

A light blue map of the Houston-Galveston Area Council region, showing county boundaries and major water bodies like the Gulf of Mexico and the Gulf Intracoastal Waterway. The map is centered in the background of the slide.

Analyzing the Impact of COVID-19 on the Future of Land Use and Mobility

**Socioeconomic Modeling
Houston-Galveston Area Council, October 2020**

COVID-19- Current Situation

- H-GAC Region Unemployment rate still high
 - **8.1%** (August 2020) **14.2%** (April 2020) **3.9%** (February 2020)
- Vehicle Miles Travelled(VMT) in the H-GAC region is around **75%** of Pre-COVID19 VMT
- Houston Area Office vacancy continues to climb (**22%** in 2Q2020)
- Houston Area Retail vacancy slightly up in 2Q2020
- **92%** of U.S. Office workers are still telecommuting at least one day a week (**61%** Pre-COVID) *Source-PwC US Remote Work Survey 2020*
- **42%** of the U.S. labor force are working from home full time (**5%** Pre-COVID)
Source-QuestionPro Survey by Stanford University.

Post COVID Expectations

- Teleworking is expected to be more than Pre-COVID
 - However, **only 37%** of the jobs in the region are Teleworkable
- Demand for office space is expected to be low for the next few years
 - But there is an argument that there may be demand for **more office space to accommodate social distancing**
- Vehicle Miles Travelled (VMT) is expected to be low
 - However, home base work trips account for a **very small portion of total trips**
 - Food, grocery and online-shopping delivery trips are expected to rise



H-GAC Region Teleworkable Jobs By Place of Residence and Work Location

WHITE PAPER

How Many Jobs Can be Done at Home?

Jonathan I. Dingel and Brent Neiman

JUNE 2020



- Classified the feasibility of working at home for all occupations and merge this classification with occupational employment counts.
- 37 percent of jobs in the United States can be performed entirely at home, with significant variation across cities and industries.

Share of jobs that can be done at home, by occupation's major group

Occupation Code	Occupation	O*Net-derived baseline (Telecommute %)
15	Computer and Mathematical Occupations	1.00
25	Education Training, and Library Occupations	0.98
23	Legal Occupations	0.97
13	Business and Financial Operations Occupations	0.88
11	Management Occupations	0.87
27	Arts, Design, Entertainment, Sports, and Media Occupations	0.76
43	Office and Administrative Support Occupations	0.65
17	Architecture and Engineering Occupations	0.61
19	Life, Physical, and Social Science Occupations	0.54
21	Community and Social Service Occupations	0.37
41	Sales and Related Occupations	0.28
39	Personal Care and Service Occupations	0.26
33	Protective Service Occupations	0.06
29	Healthcare Practitioners and Technical Occupations	0.05
53	Transportation and Material Moving Occupations	0.03
31	Healthcare Support Occupations	0.02
45	Farming Fishing, and Forestry Occupations	0.01
49	Installation, Maintenance, and Repair Occupations	0.01
51	Production Occupations	0.01
35	Food Preparation and Serving Related Occupations	0.00
37	Building and Grounds Cleaning and Maintenance Occupations	0.00
47	Construction and Extraction Occupations	0.00

O*NET Survey is a program sponsored by the US Department of Labor to improve our understanding of the nature of work and the workforce.

Share of jobs that can be done at home, by metropolitan area

- This table reports the metropolitan areas with the largest and smallest shares of jobs that can be done at home among the 100 largest metropolitan areas (as ranked by total employment).
- Share of Teleworkable Jobs of Houston-The Woodlands-Sugar Land, TX is **37.3%**.

	Share of jobs		Metropolitan characteristics			
	Unweighted	Weighted by wage	BA share	Median income	White share	Owner share
<i>Top ten</i>						
San Jose-Sunnyvale-Santa Clara, CA	0.51	0.66	0.50	115	0.46	0.57
Washington-Arlington-Alexandria, DC-VA-MD-WV	0.50	0.64	0.51	101	0.54	0.63
Durham-Chapel Hill, NC	0.46	0.57	0.47	60	0.62	0.60
Austin-Round Rock, TX	0.46	0.58	0.44	73	0.77	0.58
San Francisco-Oakland-Hayward, CA	0.45	0.58	0.49	100	0.50	0.54
Boston-Cambridge-Nashua, MA-NH	0.44	0.55	0.47	86	0.76	0.62
Bridgeport-Stamford-Norwalk, CT	0.44	0.58	0.47	93	0.73	0.67
Hartford-West Hartford-East Hartford, CT	0.44	0.53	0.39	76	0.76	0.67
Salt Lake City, UT	0.43	0.53	0.34	71	0.80	0.67
Des Moines-West Des Moines, IA	0.43	0.53	0.37	69	0.87	0.69
<i>Bottom ten</i>						
Baton Rouge, LA	0.30	0.36	0.28	57	0.59	0.68
Las Vegas-Henderson-Paradise, NV	0.30	0.37	0.24	57	0.61	0.53
Riverside-San Bernardino-Ontario, CA	0.30	0.35	0.21	62	0.61	0.63
Scranton-Wilkes-Barre-Hazleton, PA	0.30	0.36	0.25	52	0.90	0.68
McAllen-Edinburg-Mission, TX	0.30	0.31	0.18	38	0.88	0.68
Grand Rapids-Wyoming, MI	0.29	0.37	0.32	61	0.84	0.73
Lancaster, PA	0.29	0.36	0.27	64	0.89	0.68
Bakersfield, CA	0.29	0.36	0.16	52	0.75	0.58
Stockton-Lodi, CA	0.29	0.33	0.18	61	0.56	0.56
Cape Coral-Fort Myers, FL	0.28	0.34	0.28	55	0.85	0.71

