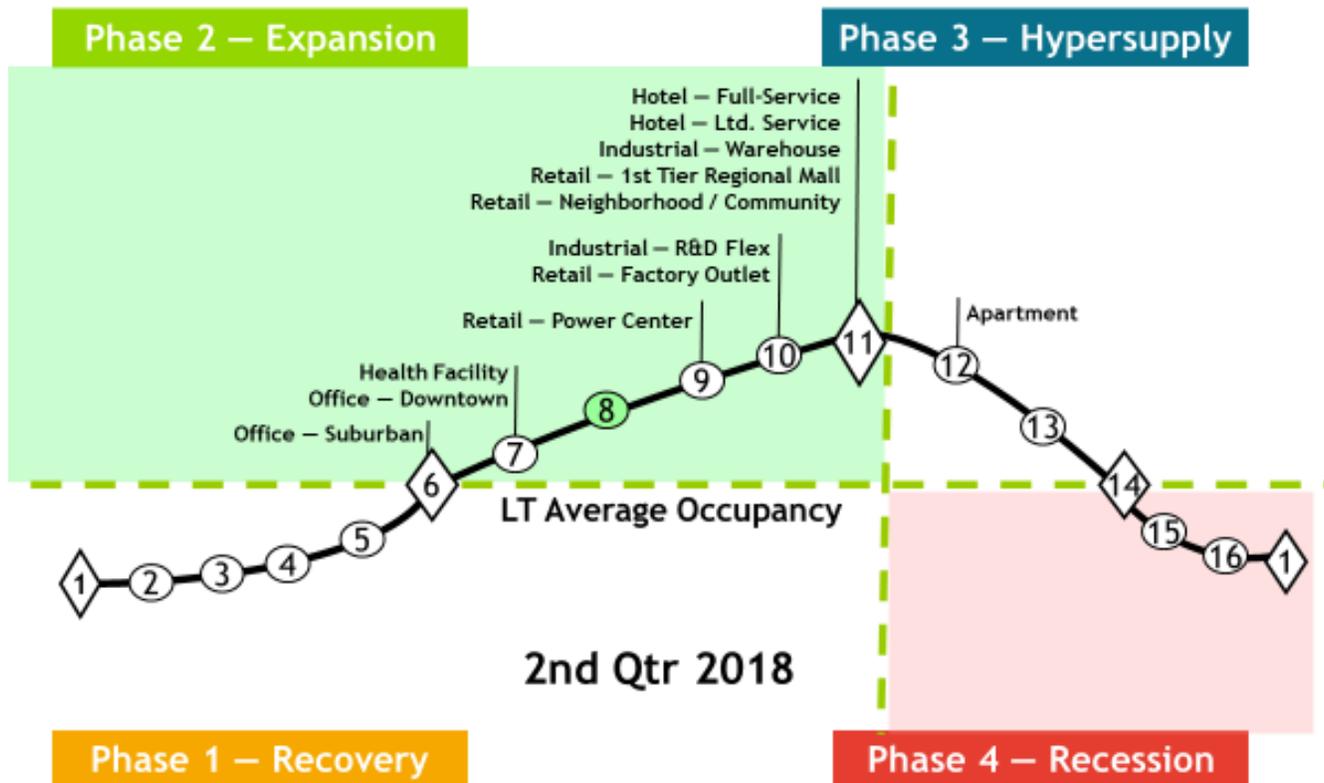# Mueller

Real Estate Market Cycle Monitor
Second Quarter 2018 Analysis

Real Estate Market Cycle analysis of 5 property types in 54 Metropolitan Statistical Areas (MSAs).
Graphic Clarification! Point 11 on the cycle graphs is the point of EQUILBBRIUM in the cycle where demand and supply are growing at the same rate. This is the **BEST** point in the cycle and is the point that we wish would last forever. It is thus the most desirable part of the cycle growth phase representing a **BALANCED MARKET**. We now green shade the growth phase of the cycle green, so that it is clear which markets have good growth fundamentals. Some have interpreted point 11 as the start of the hyper-supply phase of the cycle, which is incorrect. A balanced market can last for a long time. The data and technology now available in real estate markets, could help equilibrium last a long time. Please review page 2 and 8 of this report for the details of how the cycle model works and read each property description analysis closely.

- Office occupancy was flat in 2Q18 and rents grew 0.3% for the quarter and 1.8% annually
- Industrial occupancy increased 0.1% in 2Q18 and rents grew 1.3% for the quarter and 6.2% annually
- Apartment occupancy increased 0.1% in 2Q18 and rents grew 1.6% for the quarter and 3.1% annually
- Retail occupancy increased 0.4% in 2Q18 and rents grew 0.5% for the quarter and 1.6% annually
- Hotel occupancy declined 0.01% in 2Q18 and room rates grew 4.0% for the quarter and 3.8% annually


National Property Type Cycle Forecast graph shows relative positions of sub-property types.

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The cycle monitor analyzes occupancy movements in five property types in 54 MSAs. Market cycle analysis should enhance investment-decision capabilities for investors and operators. The five property type cycle charts summarize 270 individual models that analyze occupancy levels and rental growth rates to provide the foundation for long-term investment success. Commercial real estate markets are cyclical due to the lagged relationship between demand and supply for physical space. The long-term occupancy average is different for each market and each property type. **Long-term occupancy average** is a key factor in determining rental growth rates — a critical indicator of commercial real estate returns.

