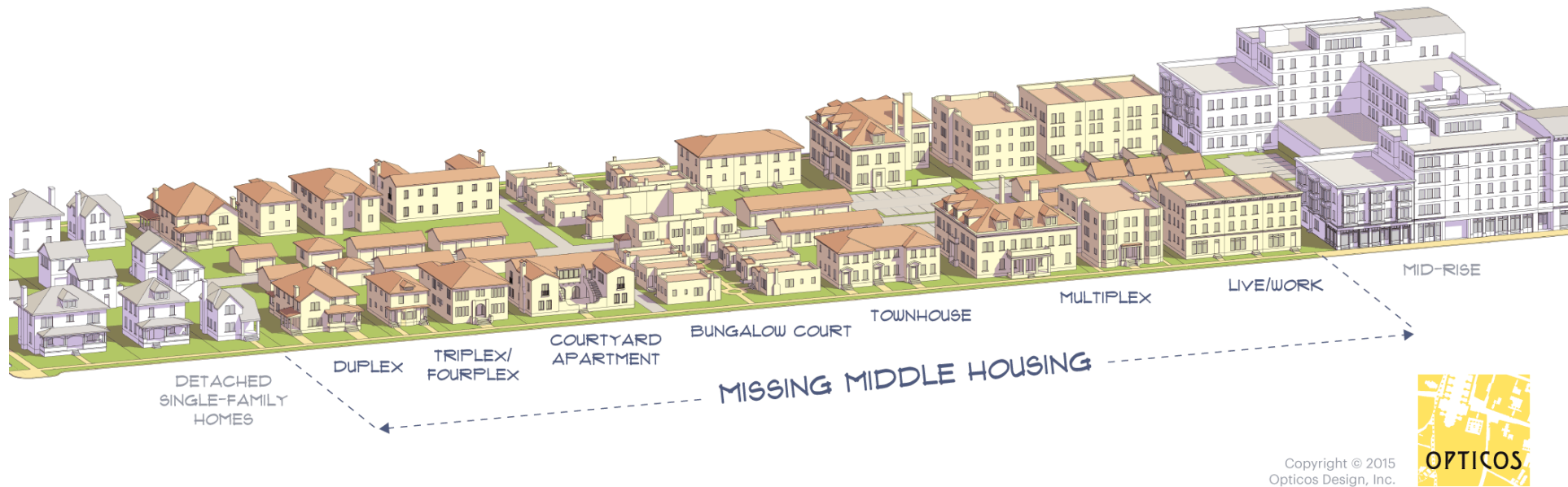


# Upstream approach to analysis of OR HB 2001

- Develop a pro forma to model parcel level decision making (agent based) of development feasibility for all single-family parcels in City of Portland
- Define methodology that converts changes in housing production by unit type into changes in REMI policy variables
- Incorporate select components of pro forma into UI as policy variables (custom web app)
- Integrate tool with REMI (bidirectionally)

How do you model the impacts of a land use policy?

