

COMPREHENSIVE HOUSING MARKET ANALYSIS

Madison, Wisconsin

U.S. Department of Housing and Urban Development,
Office of Policy Development and Research

As of October 1, 2021



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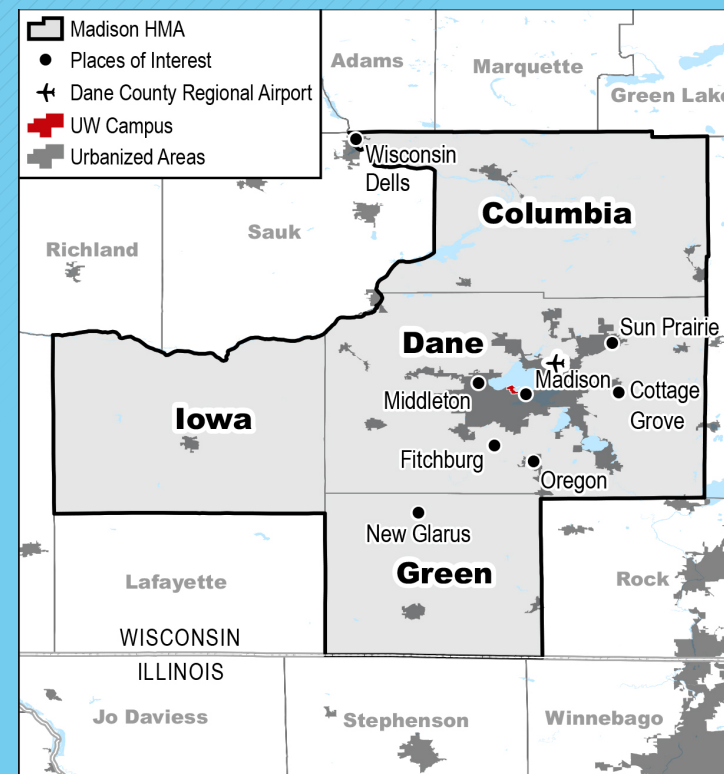
Executive Summary

Housing Market Area Description

The Madison, Wisconsin Housing Market Area (hereafter, Madison HMA) consists of four counties in south-central Wisconsin: Dane County, which is the central county, and the three outlying counties of Columbia, Green, and Iowa. The HMA is coterminous with the Madison metropolitan statistical area (MSA). The city of Madison is the second largest (after Milwaukee) and fastest growing major city in the state of Wisconsin.

The current population of the HMA is estimated at 686,100.

Madison is the capital city of Wisconsin, and it is home to the University of Wisconsin-Madison (UW), the largest public university in the state, as well as UW Hospital, the top-ranked hospital in the state. The HMA is also a center for high-tech and scientific research jobs, many of which are at companies founded by UW alumni or faculty.



Tools and Resources

Find interim updates for this metropolitan area, and select geographies nationally, at PD&R's [Market-at-a-Glance tool](#).

Additional data for the HMA can be found in this report's [supplemental tables](#).

For information on HUD-supported activity in this area, see the [Community Assessment Reporting Tool](#).

Market Qualifiers

Economy



Weak, but Improving: Total nonfarm payrolls averaged 399,000 during the third quarter of 2021, up by 10,900 jobs, or 2.8 percent, from the same period in 2020, but 14,300 jobs, or 3.5 percent, below the same period in 2019, before the onset of the COVID-19 pandemic.

The economy in the Madison HMA is in recovery from sharp job losses during March and April 2020. Based on the average number of jobs during the third quarter of 2021, five sectors have fully recovered, with payrolls exceeding third quarter of 2019 levels; three have partially recovered, with current payrolls above the level from the third quarter of 2020; and three sectors have continued to decline, with payrolls below the third quarter of 2020 levels. During the 3-year forecast period, payroll growth is expected to average 1.6 percent annually, similar to the average during the early- to mid-2010s. Gains in the goods-producing sectors and the high-tech and scientific research industries are expected to contribute to the recovery.

Sales Market



Very Tight: In response to rapidly rising home sales prices and an extremely low inventory of homes for sale, the number of sales units permitted was at the highest level in over a decade, at 1,950 homes, during the 12 months ending September 2021.

Home sales prices averaged \$324,000 during the 12 months ending September 2021, up 12 percent from the previous 12 months, which was the fastest gain in over a decade (CoreLogic, Inc.). The inventory of homes for sale was 1.2 months, the lowest level in over a decade. Low mortgage interest rates, limited growth in new home construction since the mid-2010s, and the rise in telework in 2020, which shifted preferences in where people live and work, contributed to tight market conditions. During the three-year forecast period, demand is expected for 6,025 additional homes. The 810 homes currently under construction are expected to meet a portion of that demand. To meet forecast demand, average annual construction will need to exceed the number of homes permitted during the most recent 12 months.

Rental Market



Slightly Tight: The rental market vacancy rate is currently estimated at 3.0 percent, down from 6.7 percent in 2010.

Demand for additional rental units since 2010 has been met primarily by construction of large apartment buildings, often with 20 or more units, but construction slowed in 2018 and 2019, resulting in fewer units entering the market in recent years, despite renter household growth. The apartment market is tight, with the lowest vacancy rate in over two decades, at 2.1 percent, during the third quarter of 2021, and it had relatively rapid rent growth, up 3 percent from a year ago, compared with an average gain of 2 percent annually during the 2010s. During the 3-year forecast period, demand for an additional 8,600 units is expected. The 5,100 units under construction are expected to meet a portion of that demand. Permitting increased in 2020 and 2021 and will need to remain above 2018 and 2019 levels to meet forecast demand.

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3-Year Housing Demand Forecast

	Sales Units	Rental Units
Madison HMA		
Total Demand	6,025	8,600
Under Construction	810	5,100

Notes: Total demand represents the estimated production necessary to achieve a balanced market at the end of the forecast period. Units under construction as of October 1, 2021. The forecast period is October 1, 2021, to October 1, 2024.

Source: Estimates by the analyst



Economic Conditions

Largest Sector: Government

In September 2021, total nonfarm payrolls in the HMA were 40,900 jobs above the April 2020 low, or 79-percent recovered (monthly basis, not seasonally adjusted).

Primary Local Economic Factors

Chosen as the state capital in the 1830s, and home of the flagship state university since the 1840s, Madison has been the center of state government and public university education in Wisconsin for nearly two centuries. UW-Madison and the UW Hospital are the top-ranked university and hospital in the state in 2021 (*U.S. News and World Report*) and the largest employers in the HMA (Table 1). These highly regarded institutions contribute to the economy, with UW adding more than 5,000 employees from 2001 to 2020 and receiving over \$1 billion in research and development funds annually since 2010 (National Science Foundation). UW Health, which includes UW Hospital and affiliated healthcare providers, served more than 700,000 patients and had revenue of \$3.9 billion in 2020. The government sector, including the foundational institutions of UW-Madison, UW Hospital, and the State of Wisconsin government, is the largest payroll sector in the HMA (Figure 1).

Research at UW has helped launch private sector companies in high-tech and scientific research industries and attracted companies in similar industries to the area. University Research Park, a UW-affiliated office park that opened in 1984, is currently home to more than 125 companies, with over 3,500 employees, and it had a statewide economic impact of nearly \$850 million in 2015. Tenants range from large national companies, such as Exact Sciences Corporation, maker of the Cologuard cancer screening test, and Fujifilm Cellular Dynamics, Inc., to the 17 small startup companies currently housed at the Forward BIOLABS incubator. The largest locally founded tech company is Epic Systems Corporation, a digital healthcare records management company. Started in 1979 by a UW alumnus, the company had 550 employees in 2000 and currently

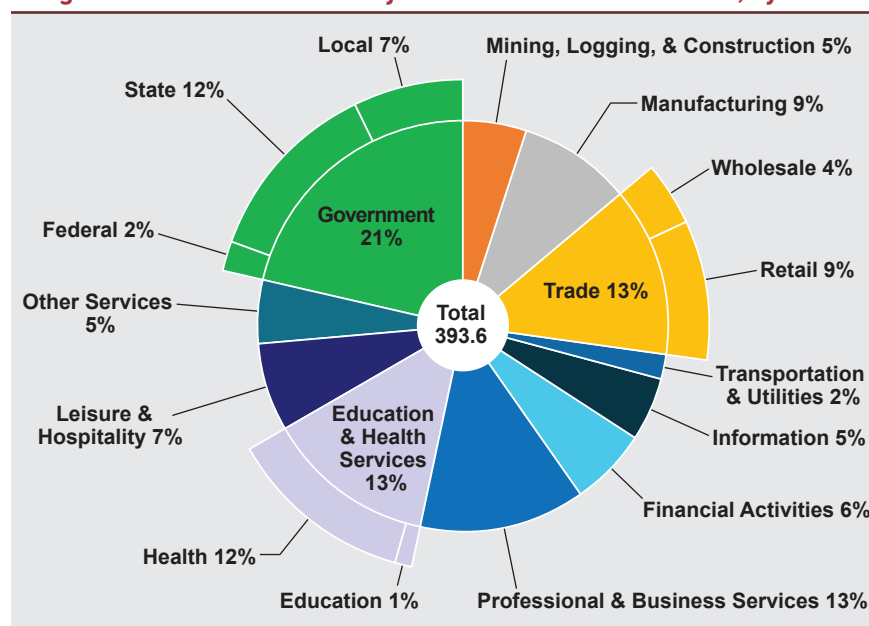
Table 1. Major Employers in the Madison HMA

Name of Employer	Nonfarm Payroll Sector	Number of Employees
University of Wisconsin-Madison (UW)	Government	22,038
UW Hospital	Government	15,358
Epic Systems Corporation	Professional & Business Services	9,600
SSM Health	Education & Health Services	6,444
American Family Insurance Co., S.I.	Financial Activities	4,427
UnityPoint Health-Meriter	Education & Health Services	3,500
UW Medical Foundation	Education & Health Services	3,486
WPS Health Solutions	Education & Health Services	3,000
Laboratory Corporation of America Holdings	Professional & Business Services	2,091
CUNA Mutual Group	Financial Activities	2,000

Note: Excludes local school districts.