Market Cycle Quadrants
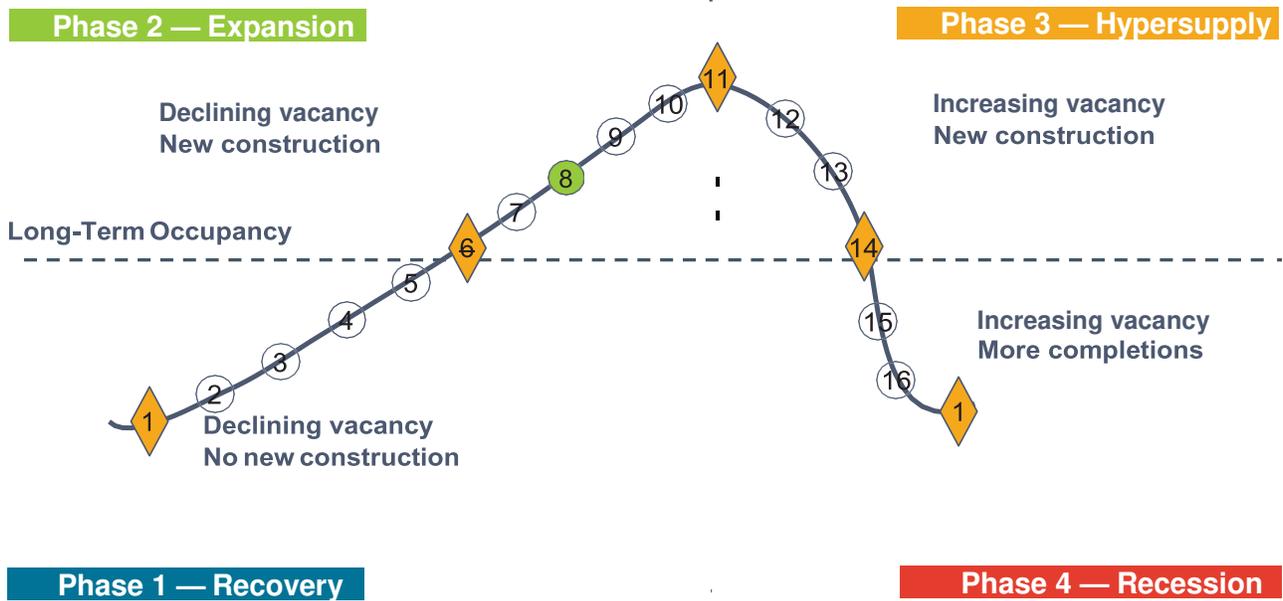
Source: Mueller, Real Estate Finance, 1996

Rental growth rates can be characterized in different parts of the market cycle, as shown below.
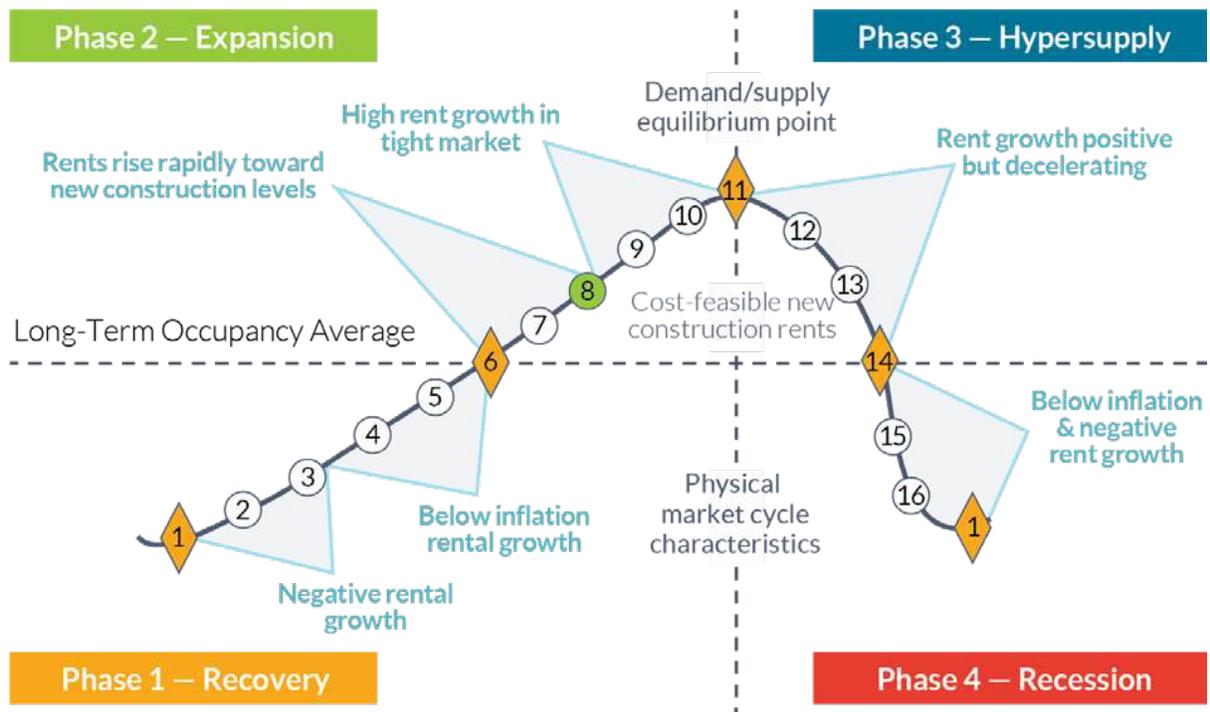
Source: Mueller, Real Estate Finance, 1996

