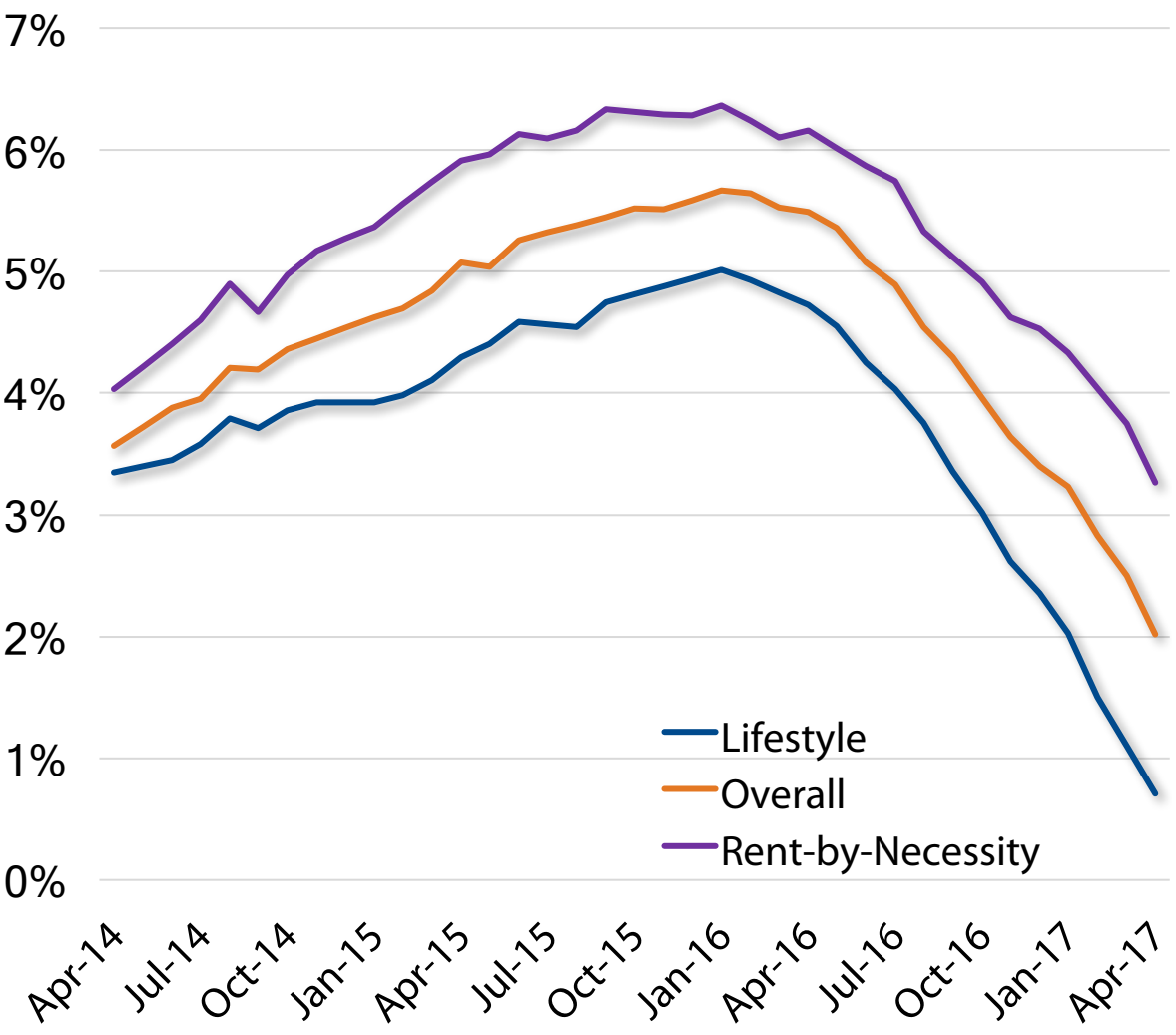**YARDI**

Urban Institute: Trends in Housing Affordability and Supply

Jeff Adler
Vice President, Yardi Matrix
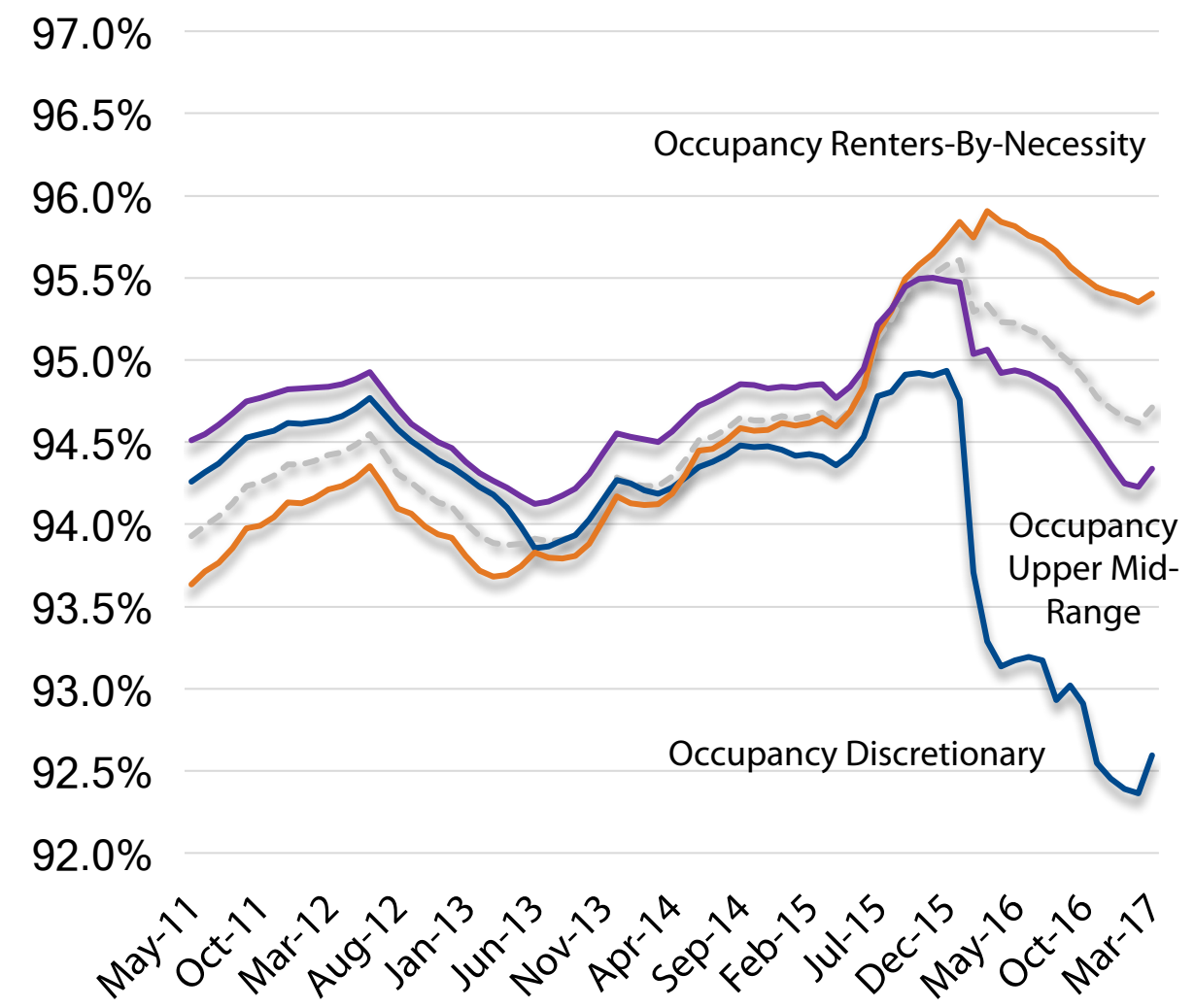
Rent Growth And Occupancy Have Crested; We Have A Breather To Address Affordability Issues

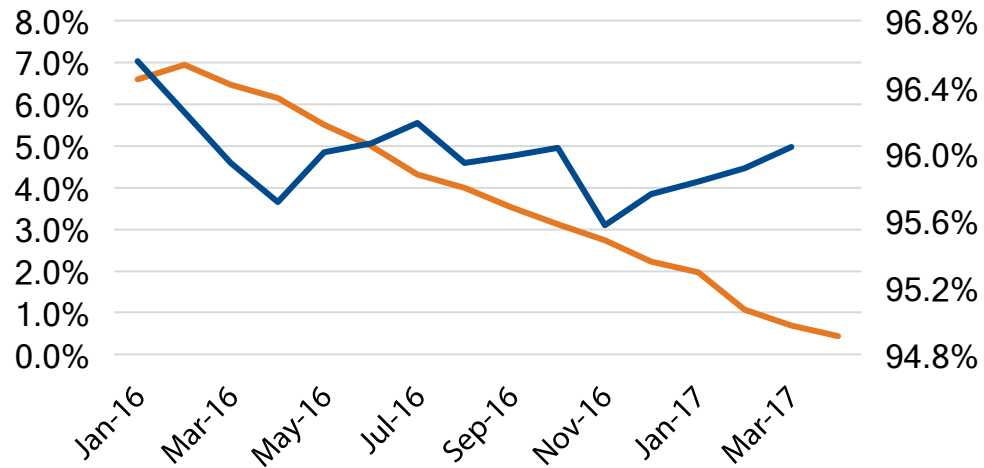## U.S. Multifamily Year-over-Year Rent Growth, Current Month