Sources: City of Madison, Government of Dane County

Figure 1. Share of Nonfarm Payroll Jobs in the Madison HMA, by Sector



Notes: Total nonfarm payroll is in thousands. Percentages may not add to 100 percent due to rounding.

Based on 12-month averages through September 2021.

Source: U.S. Bureau of Labor Statistics

employs 9,600 workers. Large global tech companies Amazon.com, Inc., Microsoft Corporation, and Alphabet Inc. (parent company of Google) all have offices in the HMA. Despite the recent economic downturn, the number of high-tech and scientific research jobs has continued to increase. From April through October 2020, Madison had a 74-percent increase in the inflow of tech workers, gaining 1.77 tech workers for each one that left, up from 1.02 during the same period in 2019 (LinkedIn).

Beyond the city of Madison and surrounding suburbs where government, high-tech, and scientific research employers are concentrated, specialized industries in smaller towns and rural parts of the HMA include food and beverage manufacturing and tourism. The state of Wisconsin is a leading cheese producer in the nation. In the HMA, milk production, the primary ingredient used to make cheese, had a market value of nearly \$480 million (2017 Census of Agriculture). New Glarus Brewing Company, a beer company, brews and bottles its product in Green County. Despite selling the product exclusively in Wisconsin, the company was ranked 15th in sales among craft breweries and 25th in sales among all breweries nationally in 2019. In northwest Columbia County and adjacent Sauk County, the Wisconsin Dells, a tourist area described as the “Waterpark Capital of the World,” draws 4 million visitors annually and had a \$1.4 billion economic impact statewide in 2020 (Wisconsin Dells Visitor and Convention Bureau).

Current Conditions—Monthly Not Seasonally Adjusted Nonfarm Payrolls

The economy in the Madison HMA is currently recovering from the steep job losses that occurred during March and April 2020, primarily caused by measures to limit the spread of COVID-19. During the 2-month recession, monthly nonfarm payrolls fell by a total of 52,100 jobs, but they have generally been increasing since May 2020 (monthly data; not seasonally adjusted). Jobs in the leisure and hospitality sector accounted for nearly 40 percent of the job losses during the recession, despite the sector only accounting for

9 percent of total nonfarm payrolls in February 2020. In September 2021, total nonfarm payrolls in the HMA were 40,900 jobs above the April 2020 low, or 79-percent recovered. Jobs in the leisure and hospitality sector had a similar rate of recovery as the HMA overall, with 78 percent of jobs recovered in September 2021.

Current Conditions—Most Recent 12-Month Nonfarm Payrolls

During the 12 months ending September 2021, total nonfarm payrolls averaged 393,600, down by 2,800 jobs, or 0.7 percent, from the previous 12 months (Table 2), following a decline of 15,200 jobs, or 3.7 percent, during the 12 months

Table 2. 12-Month Average Nonfarm Payroll Jobs (1,000s) in the Madison HMA, by Sector

	12 Months Ending September 2020	12 Months Ending September 2021	Absolute Change	Percentage Change
Total Nonfarm Payroll Jobs	396.4	393.6	-2.8	-0.7
Goods-Producing Sectors	53.4	55.7	2.3	4.3
Mining, Logging, & Construction	17.8	18.6	0.8	4.5
Manufacturing	35.6	37.1	1.5	4.2
Service-Providing Sectors	343.0	337.9	-5.1	-1.5
Wholesale & Retail Trade	52.7	51.8	-0.9	-1.7
Transportation & Utilities	9.5	9.3	-0.2	-2.1
Information	17.3	17.8	0.5	2.9
Financial Activities	23.8	23.2	-0.6	-2.5
Professional & Business Services	52.2	52.8	0.6	1.1
Education & Health Services	50.1	50.8	0.7	1.4
Leisure & Hospitality	31.1	27.9	-3.2	-10.3
Other Services	20.4	20.9	0.5	2.5
Government	85.9	83.6	-2.3	-2.7

Notes: Based on 12-month averages through September 2020 and September 2021. Numbers may not add to totals due to rounding. Data are in thousands.

Source: U.S. Bureau of Labor Statistics



ending September 2020. The 12-month period ending September 2020 included the 5 months that preceded the recession, the 2-month recession, and the first 5 months of recovery, so the extreme lows of the recession and early recovery are partially offset by higher payrolls in the months before the recession. Compared with the average number of jobs during the 12 months ending September 2019, which is the most recent comparable period before the onset of the COVID-19 pandemic, the current average number of jobs is 18,000, or 4.4 percent, lower.

The goods-producing sectors have fully recovered, supported by growth in construction and an expanding domestic manufacturing sector. Increased residential construction, and an \$85-million expansion project at the Dane County Regional Airport that began in June 2021, contributed to recent growth in the mining, logging, and construction sector. Payrolls in the sector averaged 18,600, up by 800 jobs, or 4.5 percent, compared with the previous 12-month period, and sector payrolls are 100 jobs above the 12-month period ending September 2019. In the manufacturing sector, nonfarm payrolls increased by 1,500 jobs, or 4.2 percent, during the most recent 12 months; payrolls in this sector are 900 jobs above the same period in 2019. Contributing to the recovery is Sub-Zero Group, Inc., a household appliance manufacturer which recalled workers who were laid off in early 2020 and has added more shifts so the manufacturing facility can operate longer hours.

Sectors with many high-tech and scientific research jobs also added jobs during the 12 months ending September 2021. The information sector, which includes the software publishing industry, added 500 jobs, or 2.9 percent, and is fully recovered. The professional and businesses services sector, which includes industries such as computer systems design and related services, as well as scientific research and development services, added 600 jobs, or 1.1 percent, and is only 100 jobs below the same period in 2019.

The education and health services sector is also fully recovered from losses a year earlier. During the 12 months ending September 2021, jobs increased by

700, or 1.4 percent, annually, and are 400 jobs above the same period in 2019. The rate of growth during the most recent 12 months is below the 2.0-percent average annual rate from 2010 through 2019.

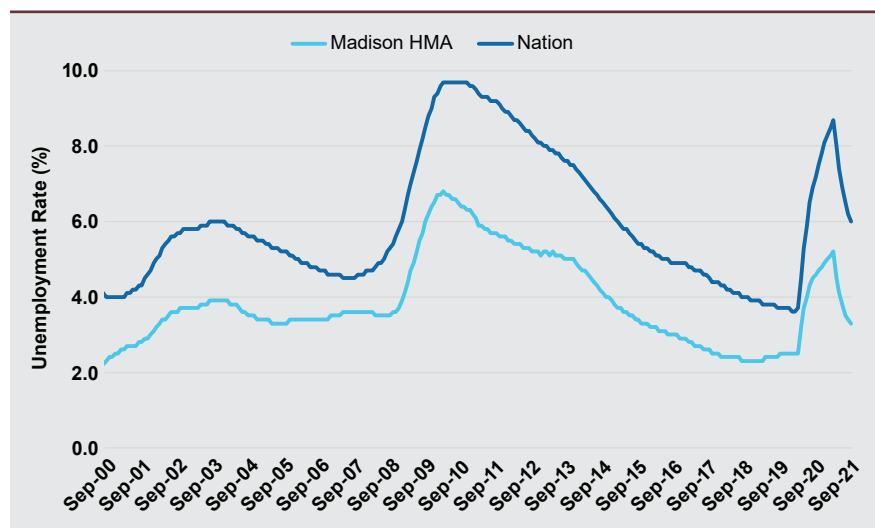
The leisure and hospitality sector has been slower to recover. Payrolls in the sector declined by 3,200 jobs, or 10.3 percent, during the most recent 12 months, and they are 10,300 jobs, or 26.9 percent, below the same 12-month period in 2019. Contributing to the decline in jobs was a 30 percent decline in visitor spending in the Wisconsin Dells tourist area in 2020 compared with 2019. Most classes at UW during the 2020–21 academic year were held online, with some students attending from homes outside the HMA. Fewer students in the area led to reduced spending at restaurants and entertainment venues. In-person attendance at UW athletic events was also restricted. By comparison, prepandemic attendance at UW athletic events drew 1.8 million visitors and had a \$610 million statewide economic impact annually. For the Fall 2021 semester, UW classes are held in-person, drawing students back to the HMA, and stadium capacity restrictions have been removed, contributing to recovery in more recent months. During the 3 months ending September 2021, payrolls in the sector increased by 4,800 jobs, or 17.1 percent, from the same quarter a year earlier, but they remain 7,100 jobs, or 17.7 percent, below the same quarter in 2019.

Current Conditions—Unemployment

The unemployment rate in the Madison HMA is down from a year ago and is well below the national rate. During the 12 months ending September 2021, the unemployment rate in the HMA averaged 3.3 percent, down from 4.6 percent during the previous 12-month period (Figure 2). Before the onset of the pandemic, the unemployment rate had been below 3.0 percent from late 2016 through early 2020. The national rate during the most recent 12 months averaged 6.0 percent, down from 7.2 percent during the 12 months ending September 2020.