Office

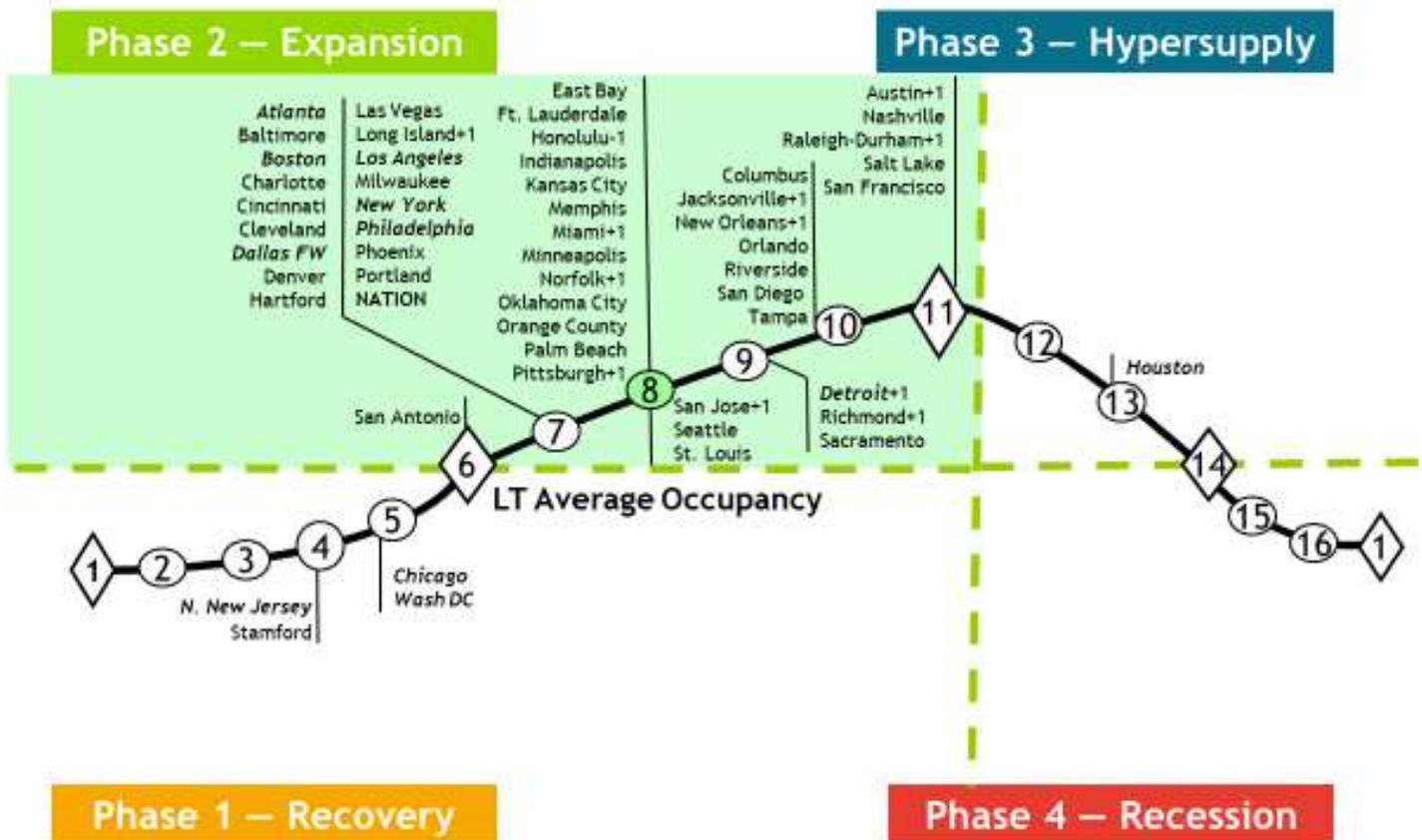The national office market occupancy level remained flat in 2Q18 and increased 0.2% year over year. As seen in the 2Q18 cycle graph 49 of 54 markets are in the growth phase of the market cycle. Economic expansion with 4+% GDP growth is driving strong job growth in office using jobs. In most markets rising construction costs and interest rates require stronger development underwriting that is keeping supply in-balance with demand. Rents are rising with the strong demand and average national rents increased 0.3% in 2Q18 which produced a 1.8% increase year over year.

Office Market Cycle Analysis
2nd Quarter, 2018

Phase 2 — Expansion

Atlanta	Las Vegas
Baltimore	Long Island+1
Boston	Los Angeles
Charlotte	Milwaukee
Cincinnati	New York
Cleveland	Philadelphia
Dallas FW	Phoenix
Denver	Portland
Hartford	NATION

East Bay
Ft. Lauderdale
Honolulu-1
Indianapolis
Kansas City
Memphis
Miami+1
Minneapolis
Norfolk+1
Oklahoma City
Orange County
Palm Beach
Pittsburgh+1