Legend:
- Lifestyle
- Overall
- Rent-by-Necessity

Source: Yardi®Matrix

U.S. Multifamily Occupancy Rate by Asset Class

Occupancy Renters-By-Necessity

Occupancy Upper Mid-Range

Occupancy Discretionary

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Rent Growth and Occupancy: Northeast
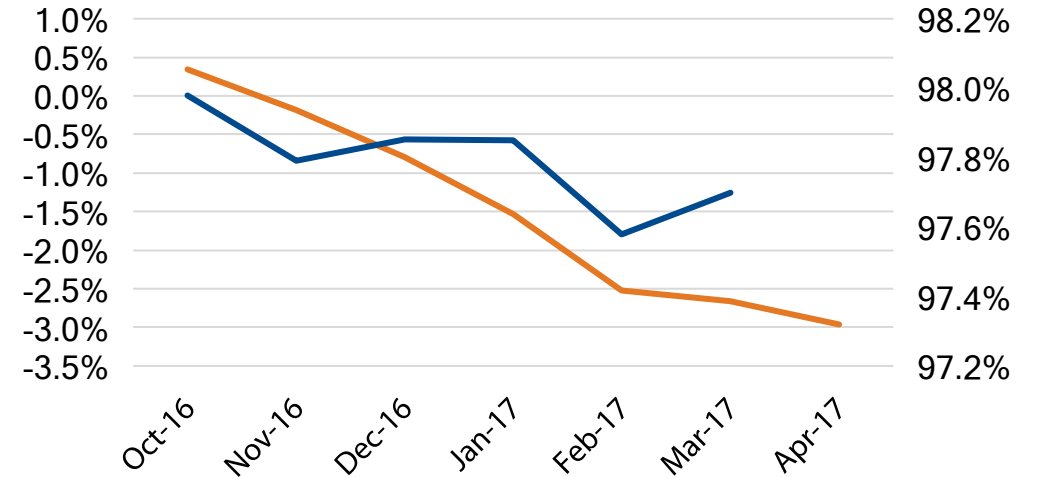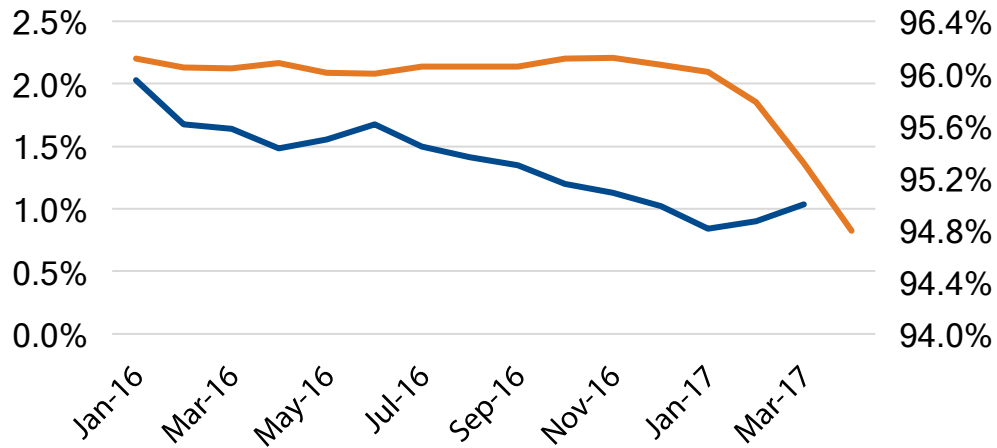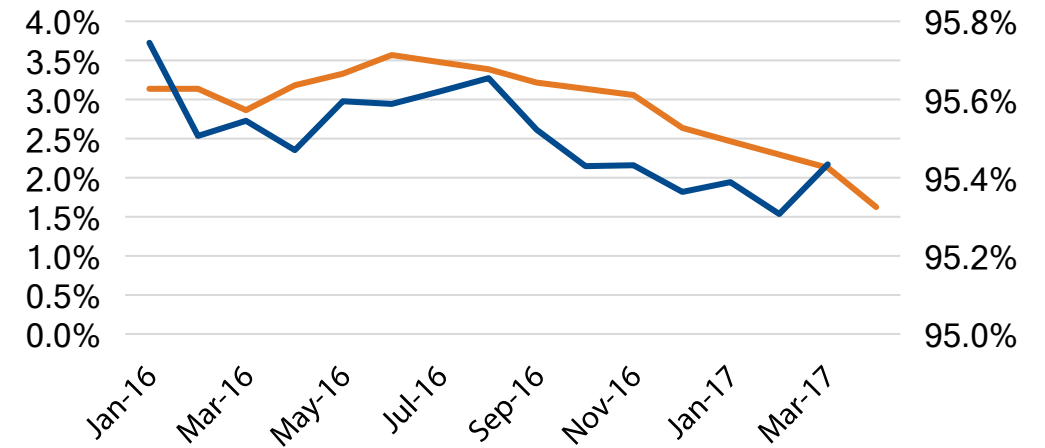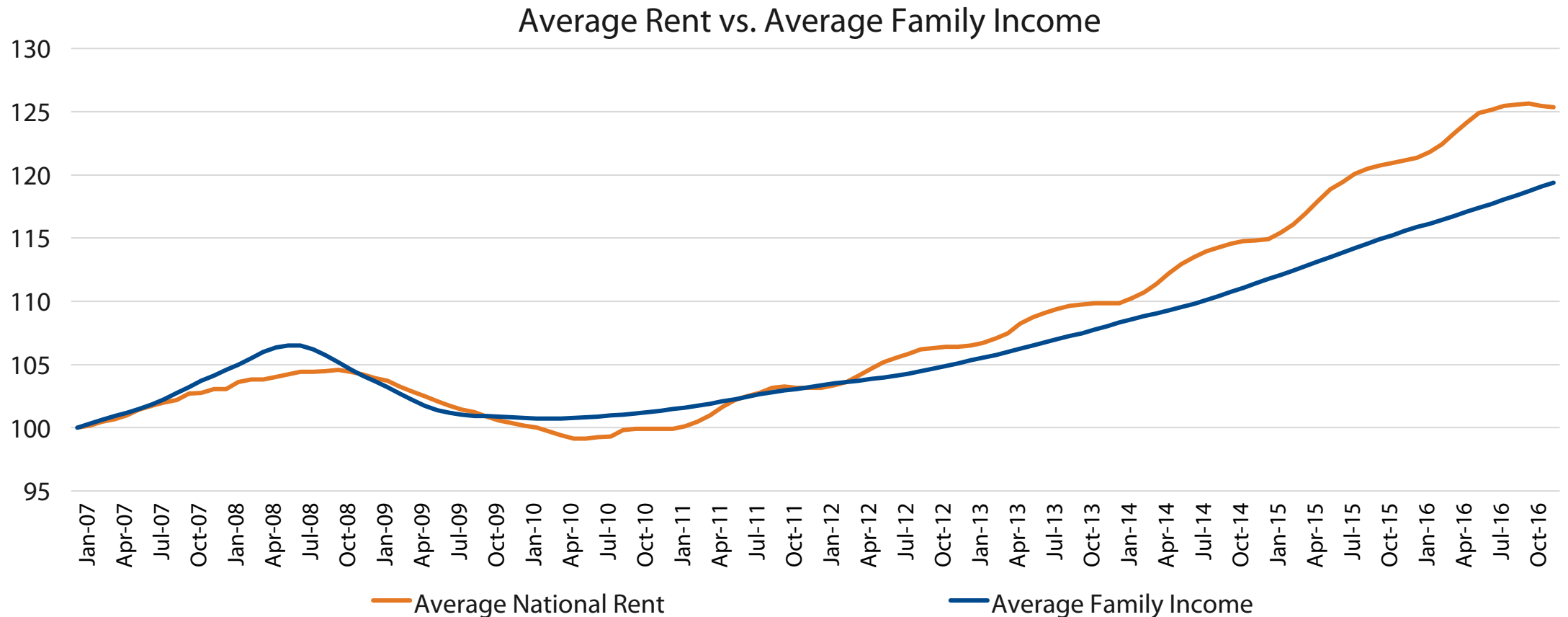
Source: Yardi®Matrix

— Year-Over-Year (MTH) Rent Growth — Overall Occupancy Rate

Rent and Income Growth Has Diverged Since 2012

Harvard Joint Center for Housing Studies has done great work on the bigger impact on low income Americans

Average Rent vs. Average Family Income

Legend: Average National Rent, Average Family Income

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Rent Growth and Occupancy: California