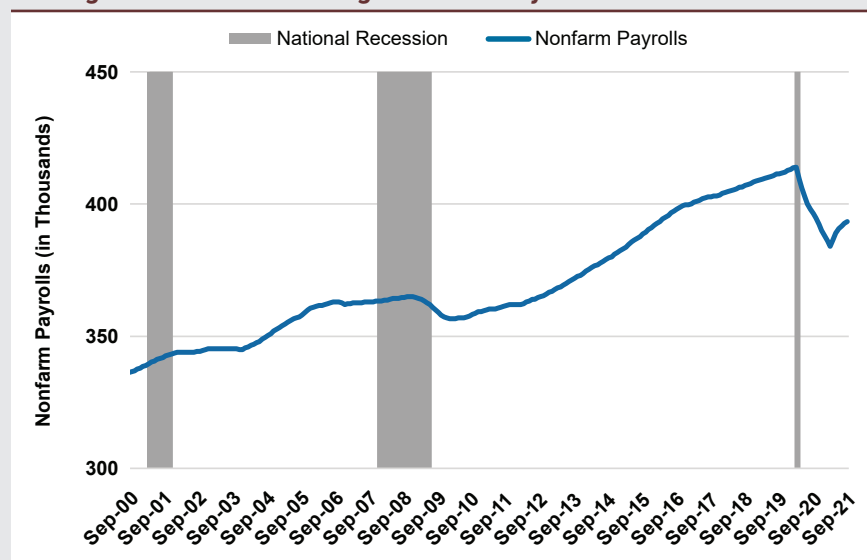


Figure 2. 12-Month Average Unemployment Rate in the Madison HMA and the Nation



Note: Based on the 12-month moving average.
Source: U.S. Bureau of Labor Statistics

Figure 3. 12-Month Average Nonfarm Payrolls in the Madison HMA



Note: 12-month moving average.
Sources: U.S. Bureau of Labor Statistics; National Bureau of Economic Research

Economic Periods of Significance

2001 Through 2008

The early and mid-2000s were a period of economic expansion in the Madison HMA. Payrolls increased by an average of 3,400 jobs, or 1.0 percent, annually, including a loss of 400 jobs, or 0.1 percent, during 2003 (Figure 3). All gains were in the service-providing sectors, with an average increase of 4,000 jobs, or 1.3 percent. The professional and businesses services sector, which includes many high-tech and scientific research jobs, had the largest sector-level increase, rising by an average of 1,200 jobs, or 3.2 percent, annually. Partially offsetting gains in other sectors, the manufacturing sector had the largest decline, decreasing by an average of 700 jobs, or 1.7 percent, annually. A decline in the food manufacturing industry accounted for about one-half of the jobs lost in the sector.

During 2009

The effects of the Great Recession were relatively short in the Madison HMA, lasting one year, compared with three years of decline in the nation. In the HMA, payrolls fell by 7,900 jobs, or 2.2 percent, in 2009. By comparison, payrolls in the nation fell by 4.3 percent in 2009, which was the second year of a 3-year period from 2008 through 2010 when payroll decline in the nation averaged 1.9 percent annually.

Job losses in the HMA were concentrated in the goods-producing sectors. The manufacturing sector fell by 3,600 jobs, or 10.3 percent, with layoffs occurring in all manufacturing industries, including the food and beverage and durable goods industries. A sharp decline in residential construction in the late 2000s contributed to the decline of 2,800 jobs, or 17.2 percent, in the mining, logging, and construction sector.

Partially offsetting losses in other sectors were gains of 3,000 jobs, or 7.8 percent, in the education and health services sector and 1,700 jobs, or 2.0 percent, in the government sector. Employers in these sectors operate on longer term budgets, and the effects of the Great Recession were limited for workers until 2011, when both sectors declined.

2010 Through 2019

The period from 2010 through 2019 was a time of rapid recovery and economic expansion. Nonfarm payrolls increased by an average of 5,600 jobs, or 1.5 percent, annually from 2010 through 2019, exceeding the pre-Great Recession high in 2012, nearly 2 years before the nation. Similar to the early to mid-2000s, the professional and businesses services sector led gains, rising by an average of 1,300 jobs, or 2.8 percent, annually. The information sector had the fastest growth rate, up an average of 4.8 percent, or by 600 jobs, annually. Unlike the previous period of expansion, when

manufacturing jobs declined, jobs in the sector increased by an average of 500, or 1.6 percent, annually. Industries that contributed to the gain include chemical manufacturing; beverage and tobacco product manufacturing; and electrical equipment, appliance, and component manufacturing.

Job growth was faster earlier in the period and moderated in the later years of the decade. From 2010 through 2016, job growth averaged 6,100, or 1.6 percent, annually, but it slowed to an average of 4,300 jobs, or 1.1 percent, annually from 2017 through 2019. A decline in the wholesale and retail trade sector, as consumers shifted to online shopping, and a slowdown in gains in the professional and businesses services sector, contributed to slower growth in the later years of the decade. With the unemployment rate below 3 percent in the late-2010s contributing to a tight labor market, and with Federal policy changes leading to a reduction in international immigration, job growth was partly constrained by a lack of available workers.

Commuting Patterns

In 2019, more workers commuted into the HMA for work than residents leaving the HMA for the same reason. There were 112,100 workers commuting into the HMA from elsewhere, resulting in 28 percent of jobs in the HMA being filled by non-residents (U.S. Census OnTheMap, 2019). Conversely, 63,800 residents, or 18 percent of employed residents in the HMA, worked at jobs outside the HMA, primarily commuting to the nearby Milwaukee-Waukesha MSA, the Janesville-Beloit MSA, or Sauk County.

Change in Jobs by ZIP Code

At the ZIP Code level, job growth was concentrated in central Dane County. Downtown Madison, which includes the state capital and central business district, was the ZIP Code area with the most jobs in 2019, and it had the largest gain from 2010 to 2019, up by 15,200 jobs (Map 1). The gain is primarily attributed to an increase in public administration, professional

and businesses services, and leisure and hospitality sector jobs. Areas with a large decline in jobs include east Madison ZIP Codes 53714 and 53704, where losses were concentrated in public administration, and the Wisconsin Dells tourist area, ZIP Code 53965, where the loss was concentrated in the leisure and hospitality sector.

Forecast

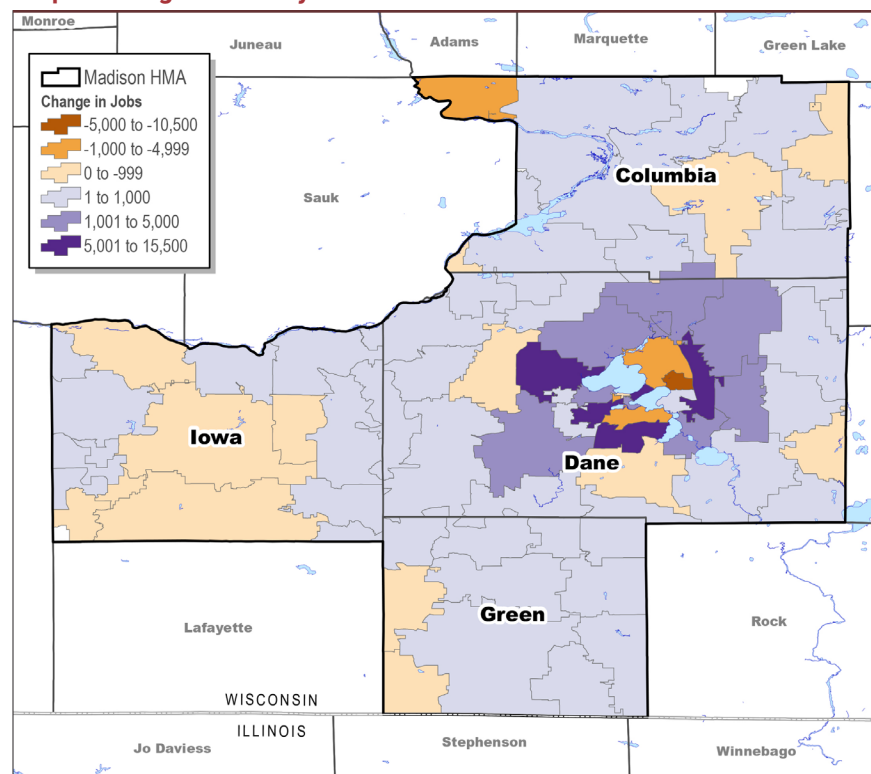
During the 3-year forecast period, job growth is expected to occur at a rate similar to the early to mid-2010s, with nonfarm payroll gains averaging 1.6 percent annually. Based on a 12-month moving average, full payroll recovery from losses that occurred during 2020 is expected during the second year of the 3-year forecast period.

The return of students to the UW campus and fans to UW sporting events for the Fall 2021 semester are expected to contribute to the ongoing recovery in the leisure and hospitality sector. Tight housing market conditions, which



builders are responding to by increasing construction, and the 2-year, \$85 million Dane County Regional Airport expansion project, are expected to support continued growth in the mining, logging, and construction sector. Jobs in high-tech industries and scientific research are also expected to continue to increase. Recent expansion announcements include a \$65 million investment by MilliporeSigma, a life science company, to build new research facilities and add 50 employees; an \$11.4 million grant from the U.S. Department of Defense to FluGen, Inc., a flu vaccine research company; and a \$2.3 million round of seed funding for the biotech startup Immuto Scientific for equipment, staffing, and marketing.

Map 1. Change in Jobs by ZIP Code from 2009 to 2019 in the Madison HMA



Source: U.S. Census OnTheMap 2009 and 2019

Population and Households

Current Population: 686,100

Population growth was strongest from 2010 to 2017, supported by stronger job growth contributing to higher net in-migration, but it has slowed since 2017, with slower job growth leading to lower net in-migration. Net natural increase also slowed during most years since 2010, further contributing to slower population growth in recent years.

Population Trends and Forecast

Population growth in the Madison HMA comes from both net natural increase and net in-migration. Net in-migration tends to be higher during periods of stronger economic growth and weaker when economic growth is slower. Since the end of the Great Recession, net natural increase has slowed, partially because of an increase in the senior population and a lower birth rate.

In the 2000s, population growth averaged 7,000, or 1.2 percent, annually (Table 3). A slight majority of the growth, at 52 percent, was attributed to net natural increase, which averaged 3,625 annually. Net in-migration occurred each year of the decade and averaged 3,375 annually (Figure 4).