Columbus
Jacksonville+1
New Orleans+1
Orlando
Riverside
San Diego
Tampa

Phase 3 — Hypersupply

Austin+1
Nashville
Raleigh-Durham+1
Salt Lake
San Francisco

San Antonio

San Jose+1
Seattle
St. Louis

Detroit+1
Richmond+1
Sacramento

Houston

LT Average Occupancy

Chicago
Wash DC

N. New Jersey
Stamford

Phase 1 — Recovery
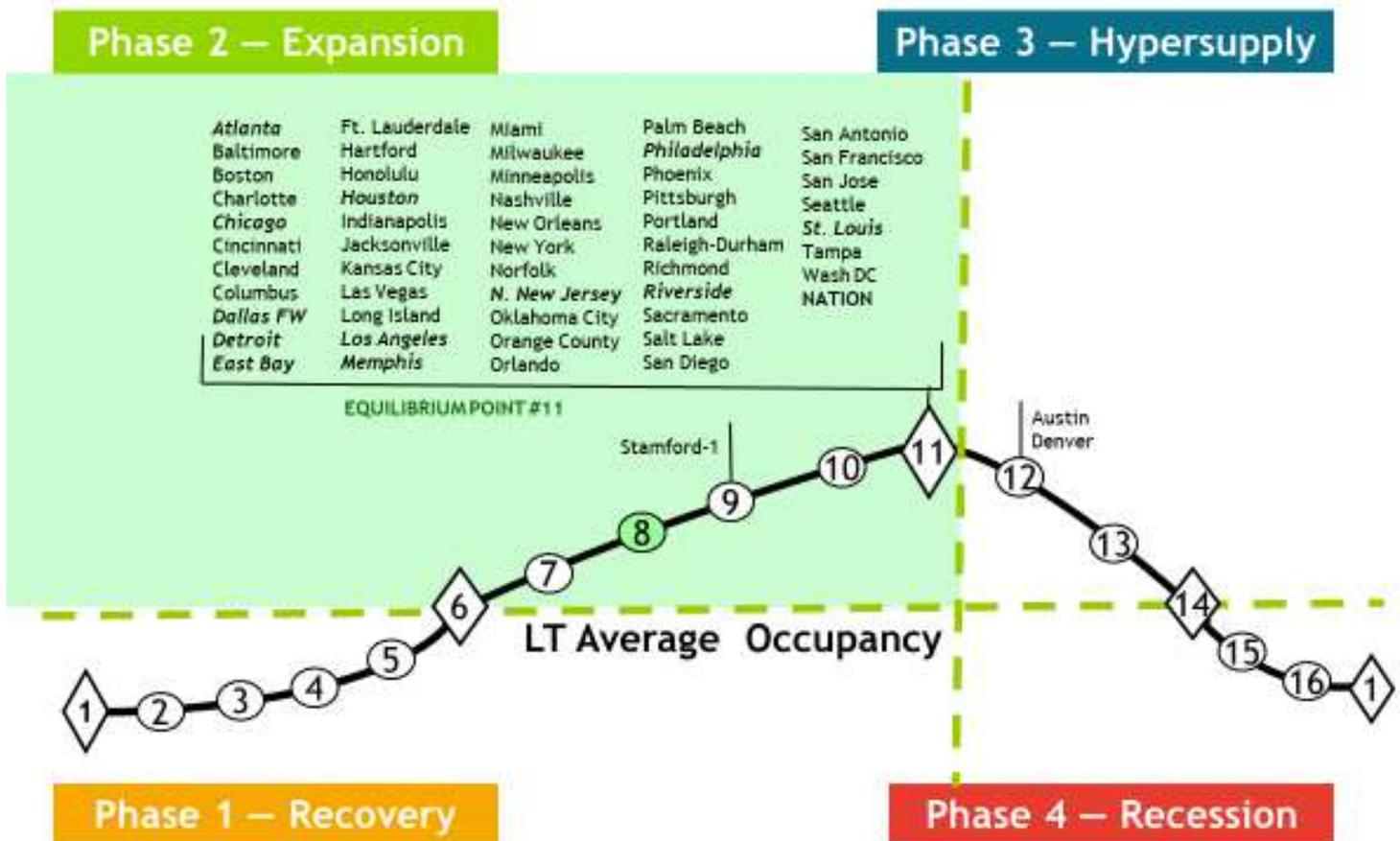
Phase 4 — Recession

Source: Mueller, 2018

Note: The 11-largest office markets make up 50% of the total square footage of office space we monitor. Thus, the 11-largest office markets are in **_bold italic_** type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

Industrial

Industrial occupancies increased 0.1% in 2Q18 and were up 0.4% year-over-year. 51 of 54 markets are at equilibrium point #11 in the cycle graph, which means supply is just keeping up with demand – the sign of a balanced market. Continued moderate job growth near 200,000 new jobs per month along with 4+% GDP growth in 2Q18 are driving consumer spending and demand for industrial space. Our forecast does not show the potential for hyper-supply in the next few years, as demand remains strong from the growing internet sales need for more distribution and local warehouse space. Industrial national average rents increased 1.3% in 2Q18 and increased 6.2% year-over-year.

