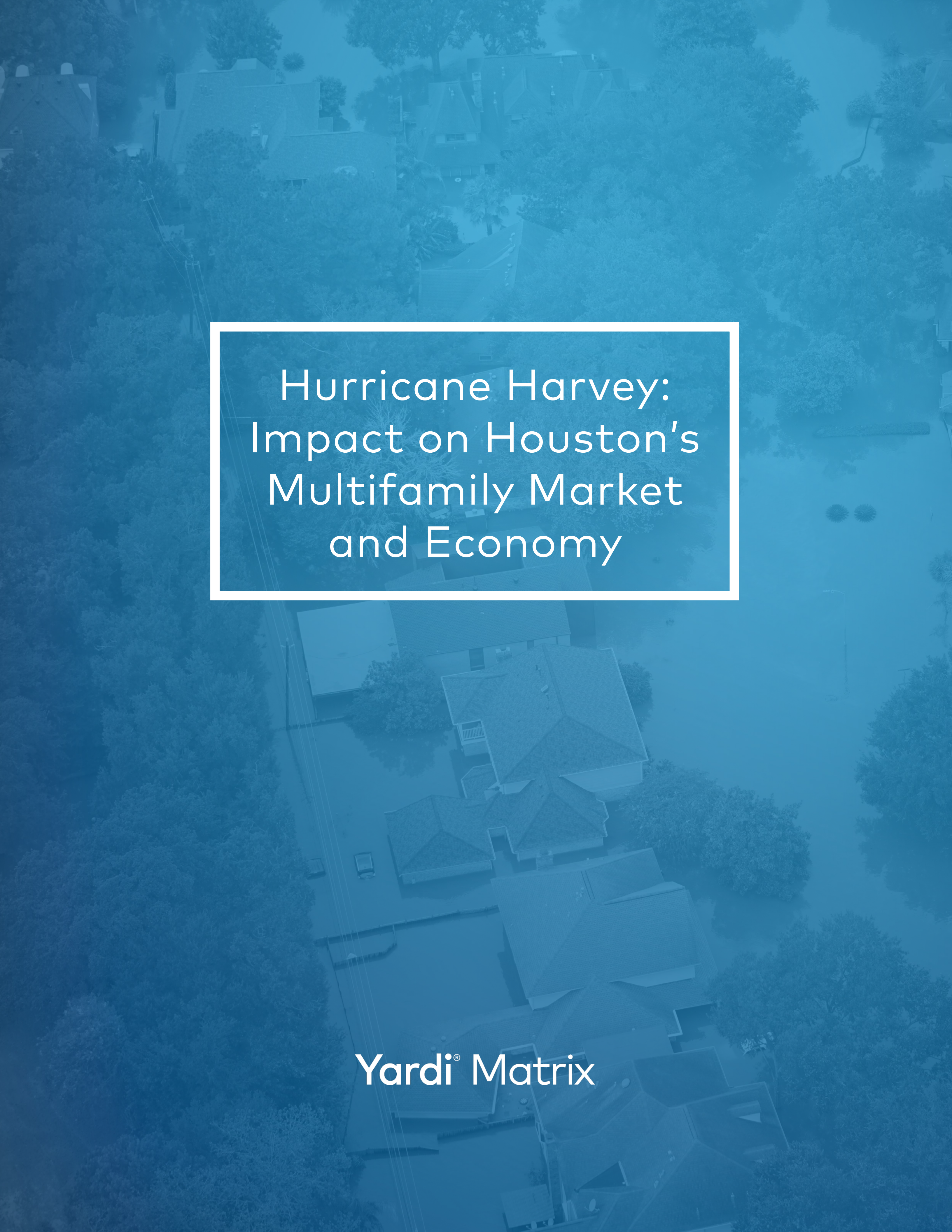

Hurricane Harvey: Impact on Houston's Multifamily Market and Economy

Yardi® Matrix

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Special Report

September 2017

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Hurricane Harvey: Impact on Houston Multifamily

Overview

Hurricane Harvey slammed into Houston on August 25 and dropped more than 50 inches of rain over the next few days, producing a swath of flooding in low-lying developments and areas near rivers, lakes and reservoirs. The flooding damaged tens of thousands of single-family residences and apartments, commercial properties, vehicles and infrastructure. The storm might end up as the most expensive natural disaster in U.S. history, with property damage estimates upwards of $100 billion.