Population growth since 2010 also averaged 7,000 annually, but it was faster during the early to

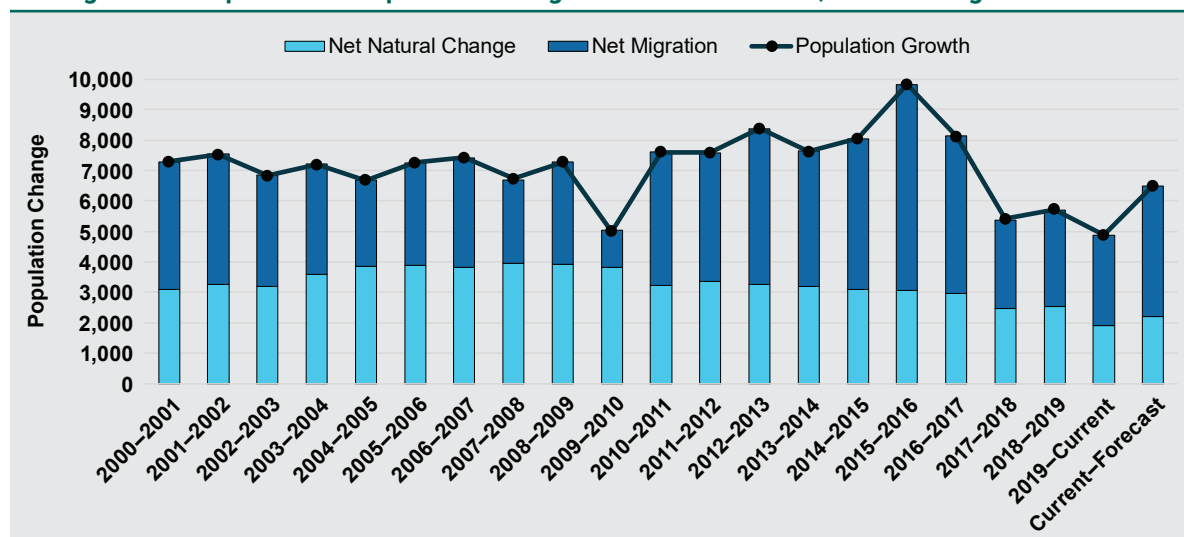
Table 3. Madison HMA Population and Household Quick Facts

Population Quick Facts	2010	Current	Forecast
	Population	605,435	686,100
	Average Annual Change	7,000	6,500
	Percentage Change	1.2	0.9
Household Quick Facts	2010	Current	Forecast
	Households	250,898	291,100
	Average Annual Change	3,500	3,325
	Percentage Change	1.5	1.1

Notes: Average annual changes and percentage changes are based on averages from 2000 to 2010, 2010 to current, and current to forecast. The forecast period is from the current date (October 1, 2021) to October 1, 2024.

Sources: 2000 and 2010—2000 Census and 2010 Census; current and forecast—estimates by the analyst

Figure 4. Components of Population Change in the Madison HMA, 2000 Through the Forecast



Notes: Data displayed are average annual totals. The forecast period is from the current date (October 1, 2021) to October 1, 2024. Sources: U.S. Census Bureau; current to forecast—estimates by the analyst

mid-2010s, when economic conditions were stronger, and it has slowed since the late 2010s. The years from 2010 to 2017 were the strongest period of population growth in more than two decades, up by an average of 8,075, or 1.3 percent, annually. Faster-than-the-nation job growth and rapid recovery after the Great

Recession supported net in-migration, averaging 4,900 annually. Net natural increase was lower than in the 2000s, averaging 3,175 people annually.

Since 2017, population growth slowed to an average of 5,200, or 0.8 percent, annually. Weaker job growth in the late 2010s, along with the onset of the COVID-19 pandemic and associated economic uncertainty, contributed to the slowdown. Net natural increase continued to moderate in the late 2010s and early 2020s, averaging 2,200 annually from 2017 to the current date. A more rapid decline in net natural increase has occurred since March 2020, partially because of the approximately 500 deaths attributed to COVID-19 (Wisconsin Department of Health Services). Net in-migration averaged 3,000 annually since 2017, with weaker economic conditions and increased restrictions on international immigration contributing to lower net in-migration.

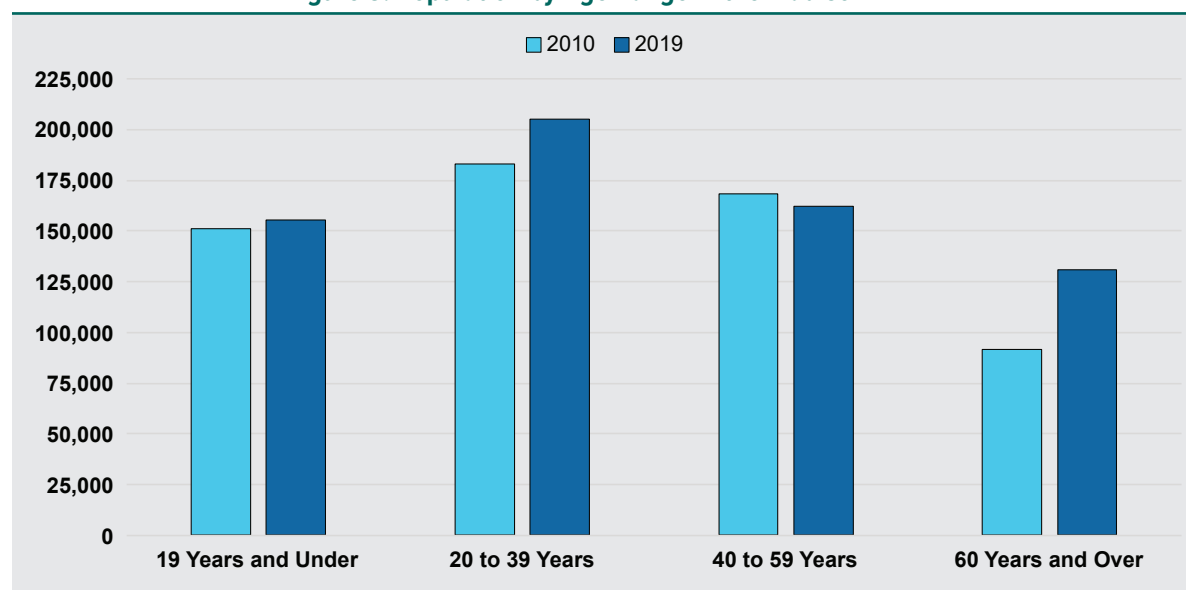
During the 3-year forecast period, population growth is expected to average 0.9 percent a year, above the average from 2017 to the current date but below the growth rate of the early to mid-2010s. Net natural increase is expected to remain at lower levels as the birth rate continues to fall and health impacts from COVID-19 persist. Net in-migration is expected to increase from the current level, supported by job opportunities created by the continued expansion of the high-tech and scientific research industries and recovery of the leisure and hospitality sector.

Age Cohort Trends

The young adult population age 20 to 39 is the largest age cohort in the HMA (Figure 5). The cohort includes approximately 31 percent of the population, up an average of 1.2 percent annually from 2010 to 2019, which is a slightly faster increase than the 1.1-percent average increase for the overall population during the same period (2010 and 2019 American Community Survey [ACS], 5-year data). This cohort also includes most of the UW student population, which was 47,900 in Fall 2021, or nearly 7 percent of the current HMA population. This cohort also includes individuals most likely to give birth. Despite the growing population in the cohort, the birth rate has fallen in the HMA, from 11.9 births per 1,000 residents in 2011 to 10.3 births in 2020 (U.S. Census Population Estimates).

The senior population age 60 and over is the fastest growing age cohort. The cohort population increased an average of 4.0 percent annually to 20 percent of the total population, up from 15 percent (2010 and 2019 ACS, 5-year data). The youth cohort age 19 and under increased 0.3 percent annually; the older working-age adult cohort, age 40 to 59, declined 0.4 percent annually.

Figure 5. Population by Age Range in the Madison HMA



Source: 2010 and 2019 American Community Survey, 5-year data

Migration Trends

Net in-migration primarily comes from the three closest large metropolitan areas: Chicago-Naperville-Elgin, Milwaukee-Waukesha, and Minneapolis-St. Paul-Bloomington (U.S. Census Bureau Migration Flows, 2015–2019, 5-year data). Combined, net in-migration from the three large metropolitan areas totaled 3,175 (Table 4). Migration to and from nonmetropolitan areas in the United States is common in the HMA. Gross migration, which is the total number of people moving to the area plus the total number moving out, is highest for nonmetropolitan areas, with 15,450 people. International immigration is also a measurable component of migration, with 5,075 people moving into the HMA from outside the United States. The most common previous continent of residence was Asia, accounting for nearly two-thirds of all international immigration. No data are available for international emigration.

Population by Geography

Most residents of the HMA live in Dane County, which accounts for 82 percent of the total population (Figure 6) and had average population growth of 1.4 percent annually since 2010. Columbia County is the next most populous county, with 9 percent of the population, followed by Green and Iowa Counties at 5 and 4 percent, respectively. The three smaller counties all had a slower population increase since 2010 compared with Dane County, each with average gains of less than 0.4 percent annually.