Los Angeles
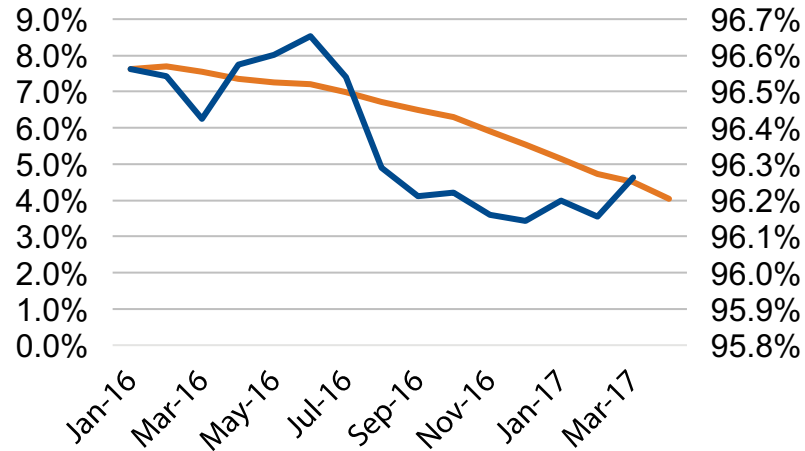
Orange County
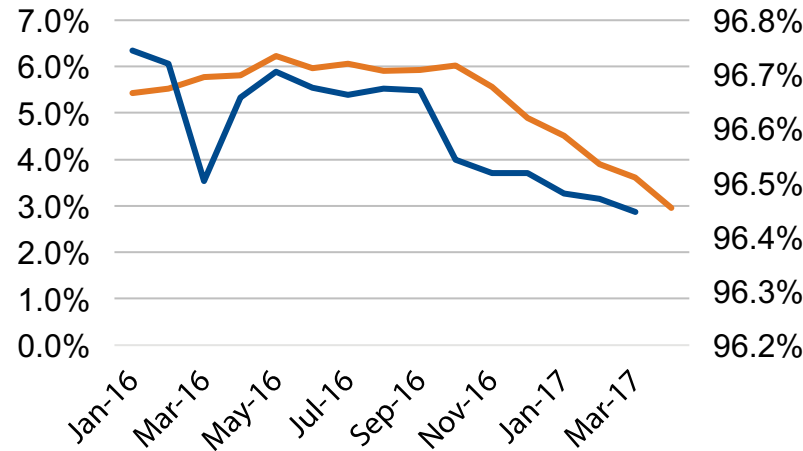
San Francisco
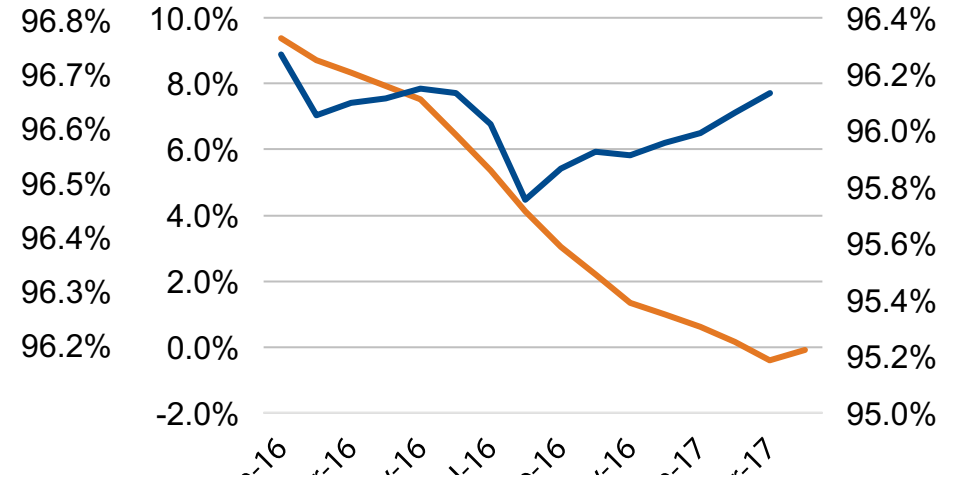
Inland Empire
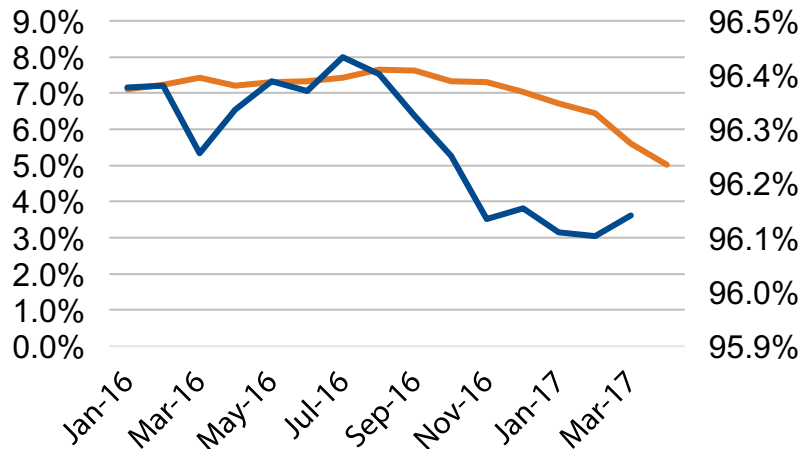
San Diego
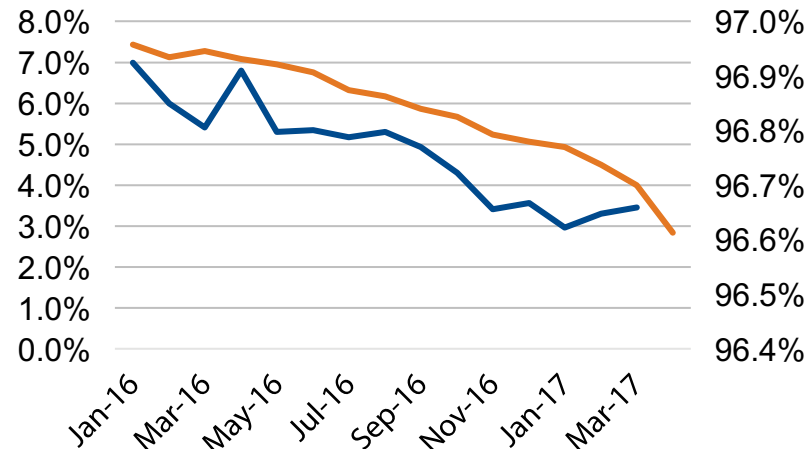
— Year-Over-Year (MTH) Rent Growth — Overall Occupancy Rate

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Rent Growth and Occupancy: West
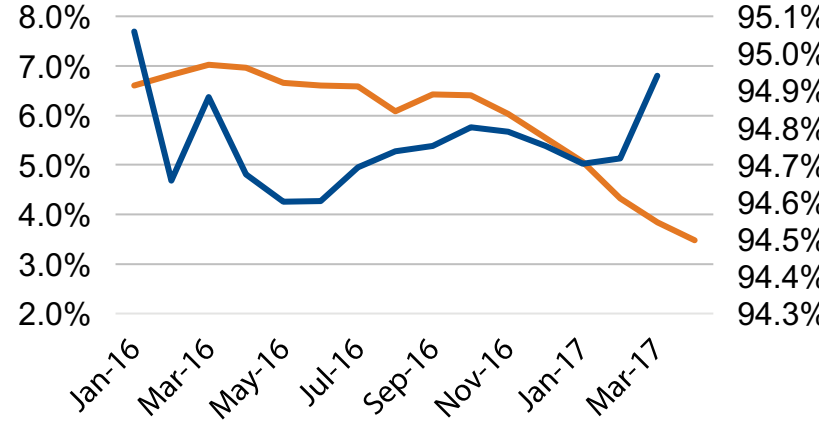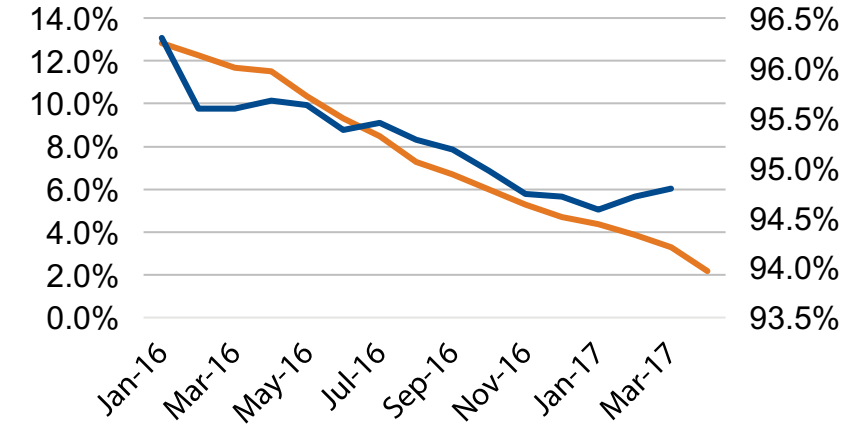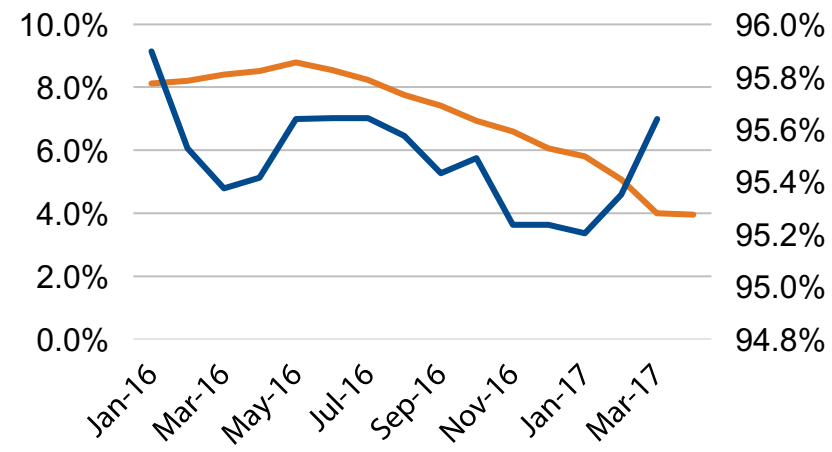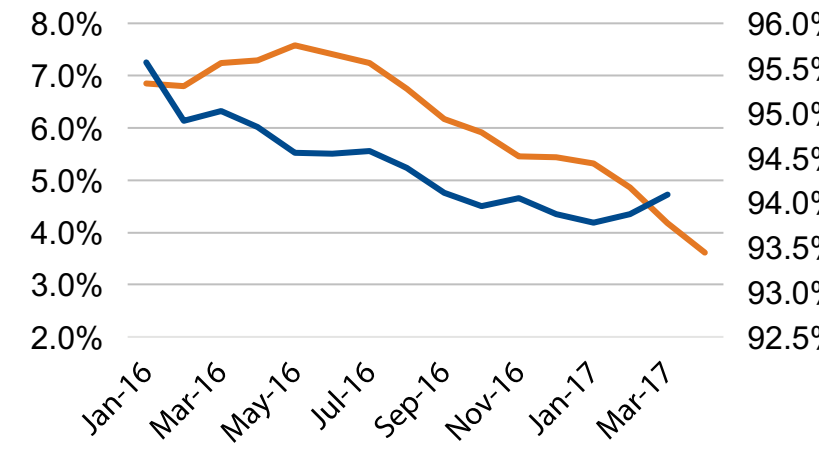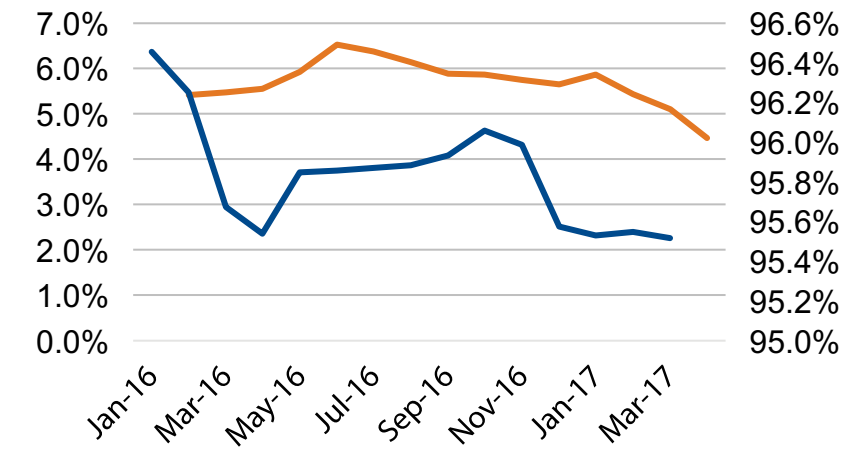
Source: Yardi®Matrix