Although a full assessment of Harvey's impact on commercial real estate will take many weeks or even months, an initial analysis by Yardi Matrix found that the damage to multifamily properties was less than what could have transpired given the record rainfall. Further, Harvey's aftereffects will provide a boost to fundamentals in the short term, as demand for living space from residents displaced by the storm will boost multifamily occupancies. Our findings include:

- Houston's multifamily universe consists of 616,000 units, roughly 157,000 of which are in areas identified as flood zones. Damage to units in flood zones was much higher than in non-flood zones.
- We estimate that between 45,000 and 72,000 units—or 7-11% of the multifamily universe—were rendered uninhabitable.
- Apartment fundamentals in Houston, which have been the worst in the nation over the past 18 months, will improve dramatically in the near term. Houston's pre-Harvey occupancy rate of 93.1% is the lowest among major metros, and rent growth has been negative for the last 12 months.
- We expect the occupancy rate to rise sharply and rent growth to turn moderately positive in the near term.

Houston Metro Multifamily Snapshot

Inventory of Property Status	Completed	Under Construction	Planned	Prospective
Properties	2,476	96	67	58
Units	611,749	24,642	14,895	15,301

Source: Yardi Matrix

Hurricane Harvey: Impact on Houston Multifamily

The Multifamily Industry Responds to the Humanitarian Challenge

The multifamily industry, especially on-site teams, immediately swung into action, checking on residents and securing the physical condition of the communities. As always, the industry's primary concern was residents' safety and security. Large reconstruction and damage assessment teams from the industry are on the ground working to quickly assess and repair communities.

To reduce the financial impact on those displaced by the storm, community managers have taken actions such as postponing late fees, permitting early lease termination without penalties, and turning off revenue management to avoid price spikes due to the inevitable apartment shortage. Of course, the real measure of a community is the residents themselves, whose acts of selfless service are well reported and too numerous to mention.

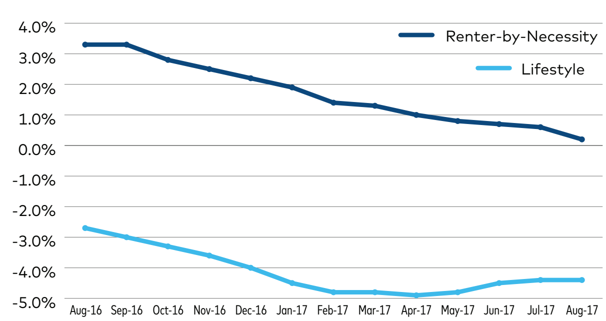
Impact on Multifamily

At 616,000 units, Houston's multifamily market is second in the U.S. only to the Dallas-Ft. Worth Metroplex in terms of size. The sector has underperformed the rest of the country over the last two years due to the combination of flat job growth in the wake of oil prices dropping in 2015 and large amounts of new supply. Since the beginning of 2014, roughly 50,000 units have come online in the metro. About 24,000 units are currently under construction and more than 50,000 are in the pipeline. The metro's 93.1% occupancy rate for stabilized properties as of July is a full 250 basis points below the national average.

Although it remains difficult to get a full picture of the damage to individual households, we estimate that at least 85,000 households were displaced by the storm, encompassing 40,000 homes and a minimum of 45,000 apartment units. As of September 7, authorities reported that some 16,000 residents were living in temporary shelters—some as far away as Dallas—and another 105,000 were living in hotels. No doubt others that have been displaced have left the area or are staying with family or friends in the region. Emergency management authorities also estimate that households in 3,000 to 5,000 subsidized apartment units were displaced and are discussing where and how to relocate them.

Those displaced have different options for finding temporary shelter. The Federal Emergency Management Agency (FEMA) is considering setting up temporary manufactured housing units. FEMA also provides vouchers of as much as $33,300 for those who qualify for subsidies, which can be used to rent apartments, but those checks may take some time to come. Some businesses are providing

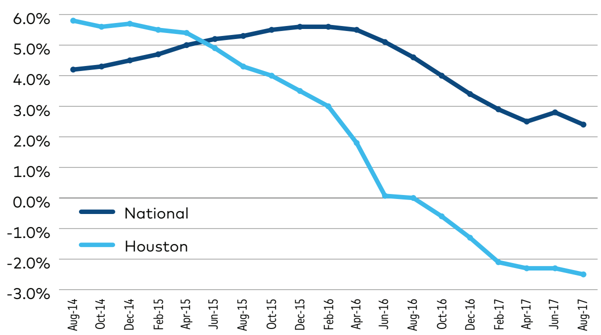
Houston Year-over-Year Rent Growth
(by segment)



Source: Yardi Matrix

Hurricane Harvey: Impact on Houston Multifamily

Houston vs. National Year-over-Year Rent Growth



Source: Yardi Matrix

apartments for workers and their families through corporate relocation specialists.