Industrial Market Cycle Analysis
2nd Quarter, 2018

Phase 2 – Expansion | Phase 3 – Hypersupply

Atlanta	Ft. Lauderdale	Miami	Palm Beach	San Antonio
Baltimore	Hartford	Milwaukee	Philadelphia	San Francisco
Boston	Honolulu	Minneapolis	Phoenix	San Jose
Charlotte	Houston	Nashville	Pittsburgh	Seattle
Chicago	Indianapolis	New Orleans	Portland	St. Louis
Cincinnati	Jacksonville	New York	Raleigh-Durham	Tampa
Cleveland	Kansas City	Norfolk	Richmond	Wash DC
Columbus	Las Vegas	N. New Jersey	Riverside	NATION
Dallas FW	Long Island	Oklahoma City	Sacramento	
Detroit	Los Angeles	Orange County	Salt Lake	
East Bay	Memphis	Orlando	San Diego	

EQUILIBRIUM POINT #11

Stamford-1

Austin
Denver

LT Average Occupancy

Phase 1 – Recovery | Phase 4 – Recession

Source: Mueller, 2018

Note: The 12-largest industrial markets make up 50% of the total square footage of industrial space we monitor. Thus, the 12-largest industrial markets are in *bold italic* type to help distinguish how the weighted national average is affected.
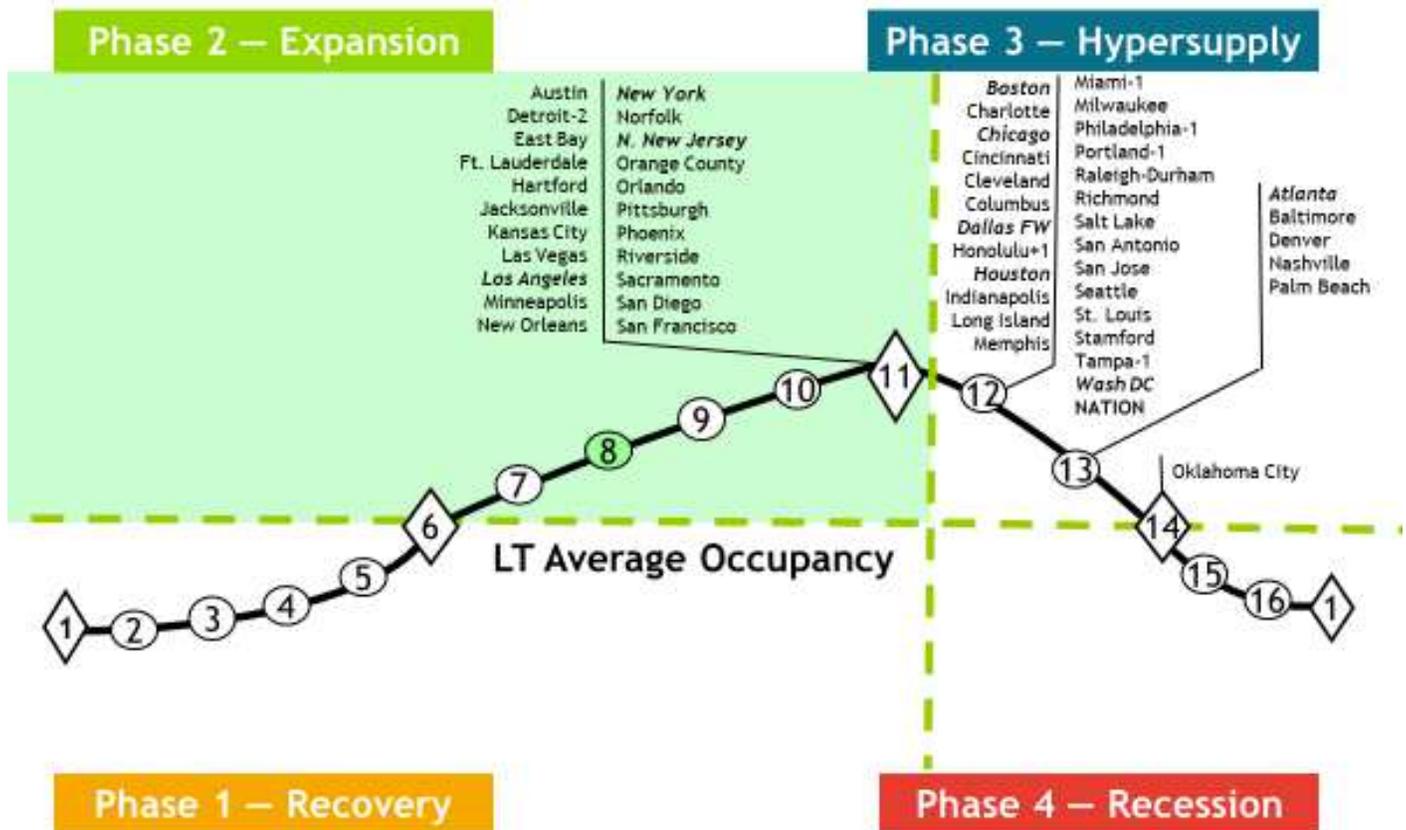
Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

Apartment

The national apartment occupancy average increased 0.1% in 2Q18 and was up 0.1 year-over-year. Job growth averaging near 200,000 per month continues to create robust demand for apartments. Increasing construction costs and construction labor shortages in many markets caused starts to finally decelerate slightly in May and if this continues the market could come back into equilibrium by 2020. Rising mortgage interest rates are also helping to slow purchases and price increases that justify new construction. Note that 22 markets are at point #11 where markets are in equilibrium. Average national apartment rent growth increased 1.6% in 2Q18 and 3.1% year-over-year.