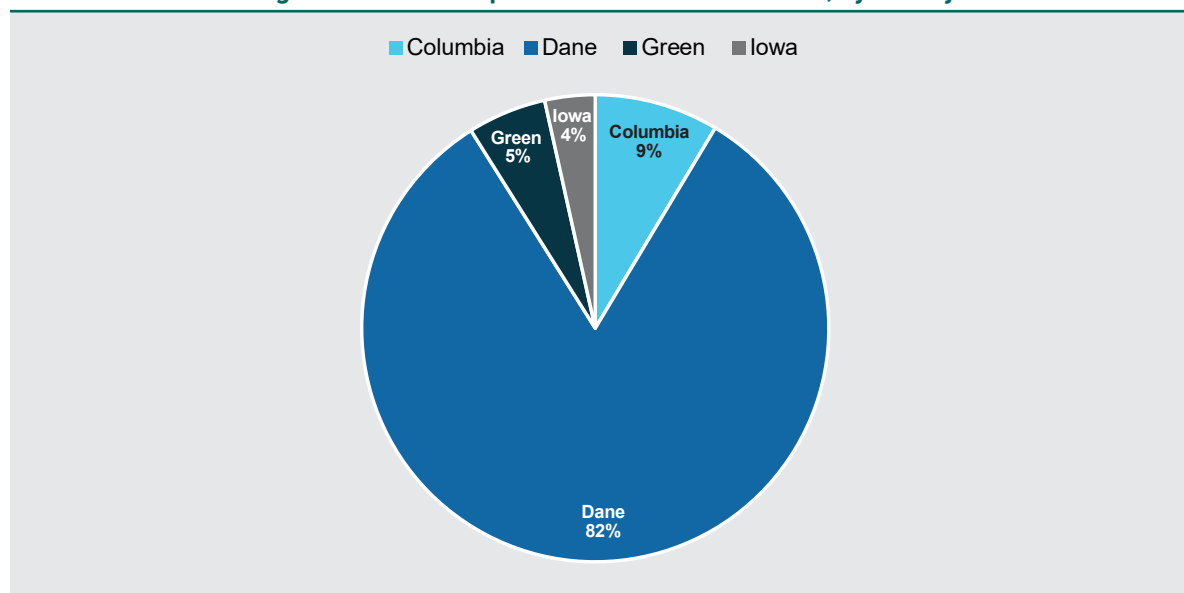
Table 4. Migration Flows in the Madison HMA: 2015–2019

	Into the HMA	Out of the HMA	Net Migration	Gross Migration
Outside Metro Area within U.S. or Puerto Rico	7,939	7,490	449	15,429
Milwaukee-Waukesha, WI Metro Area	3,916	2,816	1,100	6,732
Chicago-Naperville-Elgin, IL-IN-WI Metro Area	3,258	1,926	1,332	5,184
Asia	3,234	NA	NA	NA
Minneapolis-St. Paul-Bloomington, MN-WI Metro Area	1,962	1,211	751	3,173

NA = data not available.

Source: U.S. Census Bureau Migration Flows, 2015–2019 American Community Survey, 5-year data

Figure 6. Current Population in the Madison HMA, by County



Source: U.S. Census Bureau with estimates by the analyst

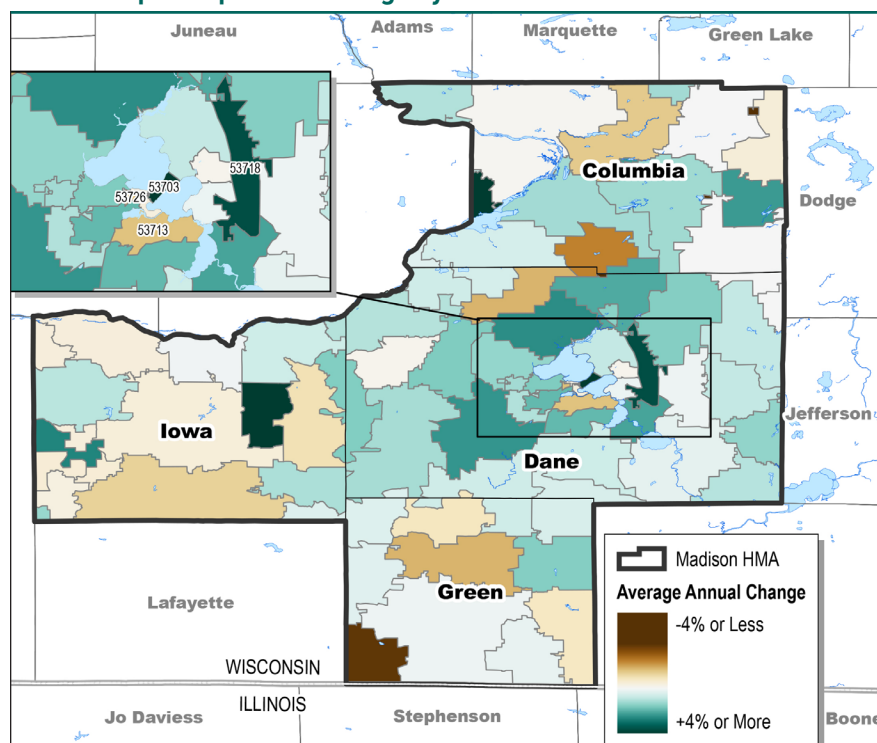
At the ZIP Code level, population growth occurred in most ZIP Codes in Dane County, and trends were mixed in the other three counties with areas of growth and decline. The fastest growing ZIP Code in Dane County was ZIP Code 53703, which includes downtown Madison, up an average of 4.2 percent, or 1,300 people, annually (Map 2). The area also had the largest increase in jobs during the 2010s. The far east side of the city of Madison, ZIP Code 53718, includes a highway directly connecting to the Milwaukee-

Waukesha MSA, a common destination for workers commuting to jobs outside the HMA; that area had a large share of previously undeveloped land and strong population growth, up an average of 3.7 percent, or 490 people, annually. Areas with notable declines include the south and near west sides of the city of Madison, ZIP Codes 53726 and 53713, down an average of 1.6 percent, each, or 370 and 100 people, annually; these areas also had a decline in jobs in the 2010s.

Households by Tenure

The number of renter households has increased faster than the number of owner households since 2010, resulting in a decline in the homeownership

Map 2. Population Change by ZIP Code in the Madison HMA



Source: 2010–2014 and 2015–2019 American Community Survey, 5-year data

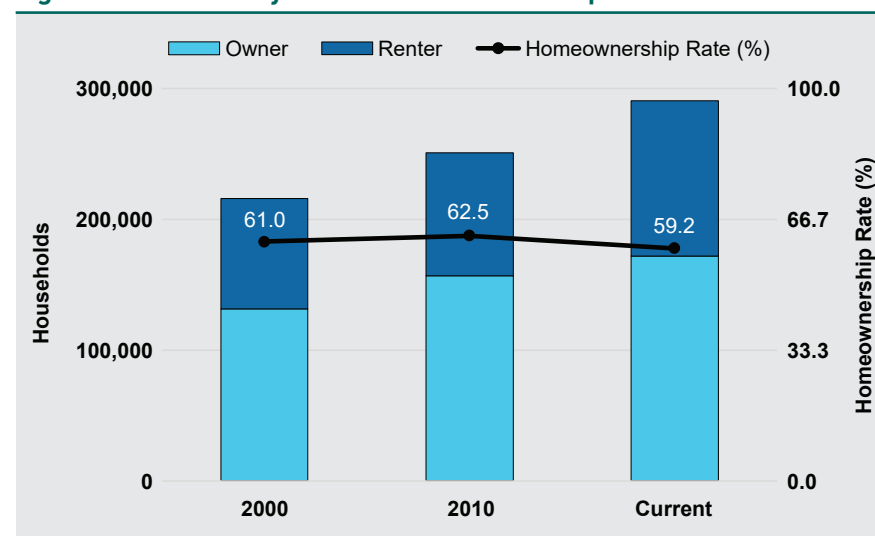
rate, which fell 3.3 percentage points since 2010 to the current estimated rate of 59.2 percent (Figure 7). Since 2010, owner households increased an average of 0.8 percent annually, and renter households increased an average of 2.1 percent annually.

A portion of the faster growth in renter households is due to an increase in student household growth. Since 2010, enrollment at UW increased by an average of nearly 500 students, or 1.1 percent, annually, up from an increase of about 140, or 0.3 percent, annually in the 2000s. The number of student households residing off-campus is currently estimated at nearly 16,000, or about 5 percent of the total households in the HMA.

Household Trends and Forecast

Household growth followed a relatively similar trend as population growth, with a steady increase in the number of households since 2000. From 2000

Figure 7. Households by Tenure and Homeownership Rate in the Madison HMA



Note: The current date is October 1, 2021.

Sources: 2000 and 2010—2000 Census and 2010 Census; current—estimates by the analyst

to 2010, the number of households increased by an average of 3,500 or 1.5 percent, annually, and it has continued to rise at an average of 3,500, or 1.3 percent, annually since 2010. During the forecast period, household growth is expected to moderate from the average gain since 2000 to

3,325 households, or 1.1 percent, annually. Slower population growth in the forecast period relative to the early to mid-2010s is expected to contribute to the lower forecast gain in households.



Home Sales Market

Market Conditions: Very Tight

The average home sales price increased 12 percent compared with a year ago and was the fastest increase in over a decade. The 1.2-month inventory of homes for sale was the lowest in over a decade.

Current Conditions— Sales, Prices, and Inventory

Home sales market conditions in the Madison HMA are very tight. The vacancy rate is currently estimated at 0.8 percent, down from 2.0 percent in 2010 (Table 5). During the 12 months ending September 2021, the average home sales price was \$324,000, up 12 percent from the previous 12-month period, the largest year-over-year increase since the housing boom in the mid-2000s, and a faster increase than the 5 percent average annual increase from 2013 through 2020 (CoreLogic, Inc.). Annual price increases have only exceeded 10 percent two other times since 2000—in 2004, when prices increased 14 percent, and in 2006, when prices increased 13 percent.

The inventory of homes for sale is at the lowest level in over a decade. During the 12 months ending September 2021, the inventory of homes for sale averaged 1.2 months, down from 1.9 months during the previous 12-month period.

Table 5. Home Sales Quick Facts in the Madison HMA

	Madison HMA	Nation
Vacancy Rate	0.8%	NA
Months of Inventory	1.2	1.8
Total Home Sales	13,700	7,263,000
1-Year Change	7%	12%
Total Home Sales Price	\$324,000	\$369,100
1-Year Change	12%	18%
Mortgage Delinquency Rate	0.8%	2.5%

NA = data not available.

Notes: The vacancy rate is as of the current date; home sales and prices are for the 12 months ending September 2021; and months of inventory and mortgage delinquency data are as of September 2021. The current date is October 1, 2021.

Sources: Vacancy rate—estimates by the analyst; months of inventory—CoreLogic, Inc.; National and HMA home sales and prices—CoreLogic, Inc.