We expect that many displaced households will move into apartments in the short term, which will fill up most of the approximately 45,000 vacant units in the metro. Demand will likely be highest among Class A units, which will be sought after by homeowners that want a comparable quality of life. Lower-income apartment residents could double up with family or friends temporarily, but Class B/C space is also likely to get mostly filled by displaced residents or construction and clean-up workers.

The timetable of the remediation is key, as the amount of time required to fix damaged housing can vary between a few weeks and months, depending on the severity of damage. Based on past experience with large storms such as Sandy and Katrina, the process of assessing damage, contracting for repairs and acquiring aid can drag on for years.

Still, demand for apartments is certain to be robust, leading occupancy rates and net operating income of multifamily properties to rise over the next couple of quarters. That should provide a boost for rents, which fell 2.4% year-over-year through August for all properties and 4.4% for high-end Lifestyle properties. Our expectation is that Houston rent growth will turn moderately positive in upcoming months. The boost to fundamentals should be strong up front and tail off within a year, but there should be an ongoing benefit over the long term from the combination of higher demand, less overall stock and reduced deliveries, as construction is focused on critical infrastructure and repair of existing units.

Yardi Matrix Estimate of Damage

A detailed analysis by Yardi Matrix concludes that between 45,000 and 72,000 units were damaged by Harvey enough to be uninhabitable. Our researchers called nearly 2,500 apartment properties with 50 or more units in the Houston metro in the days following the storm. We spoke to representatives at two-thirds of the properties, with 1,500 providing some information. As of September 8, representatives of 195 properties encompassing 57,000 units—13% of the properties polled—reported damage that rendered 3,668 units uninhabitable. However, almost 90% of the representatives at those properties also reported that they were not done assessing the damage.

Our analysis differentiated properties in the flood zones and those outside of them. Exactly 10% (112) of the 1,120 responses from properties outside of the flooded areas established by FEMA reported damage, while 21.8% (83) of the responses from 380

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Property with Reported Down Units

Apartments Contacted	Properties	Total Units
Total Apartments Contacted	1,659	425,772
Apartments with Reported No Damage	1,326	335,342
Apartments with Some Known Damage	88	23,147
Still Assessing–Unknown Number of Down Units	72	20,083
No Information Given	173	47,200
Confirmed Damage — Units Down	**Properties**	**Downed Units**
Full Property Assessment Completed	21	2,179
Partial Property Assessment Completed–Confirmed Units Thus Far	88	1,489

Source: Yardi Matrix

Estimated Unit Damage

Property Status	Downed Units
Confirmed Units Down	3,668
Still Assessing Property Damage	5,295*
Property Contacted–No Information Given	9,929*
Unable to Contact Property	39,468*
Total Market Estimated	58,360*
% of Total Stock	9.5%

*Assuming two times more damage than confirmed properties

Source: Yardi Matrix

Unit Damage Multiple Analysis

Multiples of Down Units Estimated vs. Confirmed	Estimated Down Units	% of Total Stock
1.5x	44,687	7.3%
2x	58,360	9.5%
2.5x	72,033	11.7%

Source: Yardi Matrix

properties in flood zones reported damage. The proportion of confirmed damaged units was 8.6% of total stock in non-flood areas and 16.1% in flood areas.

We then extrapolated those numbers, using the assumption that properties that did not respond (some calls resulted in automated hurricane-related messages) were more likely to have suffered damage than those that did. If properties that did not respond experienced 1.5 times more damage than those that did, a total of 44,687 units have been taken out of service (25,975 in non-flood zones and 18,712 in flood zones). Assuming two times more damage among non-responders results in a total of 58,360 units damaged, while an assumption of 2.5 times more damage among non-responders results in a total of 72,033 units damaged.