Apartment Market Cycle Analysis
2nd Quarter, 2018

Phase 2 — Expansion

Austin	New York
Detroit-2	Norfolk
East Bay	N. New Jersey
Ft. Lauderdale	Orange County
Hartford	Orlando
Jacksonville	Pittsburgh
Kansas City	Phoenix
Las Vegas	Riverside
Los Angeles	Sacramento
Minneapolis	San Diego
New Orleans	San Francisco

Phase 3 — Hypersupply

Boston	Miami-1
Charlotte	Milwaukee
Chicago	Philadelphia-1
Cincinnati	Portland-1
Cleveland	Raleigh-Durham
Columbus	Richmond
Dallas FW	Salt Lake
Honolulu+1	San Antonio
Houston	San Jose
Indianapolis	Seattle
Long Island	St. Louis
Memphis	Stamford
	Tampa-1
	Wash DC
	NATION

Atlanta
Baltimore
Denver
Nashville
Palm Beach

Oklahoma City

LT Average Occupancy

Phase 1 — Recovery

Phase 4 — Recession
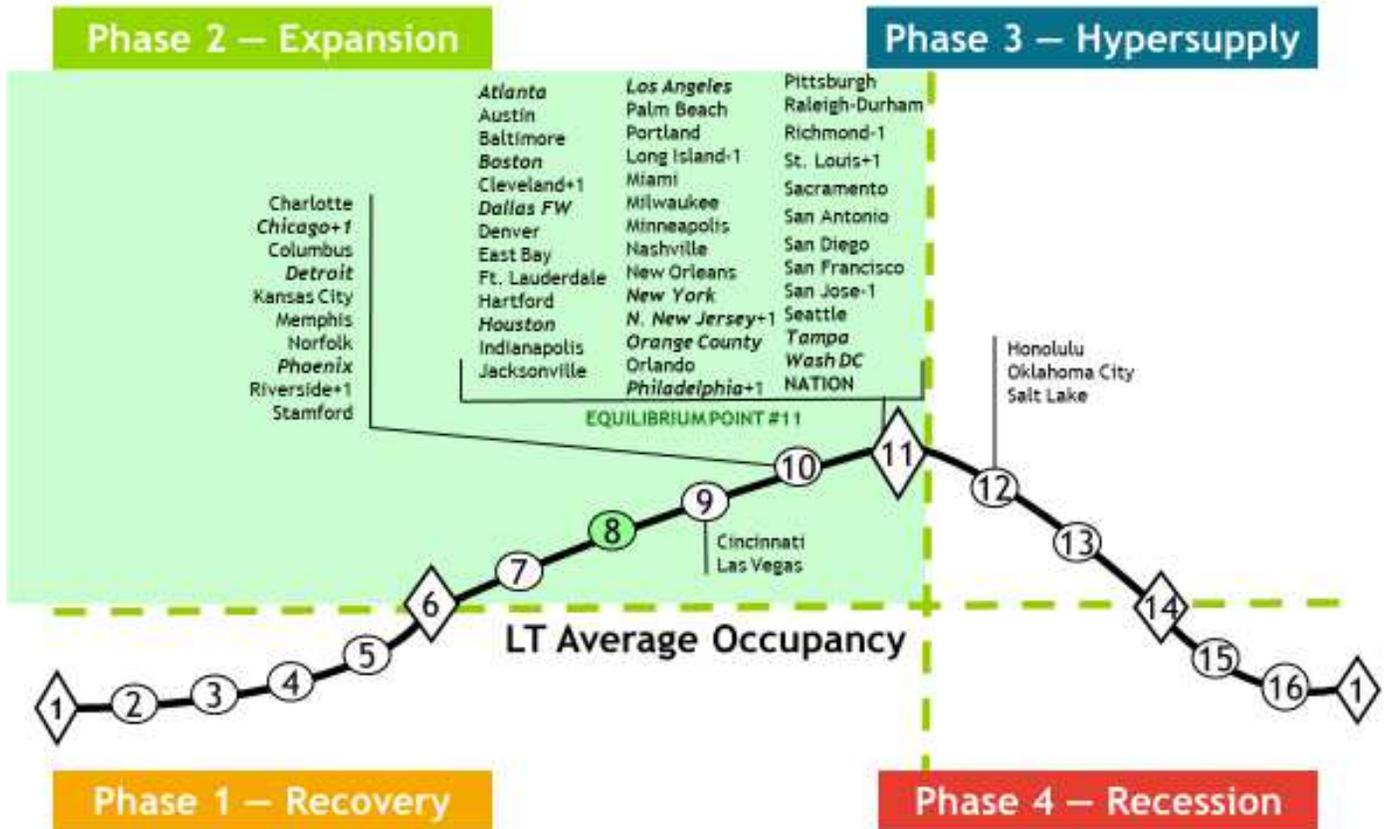
Source: Mueller, 2018

Note: The 10-largest apartment markets make up 50% of the total square footage of multifamily space we monitor. Thus, the 10-largest apartment markets are in **bold italic** type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

Retail

Retail occupancies improved 0.04% 2Q18 and were up 0.2% year-over-year. As the cycle chart shows, 51 of 54 retail markets are in the growth phase of the cycle. 40 of the 54 markets are at Equilibrium point #11 on the cycle graph and only 3 markets are in the hyper-supply phase of the cycle. Experience based retailers and internet retailers are creating strong demand for retail space that is easily absorbing failed older retail formats. New retail construction also remains at less than half historic growth rates, which helps to keep markets in balance. Average national retail rent growth increased 0.5% in 2Q18 and 1.6% year-over-year.