Inventory has been below 6 months, which is considered balanced, since mid-2013. Despite uncertain economic conditions in 2020, home sales increased 7 percent during both the 12 months ending September 2021 and the 12 months ending September 2020, a reversal from the two previous 12-month periods when sales were declining. Sales during the most recent 12 months totaled 13,700, the highest number of sales since 2004.

Current Conditions—Economic Factors: Mortgage Interest Rates, Telework, and Affordability

Low mortgage interest rates also contributed to tight market conditions, with the lower rates attracting more prospective buyers. Rates were near 50-year lows during the most recent 12 months, averaging 2.9 percent for a 30-year fixed-rate mortgage, down from an average of 3.4 percent during the previous 12 months (FreddieMac).

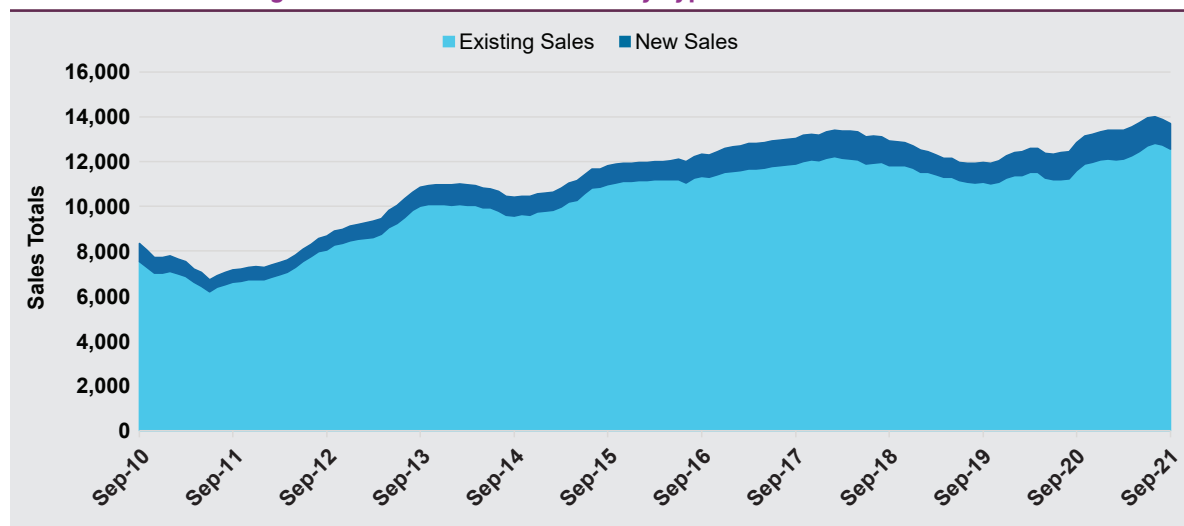
With the onset of the COVID-19 pandemic, many companies encouraged telework, which often requires space within a home to perform a job. This trend may have enabled some workers to move further from their offices, including into the HMA from elsewhere, and it may have led others already residing in the HMA to seek larger homes with extra space to work, contributing to the current tight conditions. Nationally, among individuals currently working from home, only about 20 percent worked from home before the onset of the pandemic (Pew Research). In the Madison HMA, an estimated 50 percent of jobs can be performed at least partially by telework, but only 20 percent utilized telework before the pandemic (analyst estimate informed by BLS).

The Madison HMA is among the top quartile of affordable metropolitan areas in the nation. During the third quarter of 2021, the HMA was ranked the 59th most affordable place to live among 238 metropolitan areas (NAHB/Housing Opportunity Index). A median-income family in the HMA could afford 77.7 percent of homes for sale. By comparison, the Milwaukee, Chicago, and Minneapolis metropolitan areas, the three most common sources of net in-migration, had a smaller share of homes for sale that were affordable to median-income families in their respective areas, at 71.5, 62.3, and 76.9 percent. A portion of the higher level of affordability in the HMA is due to higher incomes. The median family income in the HMA is \$103,100, or \$18,700 and \$16,000 higher, respectively, than the Milwaukee and Chicago metropolitan areas, and it is only \$1,800 below the median family income for the Minneapolis metropolitan area.

Home Sales Historical Trends

Home sales, including new and existing home sales, reached a post-Great Recession low in 2011. During the period of economic recovery and early expansion in the HMA in the early to mid-2010s, sales increased during most years but then declined in 2018 and 2019, when economic growth was slower. During 2011, home sales totaled 7,300 (Figure 8), the lowest level in over a decade and less than one-half the level from the peak of the housing boom in 2004.

Figure 8. 12-Month Sales Totals by Type in the Madison HMA



Source: CoreLogic, Inc., with adjustments by the analyst

From 2012 through 2017, sales increased by an average of 980, or 10 percent, annually, to 13,200 in 2017, and then fell by an average of 460, or 4 percent, annually during 2018 and 2019 to 12,275 in 2019. With the onset of the COVID-19 pandemic, low mortgage interest rates, and a shift in where some work is performed, home sales increased, rising an average of 6 percent annually from 2020 through the current date to 13,700 during the 12 months ending September 2021.

Home Sale Price Historical Trends

Home sales prices have increased steadily since the HMA fully recovered from the Great Recession. Following a period fluctuating between slow gains and decline from 2008 through 2012, the average home sales price was at a recent low of \$200,400 during 2012 (Figure 9). From 2013 through 2019, a period of economic expansion, home sales prices increased steadily at an average rate of 5 percent, or \$11,450, annually. Despite economic uncertainty in 2020, several factors—including a low inventory of homes for sale, low mortgage interest rates, and changes to where work is performed—contributed to an increase in demand for homebuying, accelerating price growth. From 2020 through the current date, home sales prices increased an average of 9 percent, or \$24,900, annually.

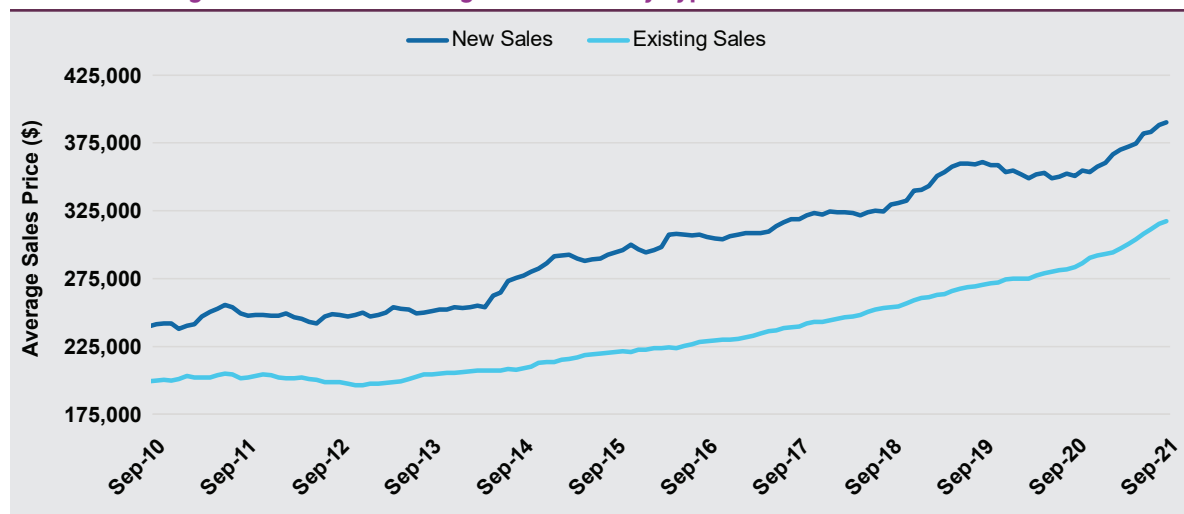
Sales Construction

Construction of for-sale housing, as measured by the number of homes permitted (building permits), is up from a low in 2011, but construction is below levels from the early to mid-2000s. Although necessary to reduce construction in the early 2010s because of weaker economic conditions and the elevated level of inventory of homes for sale, inventory of available homes for sale fell below what would be considered balanced levels in mid-2013 and has continued to decline. Despite low inventory and steadily rising prices, permitting increased only modestly in the early- and mid-2010s and was steady later in the decade. From 2000 through 2007, permitting averaged 3,475 homes annually, but that number then fell to an average of 900 homes annually from 2008 through 2011 (Figure 10). In 2011, permitting was at a low of 770, but it increased by an average of 200 homes annually from 2012 through 2016 as the economy expanded, rising to 1,775 in 2016. Permitting remained relatively steady, averaging 1,700 annually from 2017 through 2019. In response to a tightening housing market, permitting increased to 1,950 during the 12 months ending September 2021, up from 1,700 during the previous 12 months.

Construction by Geography

Like job and population growth, a large majority of new home construction, as measured by single-family permitting, has been in Dane County. In 2020, permitting in the county

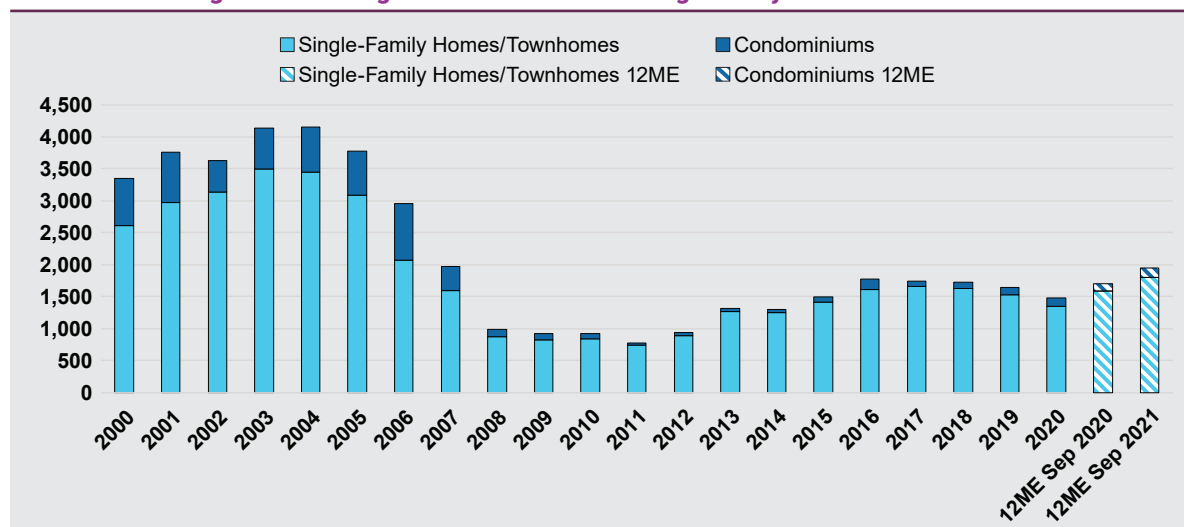
Figure 9. 12-Month Average Sales Price by Type of Sale in the Madison HMA



REO = real estate owned.