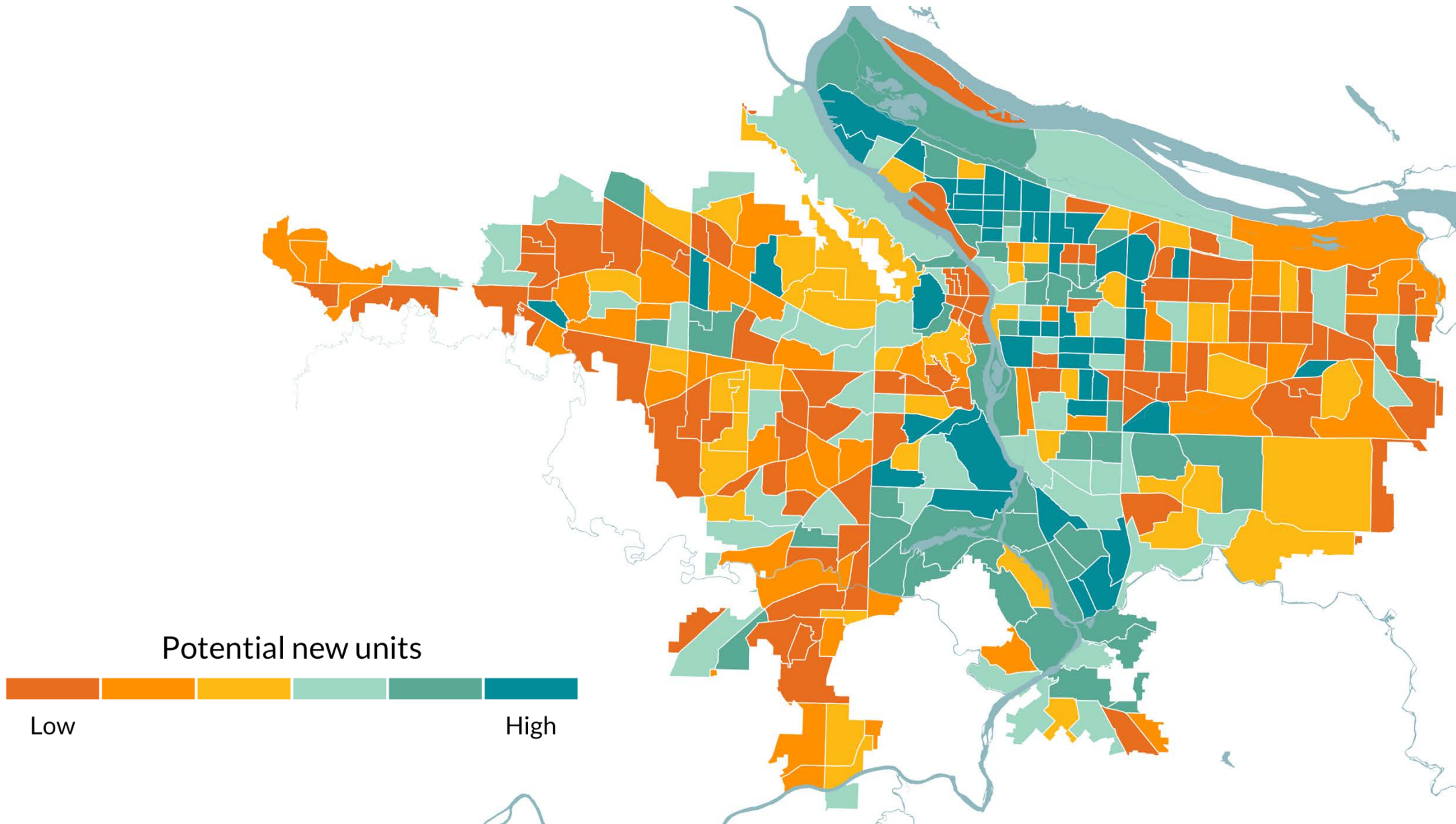
## How = Housing Prototypes



Where = Parcel based Pro Forma Analysis

- An agent based decision making model (land owner, developer)
- Is a developer able to pay enough to supplant the existing land use (single family home)?
- Calculate the willingness to pay based on rate of return expectations (construction costs vs. rent/sale price)
- Assume minimum of X% premium on existing market value would provide incentive to single family owners
- Constrain number of land use changes to X% of block group parcels (rank order on willingness to pay)

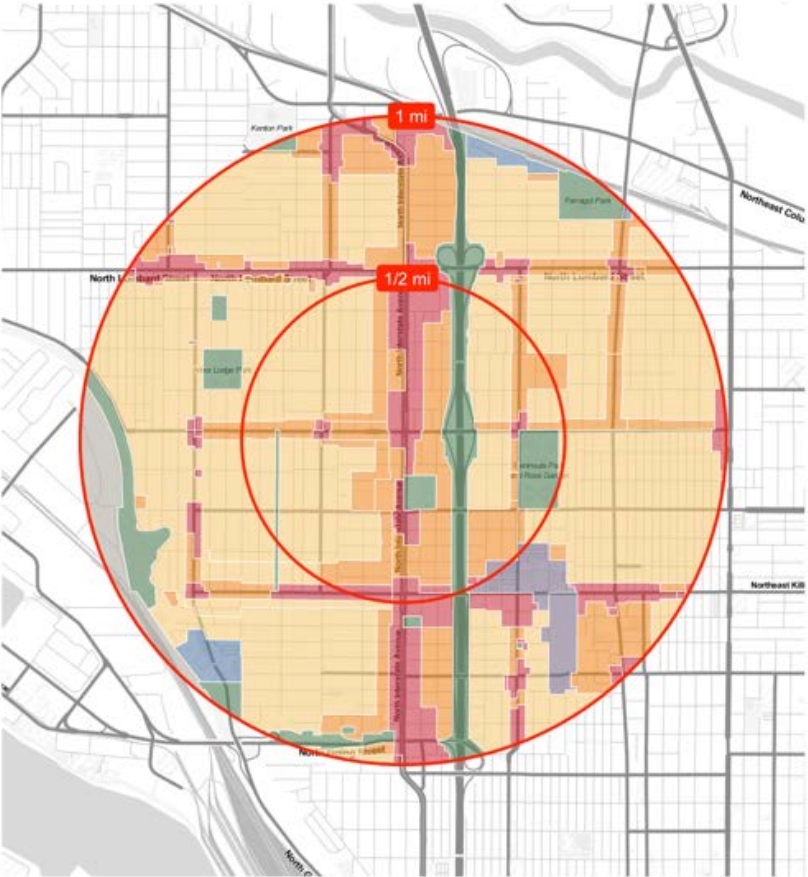
# Model Output : Where are we likely to see additional unit