Retail Market Cycle Analysis
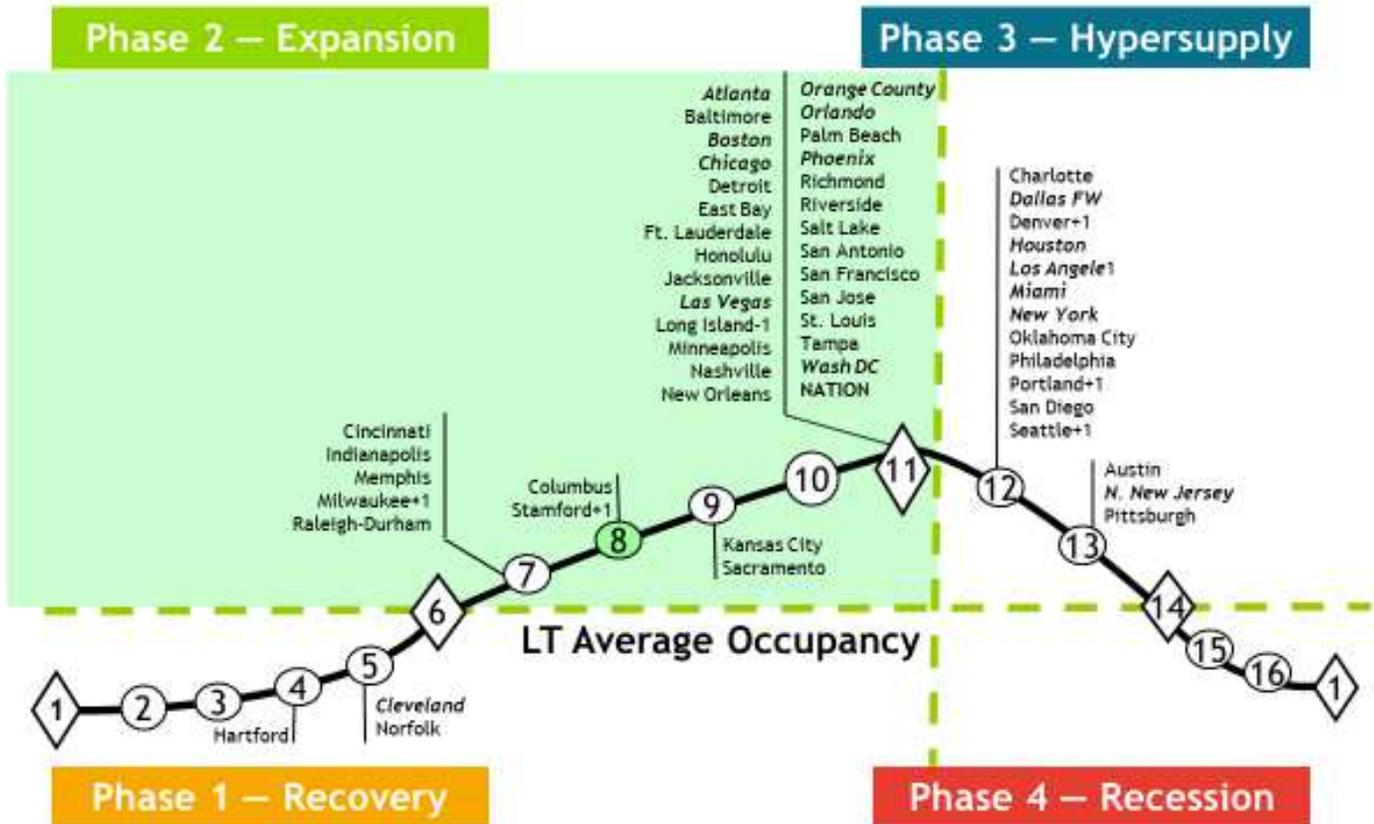### 2nd Quarter, 2018

Source: Mueller, 2018

Note: The 14-largest retail markets make up 50% of the total square footage of retail space we monitor. Thus, the 14-largest retail markets are in *bold italic* type to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

Hotel

Hotel occupancies decreased 0.1% in 2Q18 but increased 0.2% year-over-year. 36 of 54 markets are in the growth phase of the cycle. While strong GDP growth of 4+% in 2Q18 helped propel both business and leisure hotel demand further, new completions in some markets were higher than that increased demand. Branding and new hotel concept tiers are appearing to appeal to niche markets and in unique niche locations. The national average hotel room rate increased 4.0% in 2Q18 and 3.8% year-over-year.

Hotel Market Cycle Analysis
2nd Quarter, 2018

Phase 2 — Expansion

Phase 3 — Hypersupply

Atlanta / Orange County
Baltimore / Orlando
Boston / Palm Beach
Chicago / Phoenix
Detroit / Richmond
East Bay / Riverside
Ft. Lauderdale / Salt Lake
Honolulu / San Antonio
Jacksonville / San Francisco
Las Vegas / San Jose
Long Island-1 / St. Louis
Minneapolis / Tampa
Nashville / Wash DC
New Orleans / NATION

Charlotte
Dallas FW
Denver+1
Houston
Los Angele1
Miami
New York
Oklahoma City
Philadelphia
Portland+1
San Diego
Seattle+1

Cincinnati
Indianapolis
Memphis
Milwaukee+1
Raleigh-Durham

Columbus
Stamford+1

Kansas City
Sacramento

Austin
N. New Jersey
Pittsburgh

LT Average Occupancy

Cleveland
Norfolk

Hartford

Phase 1 — Recovery

Phase 4 — Recession

Source: Mueller, 2018

Note: The 14-largest hotel markets make up 50% of the total square footage of hotel space that we monitor. Thus, the 14-largest hotel markets are in boldface italics to help distinguish how the weighted national average is affected.