Source: CoreLogic, Inc., with adjustments by the analyst

Figure 10. Average Annual Sales Permitting Activity in the Madison HMA



12ME = 12 months ending.

Sources: U.S. Census Bureau, Building Permits Survey; 2000–2020 final data and estimates by the analyst; last 24 months of data—preliminary data and estimates by the analyst

accounted for 80 percent of all homes permitted in the HMA, followed by 9 percent in Columbia County, 7 percent in Green County, and 4 percent in Iowa County. By municipality and other permitting jurisdictions, the city of Madison had the largest share, with nearly 25 percent of all homes permitted in the HMA, followed by unincorporated Dane County, with 10 percent, and the adjacent suburbs of the city of Madison, Sun Prairie and Fitchburg, both in Dane County, with 9 and 7 percent, respectively.

Prices for newly constructed single-family attached homes in the HMA start around \$300,000, and detached single-family homes start at \$350,000. On the east side of the city of Madison is the large, multiphase Grandview Commons, a new urbanist style subdivision utilizing traditional neighborhood design principles such as front porches and rear garages. An attached 3-bedroom single-family home is currently listed for \$310,000, and a three-bedroom, 1,500-square-foot detached single-family home is listed starting at \$350,000. In Sun Prairie, the West Prairie Village subdivision is nearly complete, with 87 of 103 lots sold. Single-family detached homes with sizes ranging from 2,100 to 4,200 square feet are currently priced from \$467,000 to \$595,000.

Forecast

During the three-year forecast period, demand is expected for an additional 6,025 homes (Table 6). The 810 homes currently under construction are expected to meet a portion of that demand. The ongoing economic recovery is expected to contribute to continued strong demand for sales housing, despite an expected increase in the mortgage interest rate. To shift from the current very tight market conditions to balanced conditions, annual new home construction would need to exceed the number of homes permitted during the most recent 12 months.

Table 6. Demand for New Sales Units in the Madison HMA During the Forecast Period

Sales Units	
Demand	6,025 Units
Under Construction	810 Units

Note: The forecast period is from October 1, 2021, to October 1, 2024.
Source: Estimates by the analyst



Rental Market

Market Conditions: Slightly Tight

A slowdown in rental unit construction in 2018 and 2019 contributed to currently tight conditions, with fewer units entering the market in recent years.

Rental Market Conditions and Recent Trends

Rental market conditions in the Madison HMA are slightly tight. The current overall rental market vacancy rate is estimated at 3.0 percent, down from 6.7 percent in 2010 (Table 7). The number of renter households increased recently, partly because the tight home sales market has led some households that would prefer to become owners choose to remain renters, and wider reopening of the UW campus in Fall 2021 brought more students and staff back to campus. A slowdown in permitting in 2018 and 2019, and prolonged construction times since 2020 because of supply-chain and labor constraints, have contributed to fewer rental units entering the market. The combination of an increasing number of renter households and a slowdown in rental housing construction has led to slightly tight rental market conditions.

Fewer single-family homes have shifted to renter occupancy in recent years, partially because of the tight home sales market. The share of rental

Table 7. Rental Market Quick Facts in the Madison HMA

Rental Market Quick Facts		2010 (%)	Current (%)
	Rental Vacancy Rate	6.7	3.0
		2013 (%)	2019 (%)
	Occupied Rental Units by Structure		
	Single-Family Attached & Detached	17	16
	Multifamily (2–4 Units)	24	21
	Multifamily (5–19 Units)	27	26
	Multifamily (20+ Units)	31	37
	Other (Including Mobile Homes)	1	1

Notes: The current date is October 1, 2021. Percentages may not add to 100 due to rounding.

Sources: 2010 vacancy rate—2010 Census; current vacancy rate—estimates by the analyst; occupied rental units by structure—2013 and 2019 American Community Survey, 1-year data

units that are single-family homes and units in small multifamily buildings with two to four units has fallen to 16 and 21 percent, respectively, of rental units in 2019, down from 17 and 24 percent in 2013 (2013 and 2019 ACS, 5-year data). Rental units in mid-sized multifamily buildings with 5 to 19 units are also down slightly. Large multifamily buildings with 20 or more units are the most common and fastest growing type of rental housing in the HMA, at 37 percent of all rental units, up from 31 percent. This building size also accounts for nearly all rental units permitted in the 2010s.

Apartment Market Conditions

Apartment market conditions in the Madison HMA are tight. The vacancy rate began declining slowly in the early 2010s and has fallen faster since 2017. During the period of weak economic conditions in the HMA in 2009, the vacancy rate was 5.6 percent during the third quarter, and then declined an average of 0.1 percentage point annually from 2009 to 2017. The vacancy rate then fell an average of 1.0 percentage point annually from the third quarter of 2017 to the third quarter of 2019 (CoStar Group, Figure 11). As of the third quarter of 2021, the vacancy rate was at the lowest level in over two decades, at 2.1 percent, down from 3.2 percent during the third quarter of 2020.

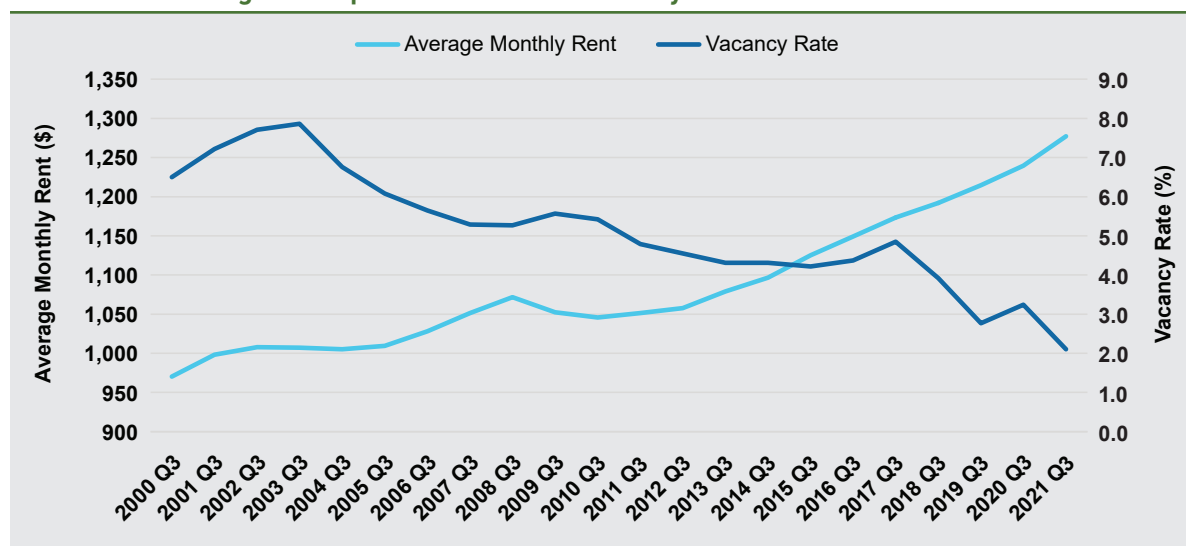
Rent growth during the most recent 12-month period had the fastest year-over-year gain in over a decade. During the third quarter of 2021, the average apartment rent was \$1,277, up 3 percent from the same quarter a year earlier, accelerating from a 2-percent increase during the previous year. The 2-percent gain during the previous year was consistent with gains during the period of economic

expansion in the 2010s, when the average rent also increased 2 percent annually, rising from an average of \$1,058 during the third quarter of 2012 to \$1,215 during the third quarter of 2019. During recovery from the Great Recession, rent growth was slower, with an average increase of 1 percent, annually, from the third quarter of 2010 to the third quarter of 2012.

Market Conditions by Geography

Conditions were also tight in most of the CoStar-defined market areas during the third quarter of 2021. The suburban areas and outlying neighborhoods in the city of Madison had above-average rent growth. The west and south suburban market areas of Middleton and Fitchburg had the fastest increases in rent, up 5 percent each, followed by the east suburban Sun Prairie and East and West Madison market areas, up 4 percent each (Table 8). Market areas in less urbanized parts of the HMA, including Outlying Dane County, Iowa County, and Columbia County, had average or below-average rent growth. The Downtown Madison market area, which includes the UW campus, state capitol building, and the central business and entertainment district for the city of Madison, also had below-average rent growth, up only 1 percent from a year ago. The area has the highest average rent, and rent growth slowed partially to maintain competitiveness while UW classes were held online and many office workers teleworked, which greatly reduced the location advantage of the area.

Figure 11. Apartment Rents and Vacancy Rates in the Madison HMA



Q3 = third quarter.

Note: Excludes properties in lease-up.

Source: CoStar Group

Table 8. Apartment Market Quick Facts in the Madison HMA

Apartment Market Quick Facts		Current Average Rent	YoY Change	Current Vacancy Rate	YoY Change
	Madison HMA	\$1,277	3%	2.1%	-1.1
	Columbia County	\$926	1%	2.5%	0.5
	Downtown Madison	\$1,526	1%	1.5%	-0.8
	East Madison	\$1,191	4%	2.5%	-1.4
	Fitchburg	\$1,152	5%	3.6%	-0.2
	Iowa County	\$781	3%	0.9%	-0.4
	Middleton	\$1,312	5%	1.3%	-0.9
	Outlying Dane County	\$1,224	3%	1.4%	-1.3
	Sun Prairie	\$1,253	4%	2.6%	-2.0
	Verona	\$1,392	3%	2.4%	0.4
	West Madison	\$1,198	4%	1.8%	-2.1

YoY= year-over-year.