— Year-Over-Year (MTH) Rent Growth   — Overall Occupancy Rate

Rent Growth and Occupancy: Texas
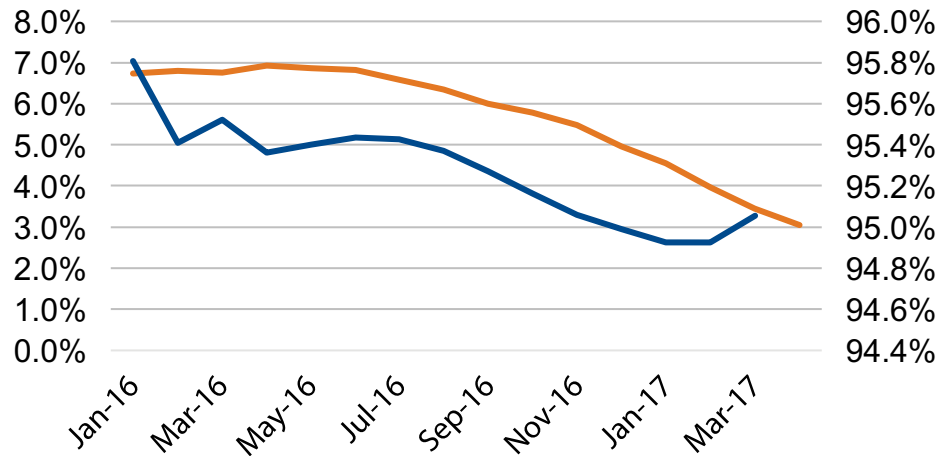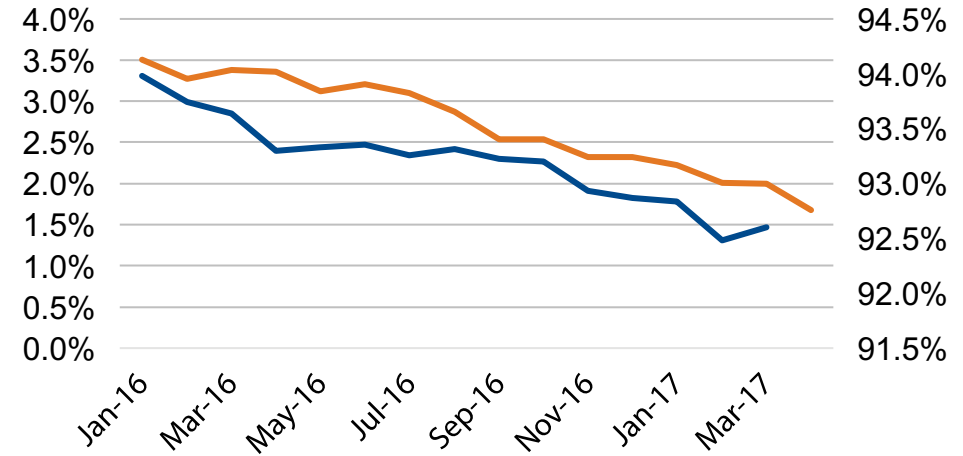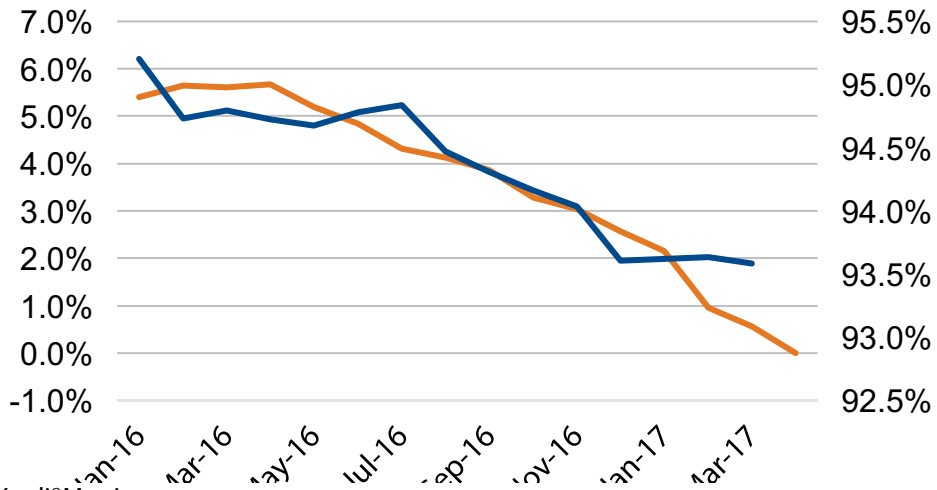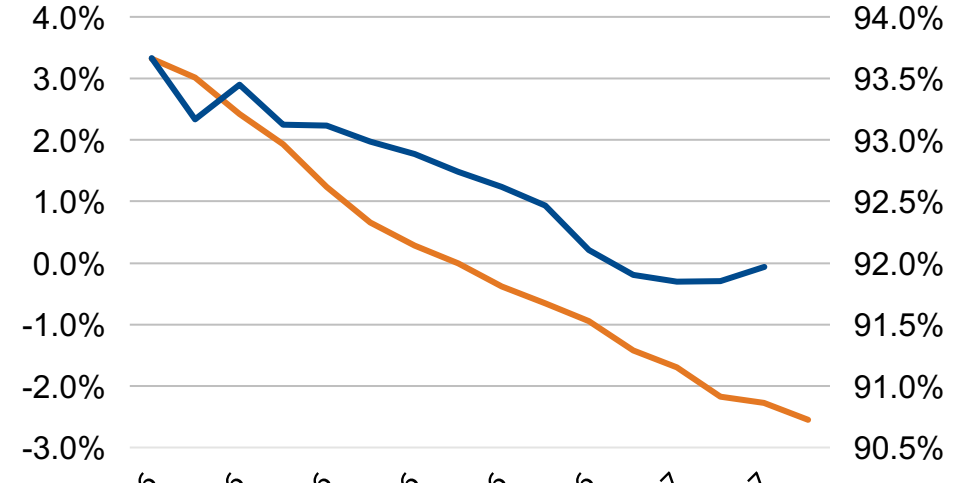
Source: Yardi®Matrix

Year-Over-Year (MTH) Rent Growth   Overall Occupancy Rate

Rent Growth and Occupancy: Florida

Miami
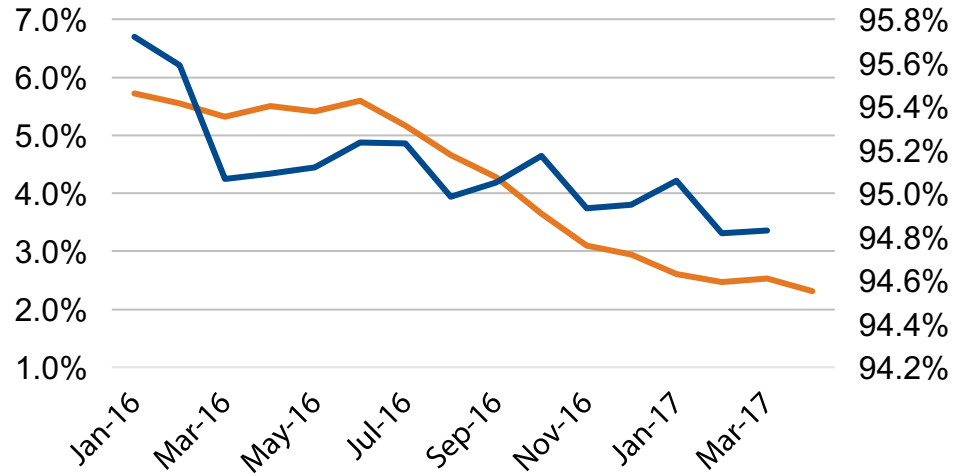
Tampa - St. Petersburg
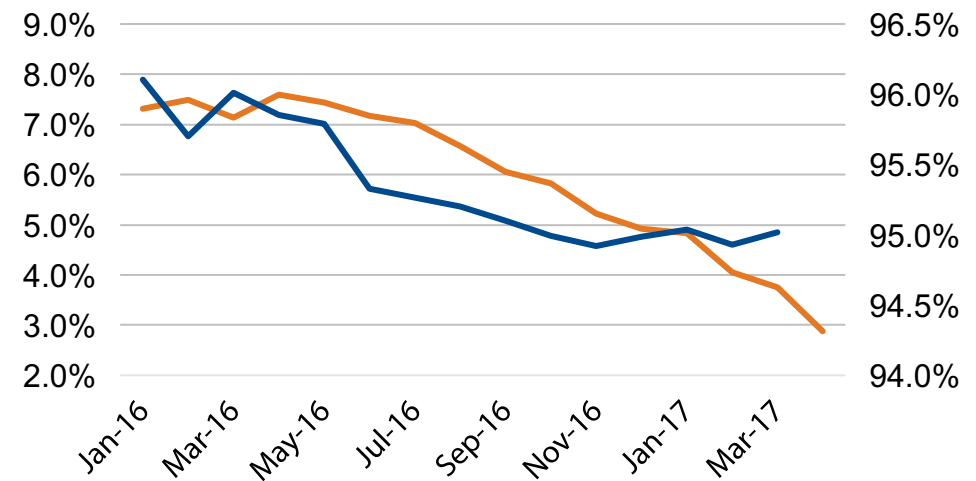
Orlando
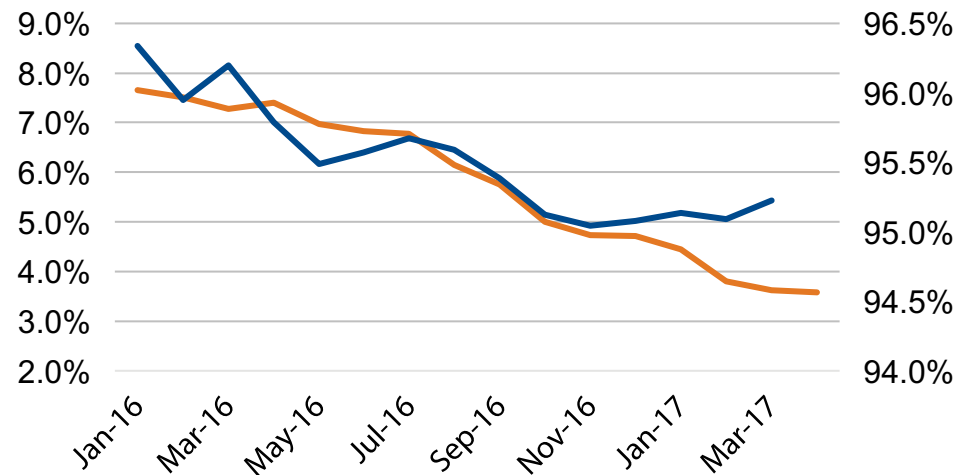
Source: Yardi®Matrix