Markets that have moved since the previous quarter are now shown with a + or - symbol next to the market name and the number of positions the market has moved is also shown, i.e., +1, +2 or -1, -2. Markets do not always go through smooth forward-cycle movements and can regress, or move backward in their cycle position when occupancy levels reverse their usual direction. This can happen when the marginal rate of change in demand increases (or declines) faster than originally estimated or if supply growth is stronger (or weaker) than originally estimated.

Market Cycle Analysis — Explanation

Supply and demand interaction is important to understand. Starting in Recovery Phase I at the bottom of a cycle (see chart below), the marketplace is in a state of oversupply from either previous new construction or negative demand growth. At this bottom point, occupancy is at its lowest. Typically, the market bottom occurs when the excess construction from the previous cycle stops. As the cycle bottom is passed, demand growth begins to slowly absorb the existing oversupply and supply growth is nonexistent or very low. As excess space is absorbed, occupancies rise, allowing rental rates in the market to stabilize and even begin to increase. As this recovery phase continues, positive expectations about the market allow landlords to increase rents at a slow pace (typically at or below inflation). Eventually, each local market reaches its *long-term occupancy average*, whereby rental *growth is equal to inflation*.

In Expansion Phase II, demand growth continues at increasing levels, creating a need for additional space. As occupancy rates rise above the *long-term occupancy average*, signaling that supply is tight in the marketplace, rents begin to rise rapidly until they reach a cost-feasible level (point #8) that allows new construction to commence. In this period of tight supply, rapid rental growth happens, which some observers call "rent spikes." (Some developers may also begin speculative construction in anticipation of cost-feasible rents if they are able to obtain financing). Once cost-feasible rents are achieved in the marketplace, demand growth is still ahead of supply growth — a lag in providing new space due to the time to construct. Long expansionary periods are possible and many historical real estate cycles show that the overall up-cycle is a slow, long-term uphill climb. As-long-as demand growth rates are higher than supply growth rates, occupancies increase. Equilibrium cycle point #11 is where demand and supply grow at the same rate, which could last for a long time. Before equilibrium, demand grows faster than supply; after equilibrium, supply grows faster than demand.

Hypersupply Phase III of the real estate cycle starts AFTER equilibrium point #11 — where demand growth equals supply growth. Most real estate participants do not recognize that equilibrium's passing, as occupancy rates are at their highest (well above long- term averages), a strong and tight market. During Phase III, supply growth is higher than demand growth (hypersupply), causing occupancies to decline back toward the long-term occupancy average. While there is no painful oversupply during this period, new completions compete for tenants in the marketplace. As more space is delivered to the market, rental growth decelerates. Eventually, market participants realize that the market has turned down and commitments to new construction should slow or stop. If new supply grows faster than demand once the long-term occupancy average is passed, the market falls into Phase IV.

Recession Phase IV begins as the market moves below the long-term occupancy average with high supply growth and low or negative demand growth. The extent of the market down-cycle is determined by the difference (excess) between the market supply growth and demand growth. Massive oversupply, coupled with negative demand growth (that started when the market passed through long-term occupancy average in 1984), sent most U.S. office markets into the largest down-cycle ever experienced. During Phase IV, landlords lose market share if their rental rates are not competitive. As a result, they lower rents to capture tenants, even if only to cover a buildings' fixed expenses. Market liquidity is also low or nonexistent in this phase, as the bid–ask spread in property prices is too wide. The cycle eventually reaches bottom as new construction and completions cease, or as demand begins to grow at rates higher than that of new supply added to the marketplace.
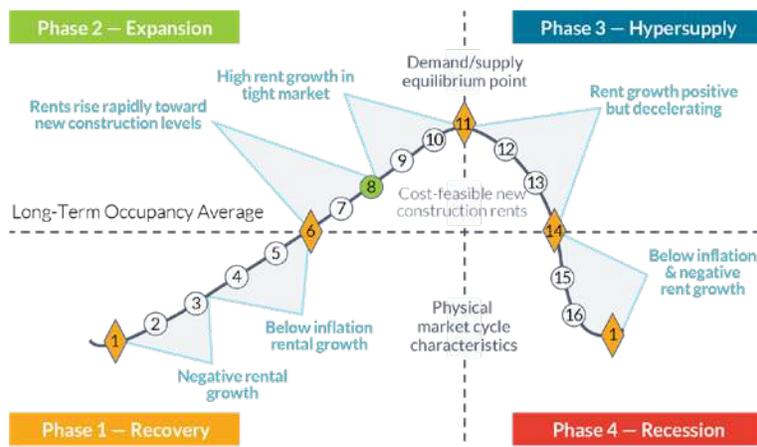
Source: Mueller, Real Estate Finance, 1996

This research currently monitors five property types in 54 major markets. We gather data from numerous sources to evaluate and forecast market movements. The market cycle model we developed looks at the interaction of supply and demand to estimate future occupancy rates that drive rental rates.

Our individual market models are combined to create a national average model for all U.S. markets. This model examines the current cycle locations for each property type and can be used for asset allocation, acquisition and development decisions.