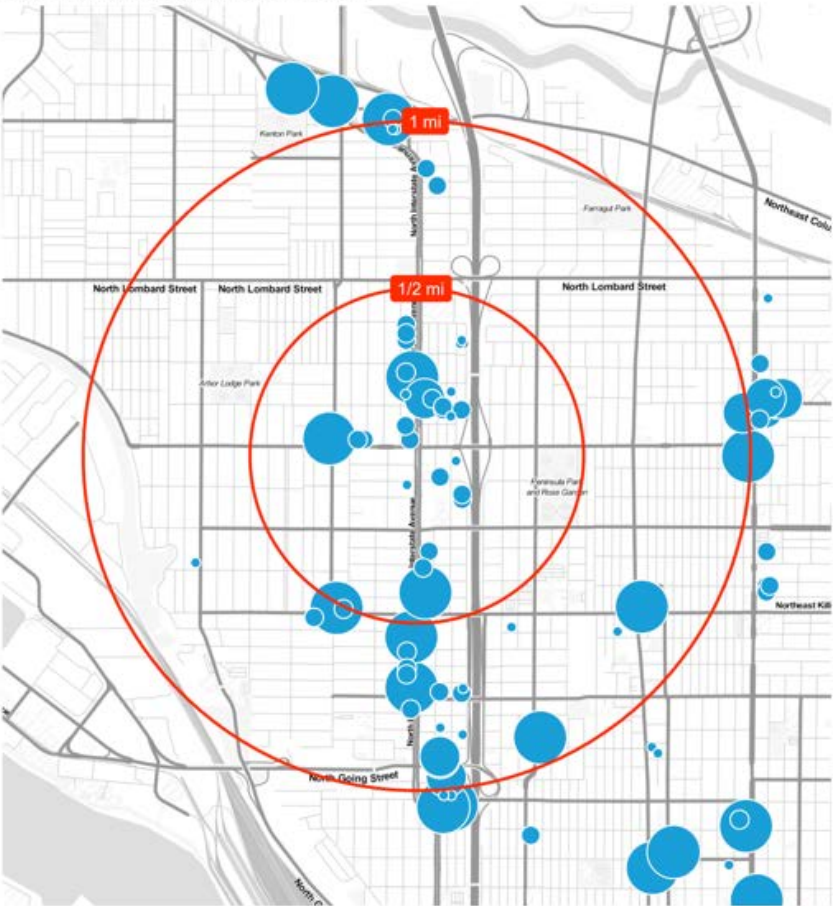
# How could missing middle increase growth in a