— Year-Over-Year (MTH) Rent Growth   — Overall Occupancy Rate

YARDI

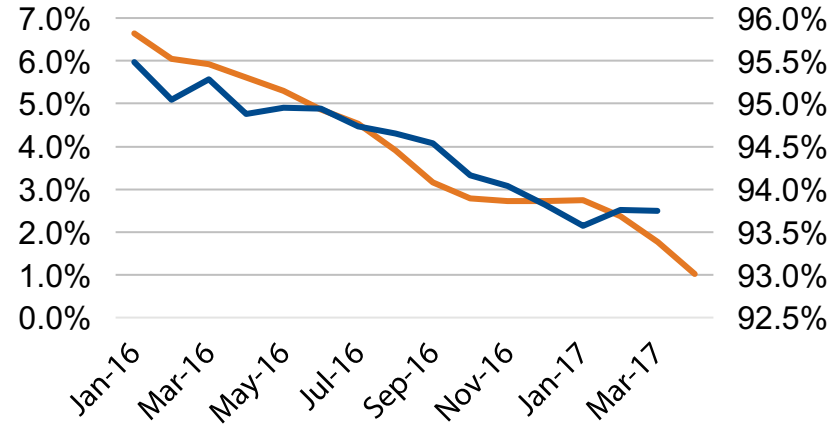# Rent Growth and Occupancy: Southeast

Nashville

Charlotte

— Year-Over-Year (MTH) Rent Growth — Overall Occupancy Rate
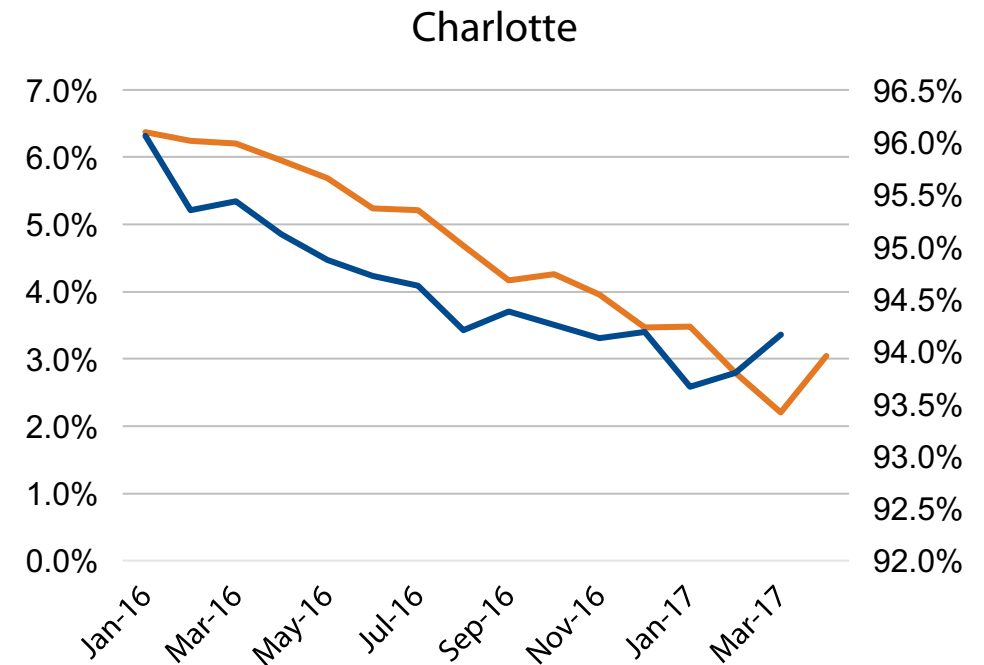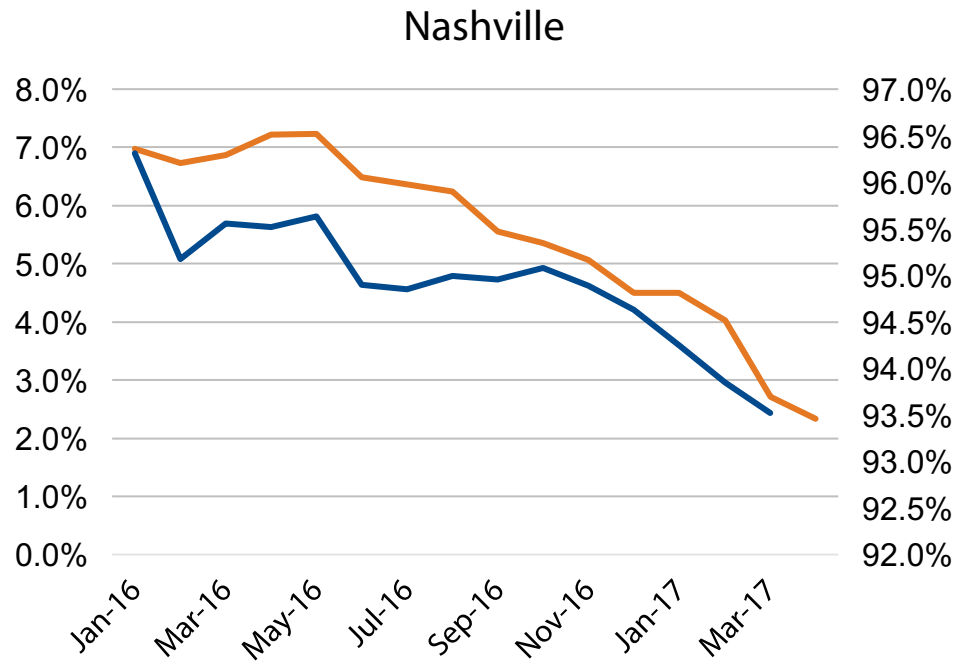
Source: Yardi®Matrix

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Employment vs. Supply and Forecast Rent Growth
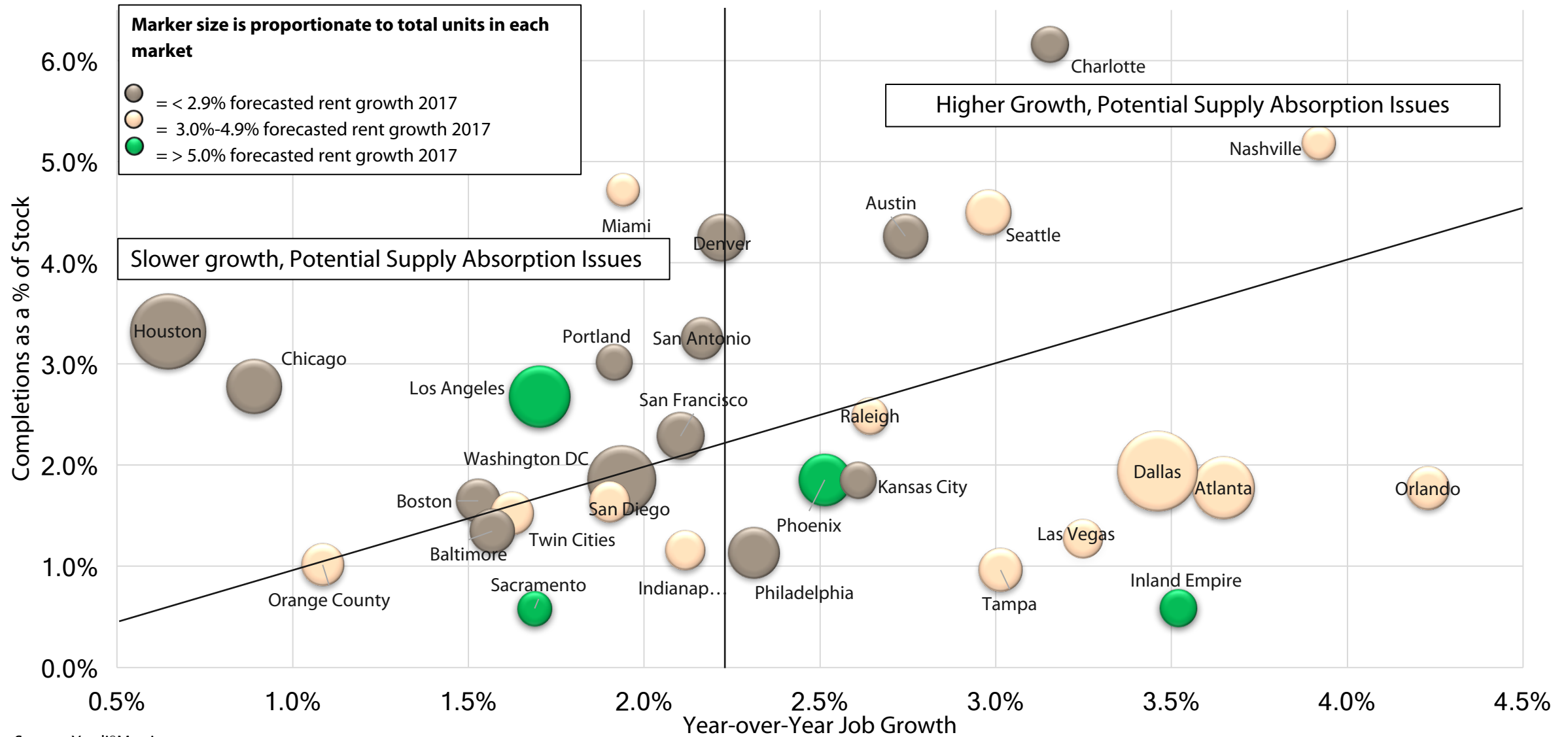
Source: Yardi®Matrix