Yardi Matrix also performed a separate analysis in which we overlaid flood maps produced by FEMA against our property database to determine how many properties are in flooded areas. This analysis found that 639 properties—about one-quarter of the

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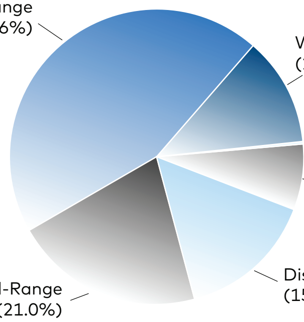
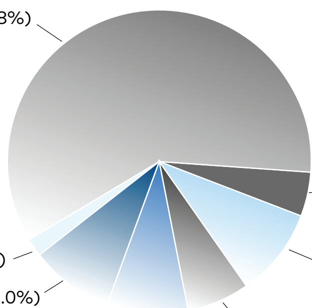
Breakdown of Properties in Flood Areas in Houston

(by property quality)



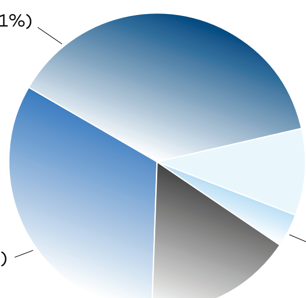
Source: Yardi Matrix

(by property age)



Source: Yardi Matrix

(by property size)



Source: Yardi Matrix

2,500 properties in the metro—with 157,000 units were in flooded areas. Of the properties in the flooded areas:

- The bulk—64%—are B/C-quality units. Some 69,000 units are classified as Lower Mid-Range, 18,400 are Upper Workforce and 11,250 are Fully Affordable.
- The affected apartments are skewed toward older properties. More than 120,000 were built at least 10 years ago and 95,000 are older than 20 years.
- Many larger complexes are in the flooded areas. About half have more than 300 units and 123,000 have more than 200 units.
- Submarkets with the most units in flooded areas are Sugar Land–North (13,789), West Bellaire (12,262), Naussau Bay/Seabrook (11,970) and Bammel (11,526).
- Submarkets (housing more than 1,000 units) with the highest percentage of properties in a flood zone are Galveston (60.0%), George Bush Park (55.9%), Kingwood (54.2%) and Sugar Land–North (48.7%).
- Flooding was most severe in suburban areas in West Houston.

Economic Impact

Estimates for Harvey's economic impact on Houston range from $100 billion to $180 billion, with short-term job losses. However, the jobs should be gained back within a year or two, and while the lost output can't be regained, the storm's overall impact on the growing metro is likely to be temporary.

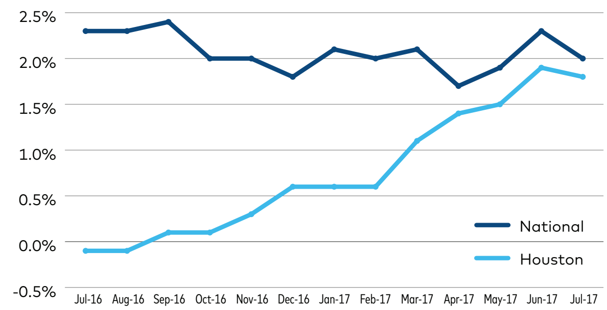
Hurricane Harvey: Impact on Houston Multifamily

Houston is the country's fourth-largest metropolitan area, with a population of 6.5 million. The metro's annual GDP tops $500 billion. Although still led by the energy industry, the economy has diversified in recent decades. Total employment is topped by trade, transportation and utilities (600,000), professional and business services (478,000), government (419,000), and education and health care (389,000).

Houston experienced phenomenal job growth coming out of the recession until oil prices tumbled in 2015, leading to cuts in oil production and exploration. Despite the ongoing economic diversification in the metro, job growth turned negative for a short time and has been flat for the better part of two years. In the wake of Harvey, Moody's Analytics expects the metro will shed about 100,000 jobs over the next few months but quickly regain them by early 2018. Likewise, Moody's predicts a short-term drop in GDP of $9 billion to $11 billion but a quick rebound to previous levels by the first quarter of 2018.

Models of the economic impact of natural disasters in recent decades show that the effects tend to be short-lived, in part due to the aid that comes into the affected regions from insurance and government, and Harvey is expected to be no different in that regard. While legislation has yet to be introduced, already there is talk of federal aid packages in excess of $100 billion. Insurance aid is a little harder to predict, especially given reports that 80% or more of homeowners in the metro lack flood insurance, but there is no doubt that insurance companies will inject many billions of dollars into the recovery. Other economic stimuli will come from replacement of the more than 500,000 vehicles that were damaged and as much as $10 billion of infrastructure that must be repaired.