Station Area Zoning  
Rosa Parks Station Area, 2016-2019



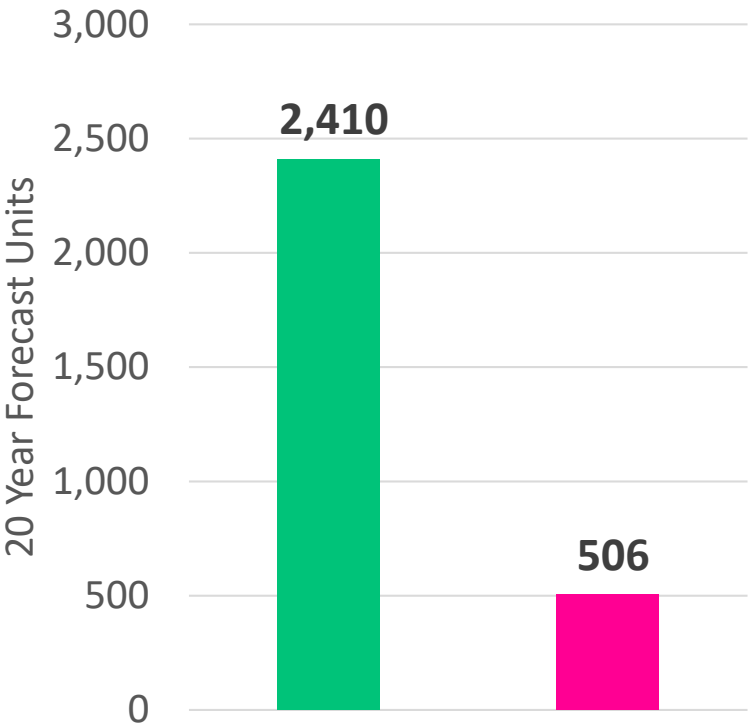
ECONorthwest  
Source: City of Portland

MFR Construction Activity  
N Rosa Parks Station Area, 2016-2019



ECONorthwest  
Source: City of Portland

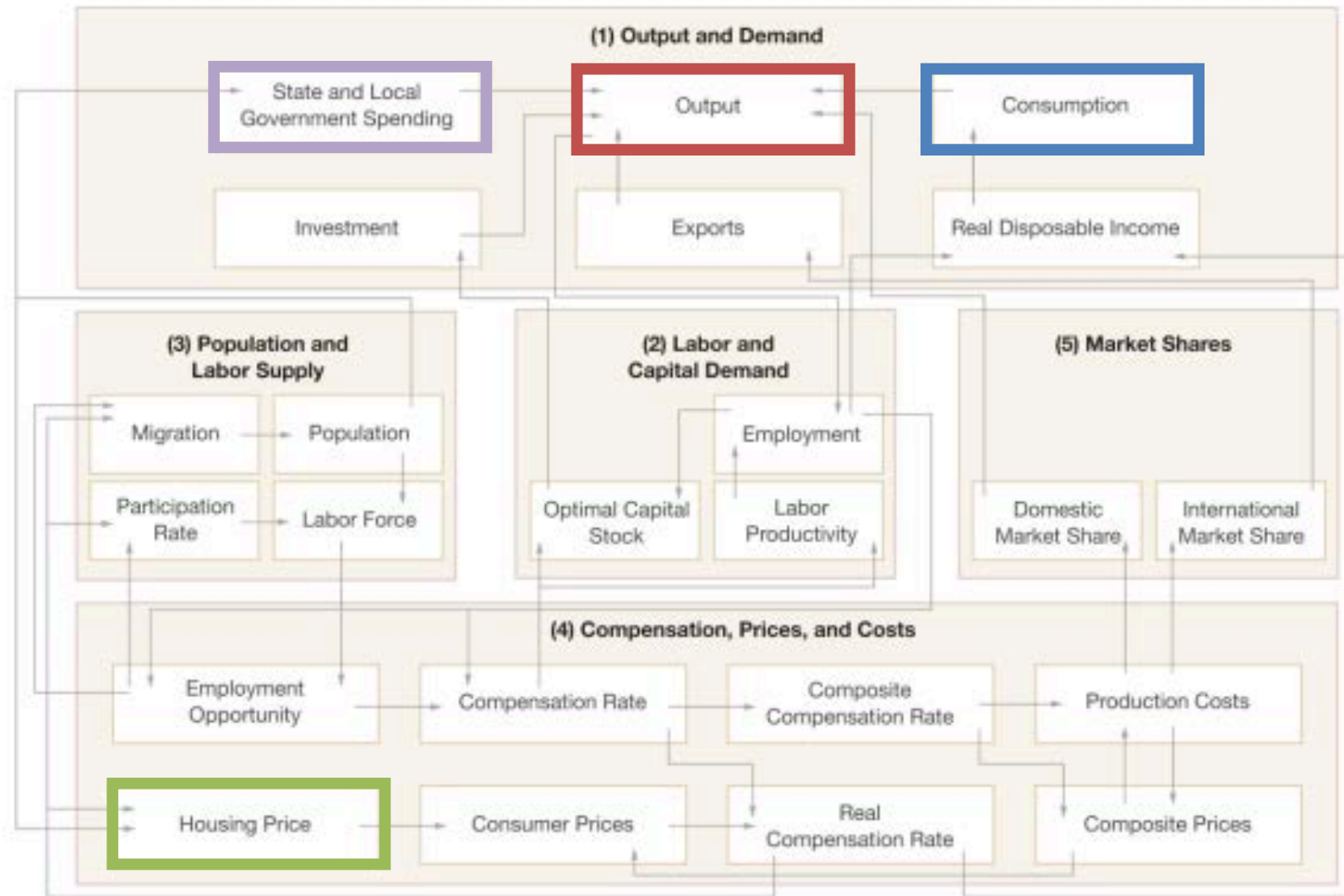
Rosa Parks Station Area  
Forecast Units



Multifamily  
Missing Middle

# Model Demonstration

## REMI Model Linkages (Excluding Economic Geography Linkages)



- Incorporate "Downstream" methodology
- Model distribution of jobs and housing units based on policy intervention (REMI Output)
- Apply analysis framework and workflow to modeling questions outside of land use



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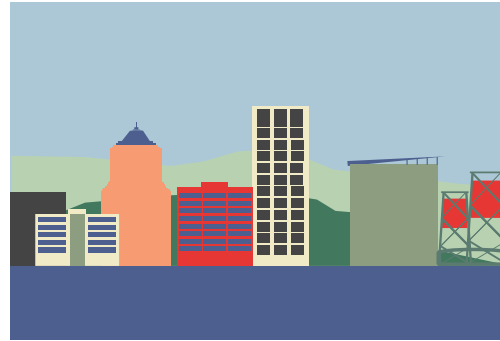
# **ECON**orthwest

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