Absolute Rent Spreads by Asset Type Have Stabilized

Average Rental Rate by Asset Class

One month concession = 8% or ~ $150
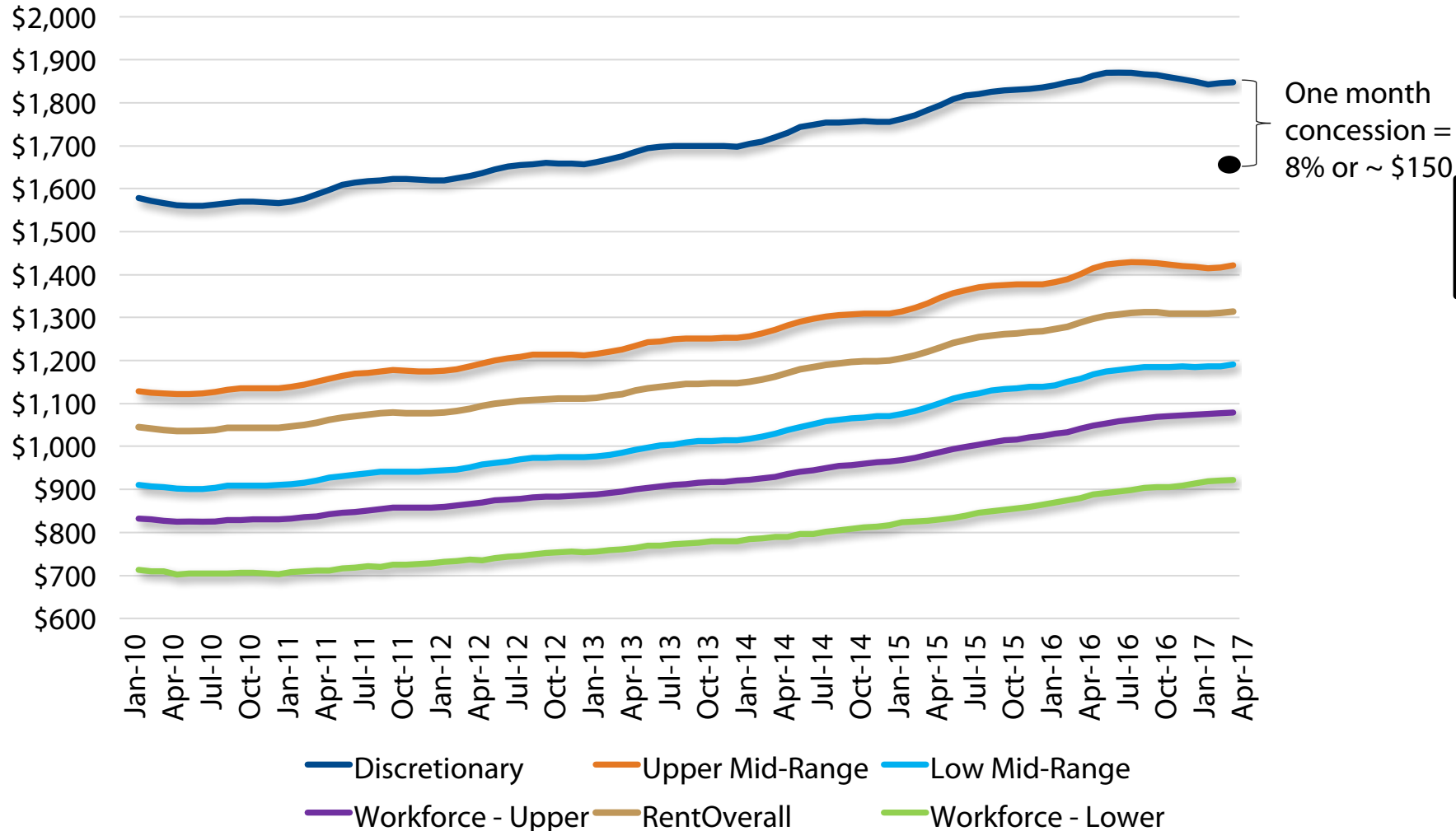
2010-2017 CAGR	
2.6%	Discretionary
3.9%	Upper Mid-Range
4.5%	Low Mid-Range
4.4%	**Workforce-Upper**
4.4%	**Workforce-Lower**
3.9%	Overall

	Apr 2010	Apr 2017
Discretionary-Upper-Mid	$444	$427
Discretionary-Lower-Mid	$662	$657

Legend: Discretionary — Upper Mid-Range — Low Mid-Range — Workforce - Upper — RentOverall — Workforce - Lower

Source: Yardi®Matrix

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Yardi Matrix Nationwide Coverage

Yardi Matrix Coverage	Small Multifamily Yardi Matrix Express (2-49 Units)	Institutional Multifamily Yardi Matrix Professional (50+ Units)	Small Multifamily % of Total Stock
Properties	311,683	70,660	83%
Units*	3,622,260	12,804,345**	22%
Counties	437	630	
% of U.S. Population	65%	73%	

*Completed Units

**Affordable housing in properties greater than 50 units makes up 2 million units, or roughly 15% of the 50+ unit stock

Source: Yardi®Matrix

YARDI

Washington D.C. Spotlight: Property Age & Disparity in Building Size

- The vast majority of new supply is concentrated in properties 50 units and greater
- Of the inventory below 50 units more than 95% was built before 1990

Property Age	Units in Small Multifamily Properties (less than 50 units)	% of Total Small Multifamily Stock	Units in Institutional Multifamily Properties (50 units and greater)	% of Total Institutional Multifamily Stock
0-5 Years	583	1.3%	51,442	17.6%
6-10 Years	123	<1%	18,826	6.5%
11-15 Years	437	<1%	11,929	4.1%
16-20 Years	130	<1%	7,653	2.6%
21-25 Years	103	<1%	2,306	<1%
26+ Years	43,957	96.9%	199,679	68.4%
Total	**45,333**	**100%**	**291,835**	**100%**
% of Total Units	**13%**		**87%**	
Avg. Yr. of Completion	**1947**		**1982**	

Source: Yardi®Matrix

YARDI

Washington's Multifamily Stock Dominated by Large Properties

- Of the inventory in Washington DC/Suburban Maryland, roughly 10% of units and 65% of properties are small multifamily (less than 50 units); total includes 97,000 units in some form of new supply

Property Size	# of Units	% of Total Stock	# of Properties	% of Total Stock
2-10	8,650	2.0%	1,253	27.4%
11-20	14,317	3.3%	1,022	22.4%
21-30	9,480	2.2%	379	8.3%
31-40	7,755	1.8%	221	4.8%
41-50	5,384	1.2%	120	2.6%
51-100	25,385	5.8%	343	7.5%
101-200	67,637	15.6%	473	10.4%
201-300	74,883	17.2%	308	6.7%
301-500	117,663	27.1%	314	6.9%
500+	103,434	23.8%	134	2.9%
Total	**434,588**	**100%**	**4,657**	**100%**

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Homeownership Rates Declining

U.S. Homeownership Rate by Age Cohort, 1994-2015

Percent

Legend: Overall | <35 | 35-44 | 45-54 | 55-64 | >65

Labels: 65+, 55-64, 45-54, 35-44, < 35

Renter Households (Millions) — Homeownership Rate

Legend: Renter Households | Homeownership Rate
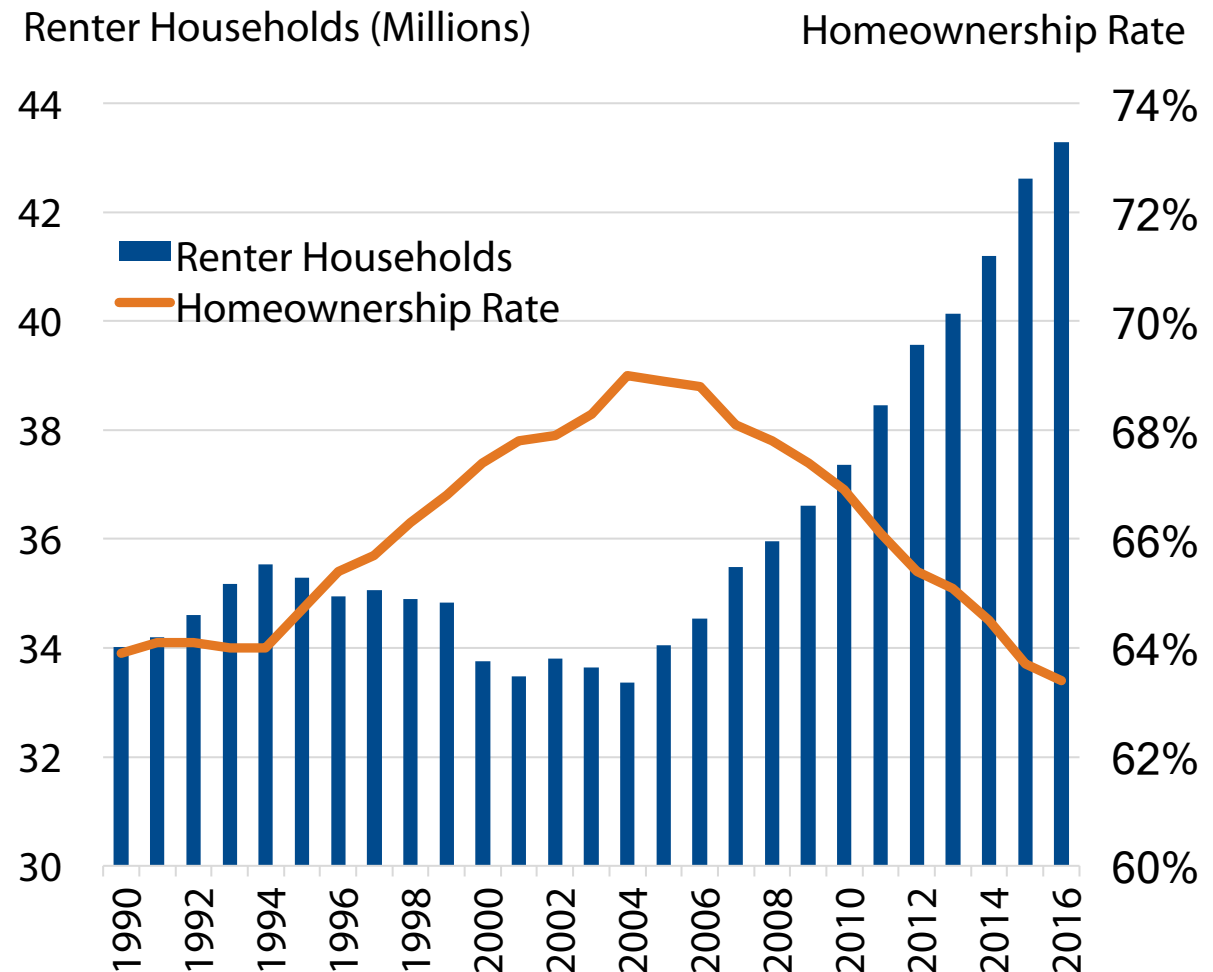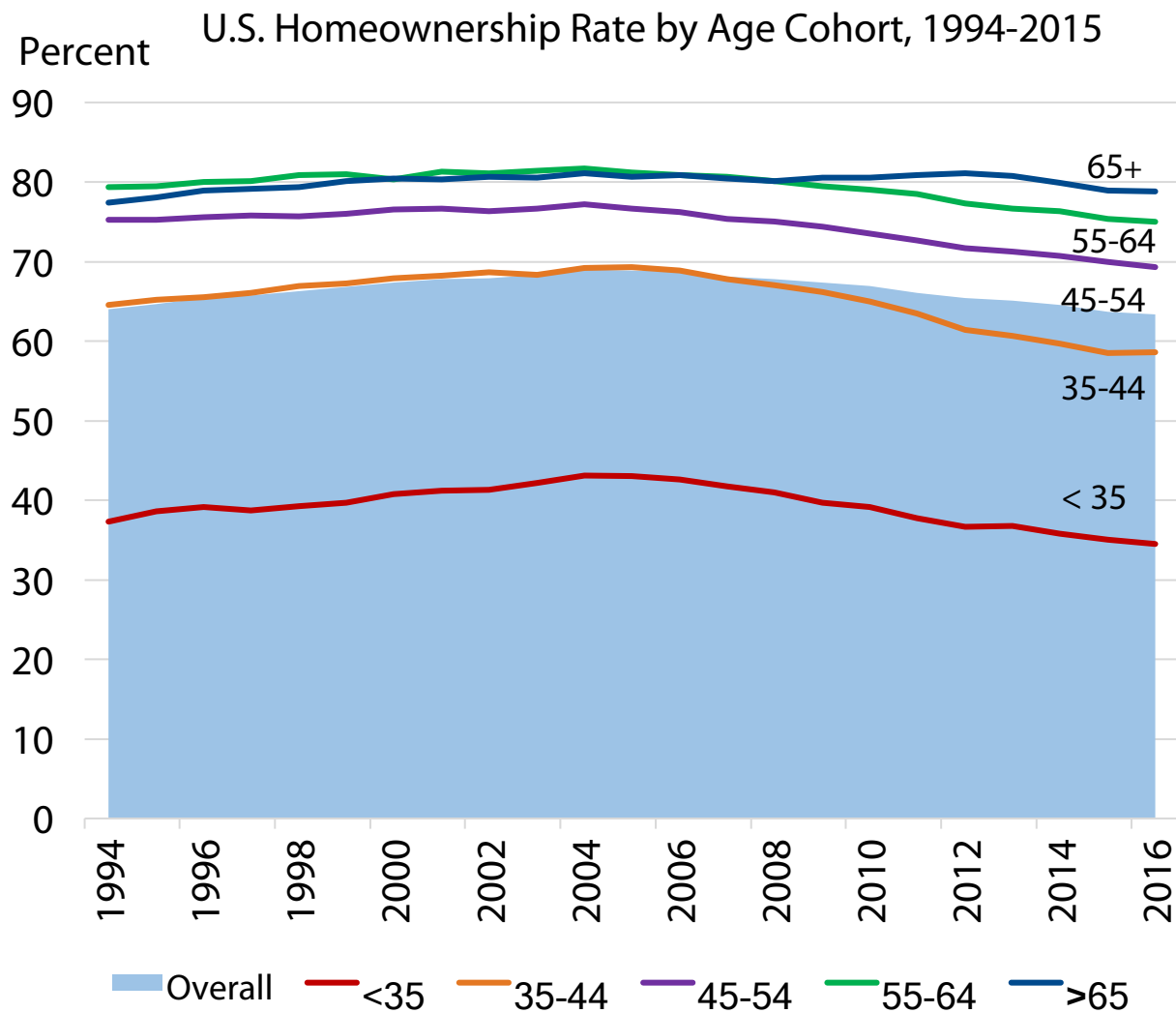
*Beginning in 2000, renter household data are the revised, consistent-vintage counts. 2000-09 counts are 2010 vintage, 2010-15 are 2014 vintage