Notes: Average rent and vacancy rates are as of the third quarter of 2021. Apartment vacancy rates include only stabilized properties. Survey data are not available for Green County.

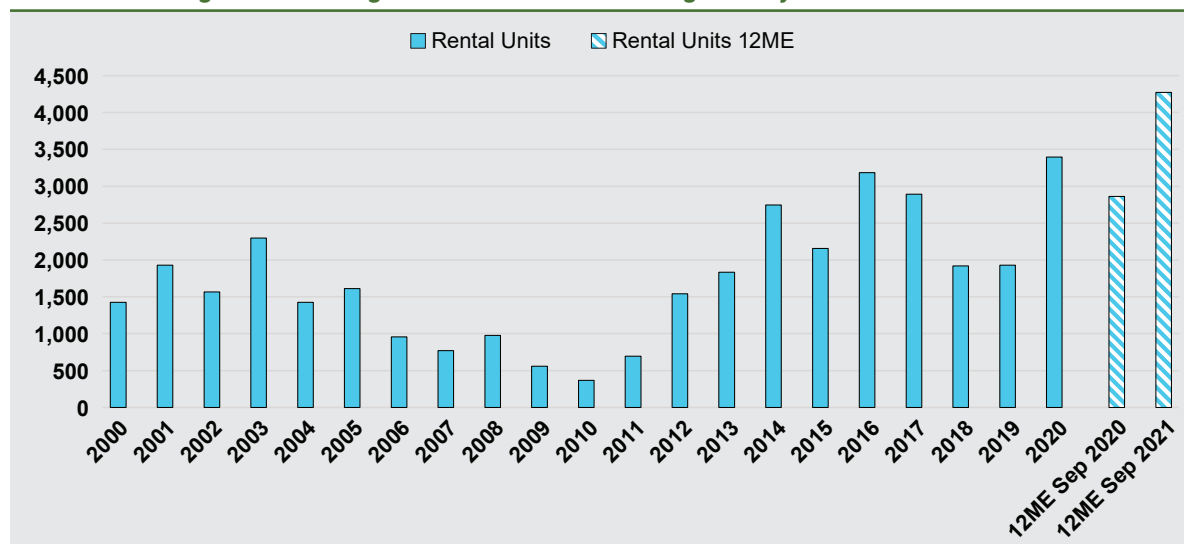
Source: CoStar Group

The vacancy rate declined in most market areas during the third quarter of 2021, compared with the same quarter a year ago; it is currently below 4.0 percent in all areas. The largest declines in vacancy, down 1.3 percentage points or more, were all in Dane County, including East and West Madison, east suburban Sun Prairie, and Outlying Dane County.

Rental Construction

Rental unit construction, as measured by the number of units permitted, generally rose in the early to mid-2010s, coinciding with economic recovery and expansion. As economic growth slowed in the late 2010s, construction moderated, but it has increased sharply since 2020 in response to tighter conditions. During the period of economic growth from 2000 through 2008, rental unit permitting averaged 1,450 units annually (Figure 12). Weaker economic conditions in 2009 and 2010 resulted in permitting falling to an average of 460 units annually. Job recovery and growth in the 2010s supported an average increase of 470 units annually from 2011 through 2016 to a peak of 3,175 units in 2016. Permitting moderated slightly in 2017, and it then fell sharply in 2018, resulting in an average of 1,925 units permitted annually in 2018 and 2019. In response to tightening market conditions, permitting increased to 2,850 units during the 12 months ending September 2020. As some of the economic uncertainty associated with the COVID-19 pandemic eased, permitting further increased to 4,275 units during the 12 months ending September 2021.

Figure 12. Average Annual Rental Permitting Activity in the Madison HMA



12ME = 12 months ending.

Note: Includes apartments and units intended for rental occupancy.

Sources: U.S. Census Bureau, Building Permits Survey; 2000–2020 final data and estimates by the analyst; last 24 months of data—preliminary data and estimates by the analyst

Most of the apartments that opened earlier in 2021 are fully occupied. Rosewood Place, a 57-unit apartment development in the city of Oregon, in the Outlying Dane County market area, had the lowest asking rents among apartments completed in 2021, with rents ranging from \$888 for a studio to \$1,595 for a three-bedroom unit. The property was fully occupied as of August 2021. West Washington Place, a 51-unit property in downtown Madison, had the highest rents among apartments completed in 2021, with rents ranging from \$1,824 for a studio to \$3,035 for a three-bedroom unit. The property was fully occupied as of October 2021. Nearly all apartments under construction are in Dane County and range in size from the 288-unit Authentix Cottage Grove in east suburban Cottage Grove to the 36-unit Broad Branch Apartments in west suburban Middleton.

Student Housing

The number of student households residing off-campus is currently estimated at approximately 16,000, or about 13 percent of all renter households in the HMA. Since 2010, apartment construction in the UW campus ZIP Code and two immediately adjacent ZIP Codes accounted for 56 percent of all rental unit

construction in the HMA. One of the campus-adjacent ZIP Codes includes downtown Madison, an area that allows taller, higher density housing; and had the largest gains in jobs in the HMA in the 2010s. About one-half of the apartments built in the three-ZIP Code area are estimated to have been purpose-built for students, with most of the student apartments built in the mid-2010s and apartments built in more recent years intended for the overall apartment market.

The average rent per bed at student apartments increased faster than the overall apartment market in the HMA, but the vacancy rate is currently higher. During the third quarter of 2021, the average student apartment rent was \$903 per bedroom, up 5 percent from a year earlier, the same rate of growth as the previous year and faster than the average gain of 3 percent annually from the third quarter of 2017 to the third quarter of 2019 (CoStar Group). The student apartment vacancy rate was 3.9 percent during the third quarter of 2021, down from 6.0 percent a year earlier, when fewer students were on campus. Rent growth for the overall apartment market in the HMA was 2 percentage points lower, and the vacancy rate was 1.8 percentage points lower, during the third quarter of 2021.

Forecast

During the 3-year forecast period, demand is expected for an additional 8,600 units (Table 9). The 5,100 units currently under construction are expected to meet a portion of that demand. To meet expected demand, permitting will need to remain well above levels from 2018 and 2019. Because job and population growth since 2010 have been strongest in Dane County, which is expected to remain the center of growth during the forecast, most of the demand for additional rental units is also expected in Dane County. With low vacancy rates persisting throughout the HMA, however, some demand is expected in the outlying counties as well.

Table 9. Demand for New Rental Units in the Madison HMA During the Forecast Period

Rental Units	
Demand	8,600 Units
Under Construction	5,100 Units

Note: The forecast period is October 1, 2021, to October 1, 2024.
Source: Estimates by the analyst

Terminology Definitions and Notes

A. Definitions

Building Permits	Building permits do not necessarily reflect all residential building activity that occurs in an HMA. Some units are constructed or created without a building permit or are issued a different type of building permit. For example, some units classified as commercial structures are not reflected in the residential building permits. As a result, the analyst, through diligent fieldwork, makes an estimate of this additional construction activity. Some of these estimates are included in the discussions of single-family and multifamily building permits.
Demand	The demand estimates in the analysis are not a forecast of building activity. They are the estimates of the total housing production needed to achieve a balanced market at the end of the 3-year forecast period given conditions on the as-of date of the analysis, growth, losses, and excess vacancies. The estimates do not account for units currently under construction or units in the development pipeline.
Distressed Sales	Short sales and real estate owned (REO) sales.
Existing Home Sales	Include resale sales, short sales, and REO sales.
Forecast Period	10/1/2021–10/1/2024—Estimates by the analyst.
Home Sales/ Home Sales Prices	Includes single-family, townhome, and condominium sales.
International Emigration	Residents of the United States departing to reside in another country.
International Immigration	Residents of another country moving to the United States.

Net Natural Increase	Resident births minus resident deaths.
Resales	These are home closings that have no ties to either new home closings (builders) or foreclosures. They are homes that were previously constructed and sold to an unaffiliated third party.
Rental Market/ Rental Vacancy Rate	Includes apartments and other rental units such as single-family, multifamily, and mobile homes.
Seriously Delinquent Mortgages	Mortgages 90+ days delinquent or in foreclosure.
Student Apartment	Privately owned apartments purpose-built for students, but not necessarily limited to student residents. Typically located proximate to a college or university campus, with design features intended to support the student lifestyle.

B. Notes on Geography

1.	The metropolitan statistical area definition noted in this report is based on the delineations established by the Office of Management and Budget (OMB) in the OMB Bulletin dated April 10, 2018.
2.	Urbanized areas are defined using the U.S. Census Bureau's 2010 Census Urban and Rural Classification and the Urban Area Criteria.
3.	The census tracts referenced in this report are from the 2010 Census.

C. Additional Notes

1.	The NAHB Housing Opportunity Index represents the share of homes sold in the HMA that would have been affordable to a family earning the local median income, based on standard mortgage underwriting criteria.
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2.	This analysis has been prepared for the assistance and guidance of HUD in its operations. The factual information, findings, and conclusions may also be useful to builders, mortgagees, and others concerned with local housing market conditions and trends. The analysis does not purport to make determinations regarding the acceptability of any mortgage insurance proposals that may be under consideration by the Department.
3.	The factual framework for this analysis follows the guidelines and methods developed by the Economic and Market Analysis Division within HUD. The analysis and findings are as thorough and current as possible based on information available on the as-of date from local and national sources. As such, findings or conclusions may be modified by subsequent developments. HUD expresses its appreciation to those industry sources and state and local government officials who provided data and information on local economic and housing market conditions.

D. Photo/Map Credits

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