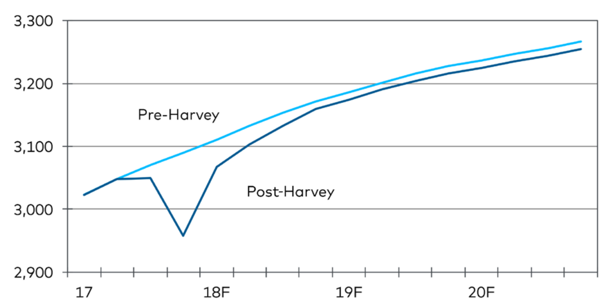
Year-over-Year Employment Growth



Source: Bureau of Labor Statistics

Forecast Employment Growth

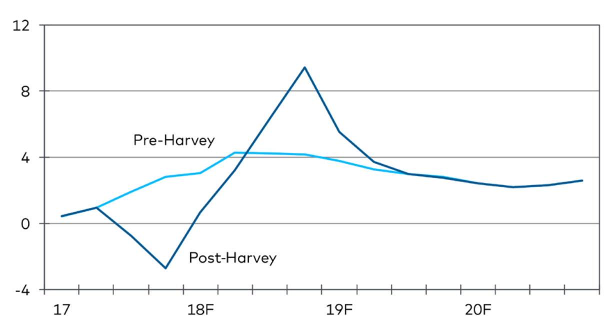
(payroll employment, in thousands)



Sources: Bureau of Labor Statistics, Moody's Analytics

Forecast GDP Growth

(Houston metro area real GDP, 2009 $ in billions, % change over a year ago)



Sources: Bureau of Labor Statistics, Moody's Analytics

As the clean-up and rebuilding process begins, we expect to see significant resources allocated to the Houston construction industry, although that might be hampered by the national labor shortage for skilled and unskilled construction work. Following the storm, the national construction labor market will be squeezed again, as demand for contractors in the Houston metro may entice workers from other cities.

The flood had a relatively mild impact on most commercial property types. A few dozen office buildings suffered some damage, but that was a comparatively small proportion of a segment with more than 220 million square feet. What's more, reports are that the entire downtown office market was fully functioning within a week. Moody's estimates that 6-8% of industrial land was damaged.

A much bigger impact was felt in the energy sector. The Gulf Coast is home to the nation's largest oil refineries. An estimated 30% of U.S. refining capacity was shut down, and much of that could remain offline for weeks. The result will be a drawdown in reserves and a 10-20% increase in gasoline prices nationally for the next few months.

Despite being roughly 200 miles south of Houston and the center of the storm, Corpus Christi did not emerge unscathed. Rainfall totals were much lower than Houston; however, river flooding and wind still destroyed many housing units. The recovery will likely focus on areas close to Houston, but the storm's impact spans most of the Texas coastline, and into western Louisiana, as well.

Conclusion

The Gulf Coast region will be sorting through the effects of Harvey for years, not only rebuilding and replacing property damaged by the storm but debating controversial policies such as zoning and flood insurance. That said, considering the area was hit with unprecedented rainfall and flooding was widespread, Houston's multifamily market may have dodged a bullet. A relatively small number of multifamily units were seriously damaged, demand from those displaced by the storm is likely to soak up most of the vacancies in the market, and the storm could delay much of the excessive apartment development pipeline.

Although the storm will be life-changing for individuals and families that lost possessions, homes or loved ones—and while the full extent of the environmental damage has yet to be uncovered—the broader economic impact of the storm should be temporary for most of the region. Thus, Houston should soon regain its place among the fastest-growing metros in the nation.

A report by the Federal Reserve Bank of Dallas summed it up: "Harvey will have big negative effects on wealth and on people's lives, but temporary effects on job growth—some good news for residents. … Harvey is not big enough to derail the positive growth momentum in the Gulf Coast region or Texas."

*—**Paul Fiorilla**, Associate Director of Research*

What Can You Do to Help?

Harvey's impact on the multifamily industry and economy is certainly important, but it pales in relation to the humanitarian toll it took on individuals and families. In that light, as soon as the storm started Yardi devised a way to aid displaced residents and provide a means for property owners and managers to help.

Yardi set up an online housing registry, RENTCafe.com/HurricaneHarvey, which allows individuals and families to search for housing and connect with property owners and managers. Owners and managers can use the site to provide accommodation information to those in need. We encourage anyone who is in need of accommodation or who has a unit to rent to visit the website. Currently, more than 4,000 available units throughout the metro are listed on the site. It is our hope that as we work together, families will find a place to call home.