Source: US Census Bureau (BOC); Housing Vacancy Surveys

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Significant Variation by City- but the US won't ever look like LA/SF

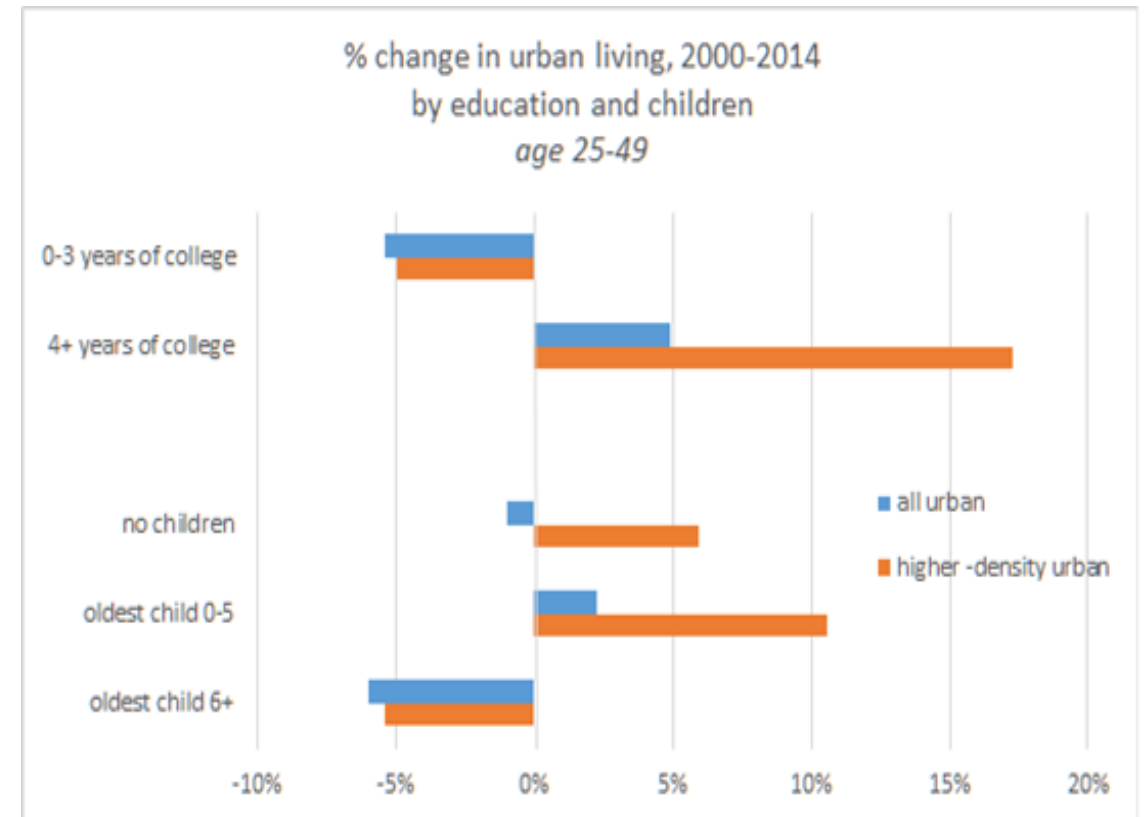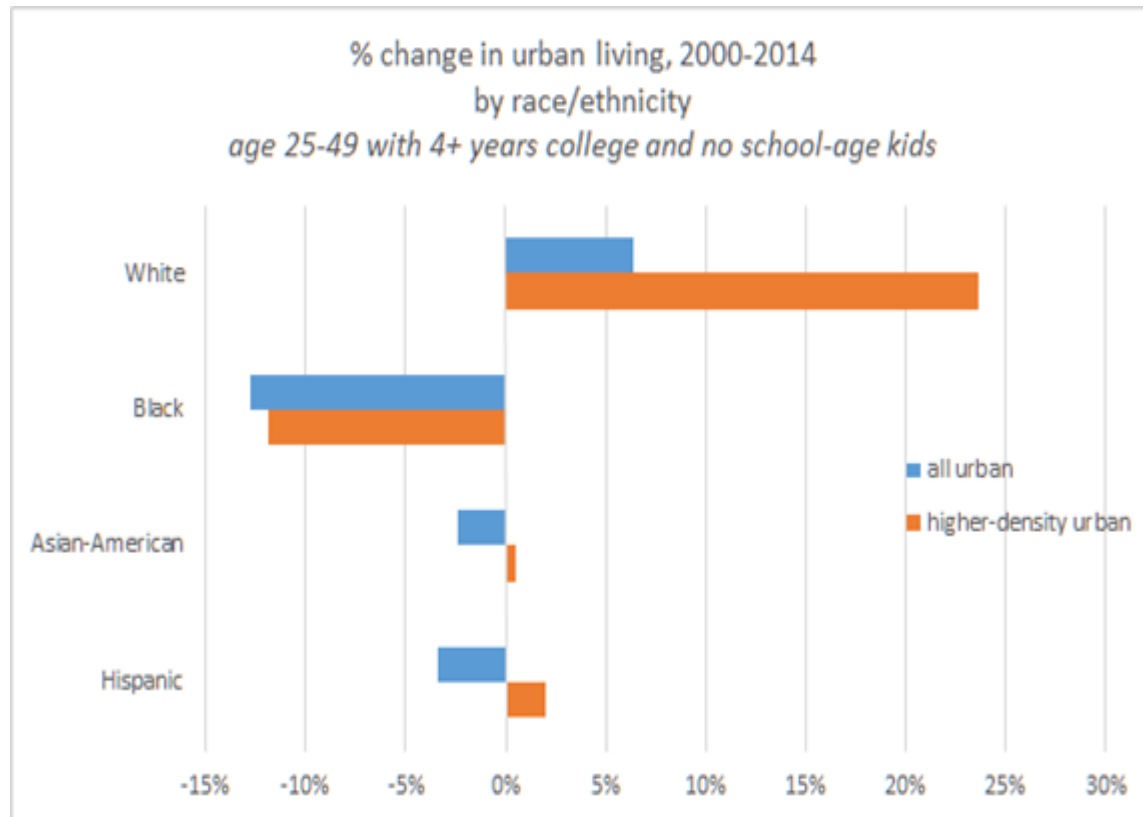| Metro	Homeownership Rate 2006	Homeownership Rate 2016	% Point Drop
Orlando	70.5%	58.4%	12.1%
Miami	69.2%	58.6%	10.6%
Phoenix	71.2%	61.0%	10.2%
Portland	68.3%	58.9%	9.4%
Las Vegas	61.4%	52.1%	9.3%
Denver	70.7%	61.6%	9.1%
San Diego	60.5%	51.8%	8.7%
San Jose	59.2%	50.7%	8.5%
Inland Empire	68.5%	61.1%	7.4%
Tampa - St Petersburg	71.7%	64.9%	6.8%
Philadelphia	73.5%	67.0%	6.5%

Metro	Homeownership Rate 2006	Homeownership Rate 2016	% Point Drop
Austin	63.9%	57.5%	6.4%
Chicago	70.0%	64.3%	5.7%
Los Angeles	54.6%	49.1%	5.5%
Jacksonville	67.9%	62.5%	5.4%
Baltimore	70.6%	65.3%	5.3%
Seattle	64.5%	59.5%	5.0%
Boston	63.0%	59.3%	3.7%
Sacramento	64.1%	60.8%	3.3%
San Francisco	57.8%	56.3%	1.5%
San Antonio	66.0%	66.0%	0.0%

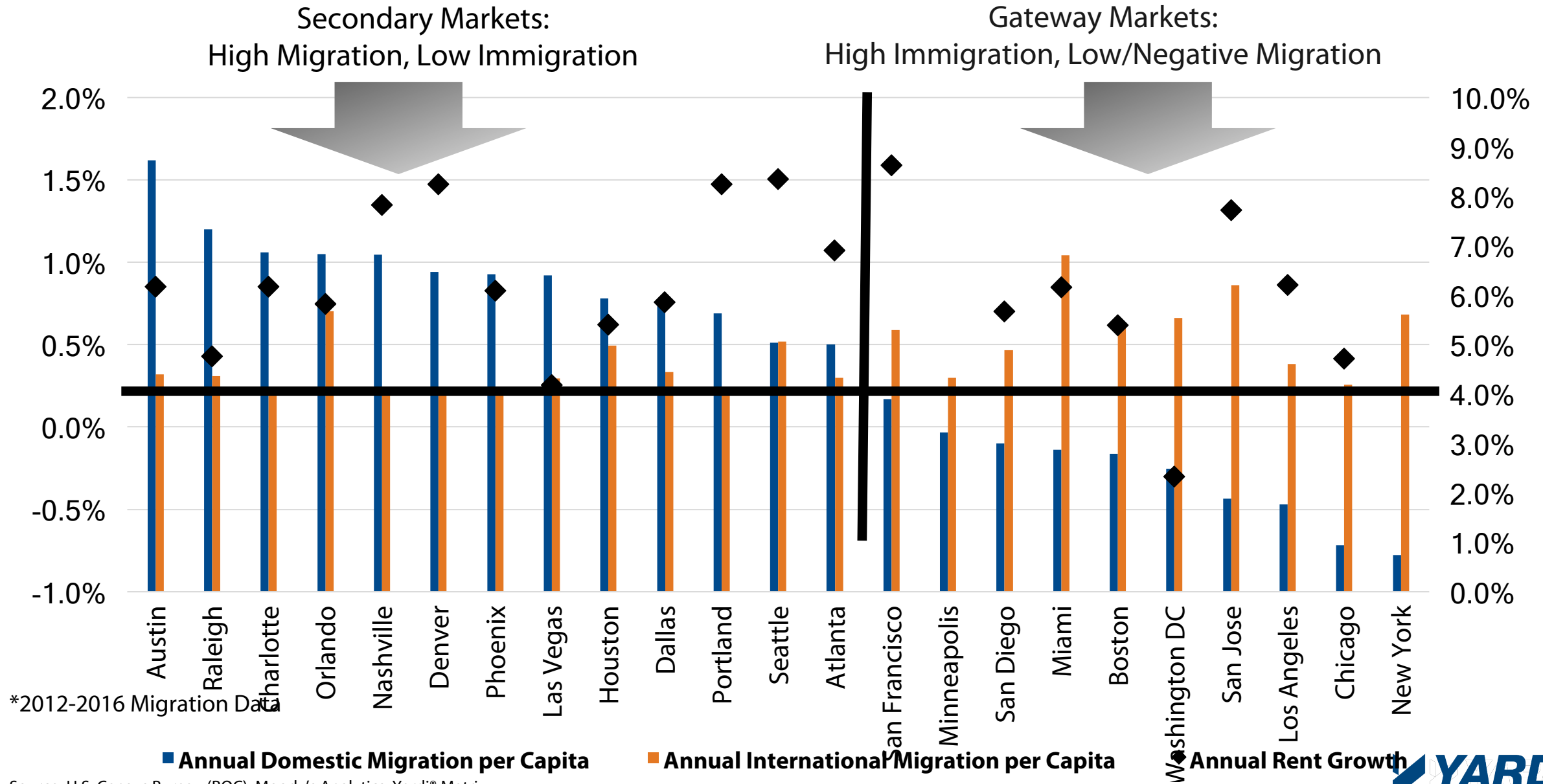Bottom is probably ~62%, rising slowing back to ~63%

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Urbanization Demographics

- Shift to cities seen most dramatically in young, educated, high income demographic
- Delayed marriage and children bearing allows individuals to seek urban lifestyle without need for suburban amenities
- Urban centers are definitely not dead but suburbs will revitalize too

% change in urban living, 2000-2014
by race/ethnicity
age 25-49 with 4+ years college and no school-age kids

White, Black, Asian-American, Hispanic — all urban / higher-density urban

% change in urban living, 2000-2014
by education and children
age 25-49

0-3 years of college, 4+ years of college, no children, oldest child 0-5, oldest child 6+ — all urban / higher-density urban

Source: Jed Kolko; jedkolko.com; candysdirt.com

Immigrants Choose Gateway, Domestic Migrants Choose Secondary

Secondary Markets:
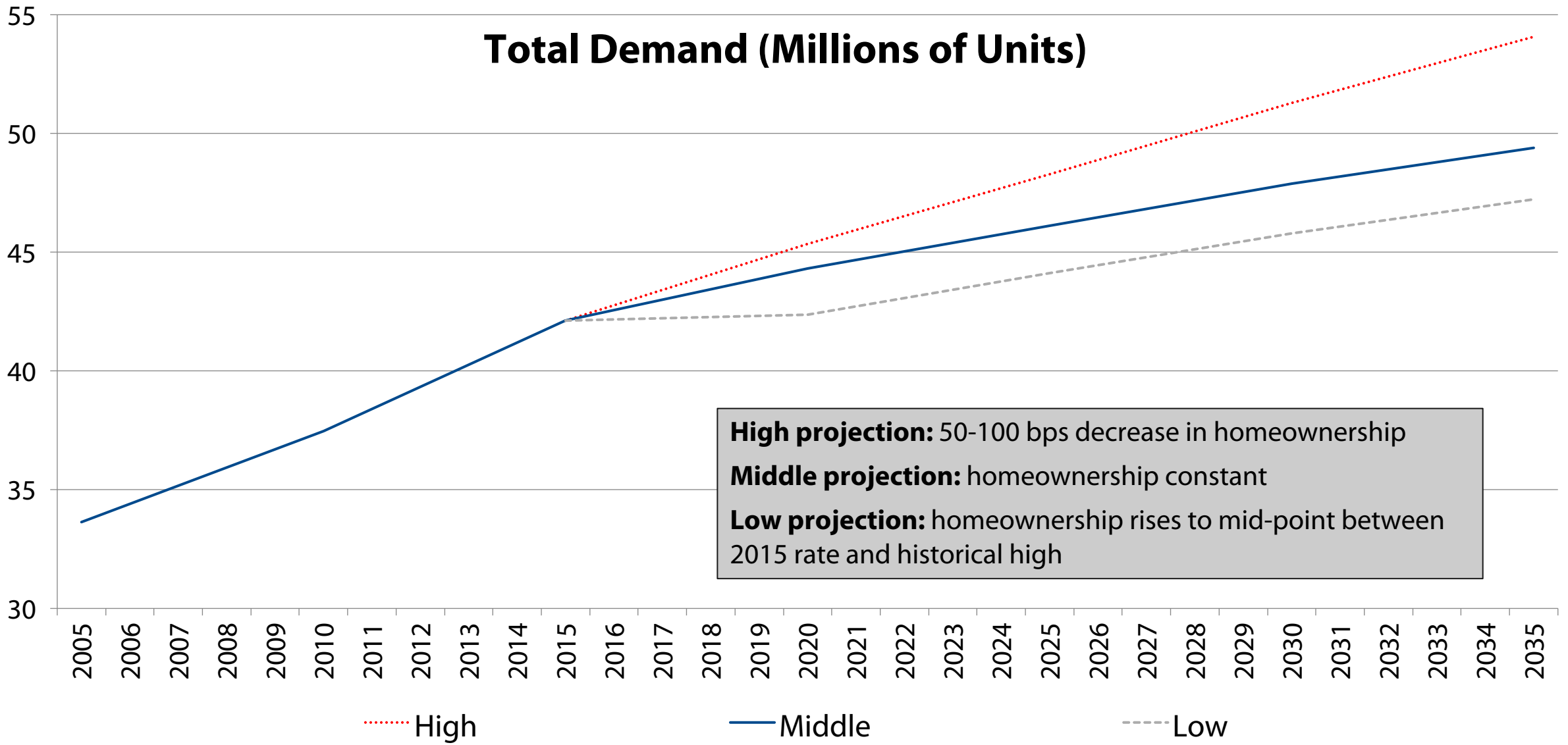High Migration, Low Immigration

Gateway Markets:
High Immigration, Low/Negative Migration

*2012-2016 Migration Data

Source: U.S. Census Bureau (BOC); Moody's Analytics; Yardi® Matrix

■ Annual Domestic Migration per Capita   ■ Annual International Migration per Capita   ◆ Annual Rent Growth

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Future Rental Demand Looks Strong

Total Demand (Millions of Units)

High projection: 50-100 bps decrease in homeownership

Middle projection: homeownership constant

Low projection: homeownership rises to mid-point between 2015 rate and historical high

········· High ——— Middle - - - - Low

Source: Yardi®Matrix

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Forecasted Job Formation vs. Renter Household Formation

Y-axis: Average Annual Job Formation (2016-2026) Professional + Health Services Sectors

X-axis: Average Annual Renter Household Formations (2016-2026)

Data points labeled: New York, Dallas, Los Angeles, Houston, Atlanta, Phoenix, Miami, Chicago, Washington DC, San Francisco, Boston, Seattle, Orlando, Minneapolis, Portland, Austin, San Jose, Raleigh, Denver, San Diego, Nashville, Charlotte, Las Vegas

Summary

Absent of some level of public policy intervention, it is unlikely that sufficient supply at moderate price points will meet the needs of a growing population

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Conclusion – Contact

- **Jeff Adler**, Vice President & General Manager of Yardi Matrix
  - Jeff.Adler@Yardi.com, 1-800-866-1124 x2403

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