Source- Dingel and Neiman 2020

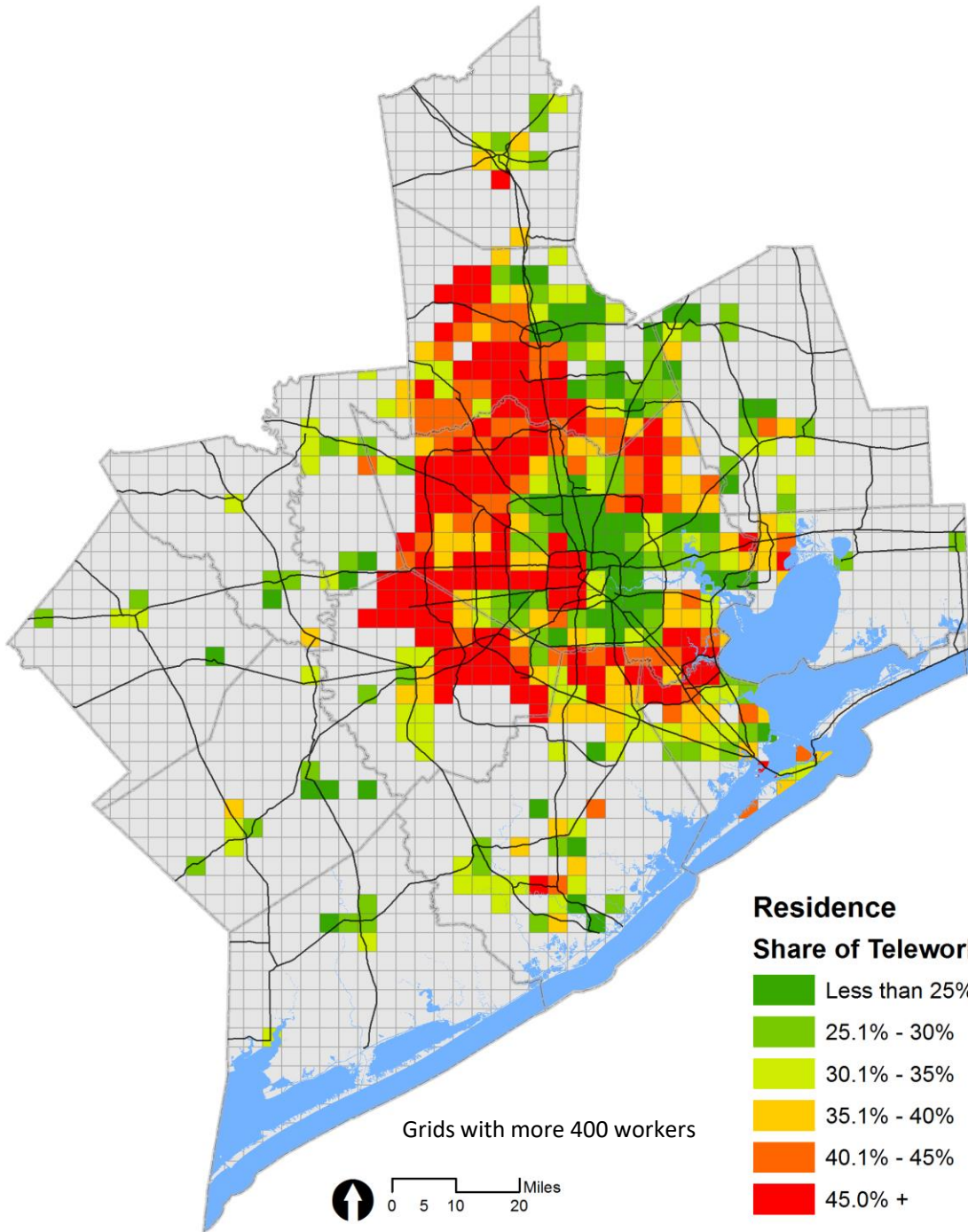
Share of Teleworkable Jobs by Occupations in H-GAC Region

Residence

Occupation Code	Occupation	O*Net-derived baseline (Telecommute %)	H-GAC Region Workers	Teleworkable Workers
Total			3,310,114	1,286,248 (38.9%)
11	Management Occupations	0.87	335,326	291,734
43	Office and Administrative Support Occupations	0.65	355,295	230,942
25	Education Training, and Library Occupations	0.98	193,557	189,686
13	Business and Financial Operations Occupations	0.88	191,486	168,508
41	Sales and Related Occupations	0.28	358,137	100,278
15	Computer and Mathematical Occupations	1	87,516	87,516
17	Architecture and Engineering Occupations	0.61	97,626	59,552
27	Arts, Design, Entertainment, Sports, and Media Occupations	0.76	51,284	38,976
23	Legal Occupations	0.97	37,340	36,220
39	Personal Care and Service Occupations	0.26	84,647	22,008
19	Life, Physical, and Social Science Occupations	0.54	38,455	20,766
21	Community and Social Service Occupations	0.37	40,342	14,927
29	Healthcare Practitioners and Technical Occupations	0.05	178,497	8,925
53	Transportation and Material Moving Occupations	0.03	247,673	7,430
33	Protective Service Occupations	0.06	69,144	4,149
51	Production Occupations	0.01	183,086	1,831
31	Healthcare Support Occupations	0.02	81,130	1,623
49	Installation, Maintenance, and Repair Occupations	0.01	111,187	1,112
45	Farming Fishing, and Forestry Occupations	0.01	6,812	68
35	Food Preparation and Serving Related Occupations	0	177,898	0
37	Building and Grounds Cleaning and Maintenance Occupations	0	136,897	0
47	Construction and Extraction Occupations	0	246,779	0

Source of Employment from Census American Community Survey (ACS) 5-Year Data (2014-2018)

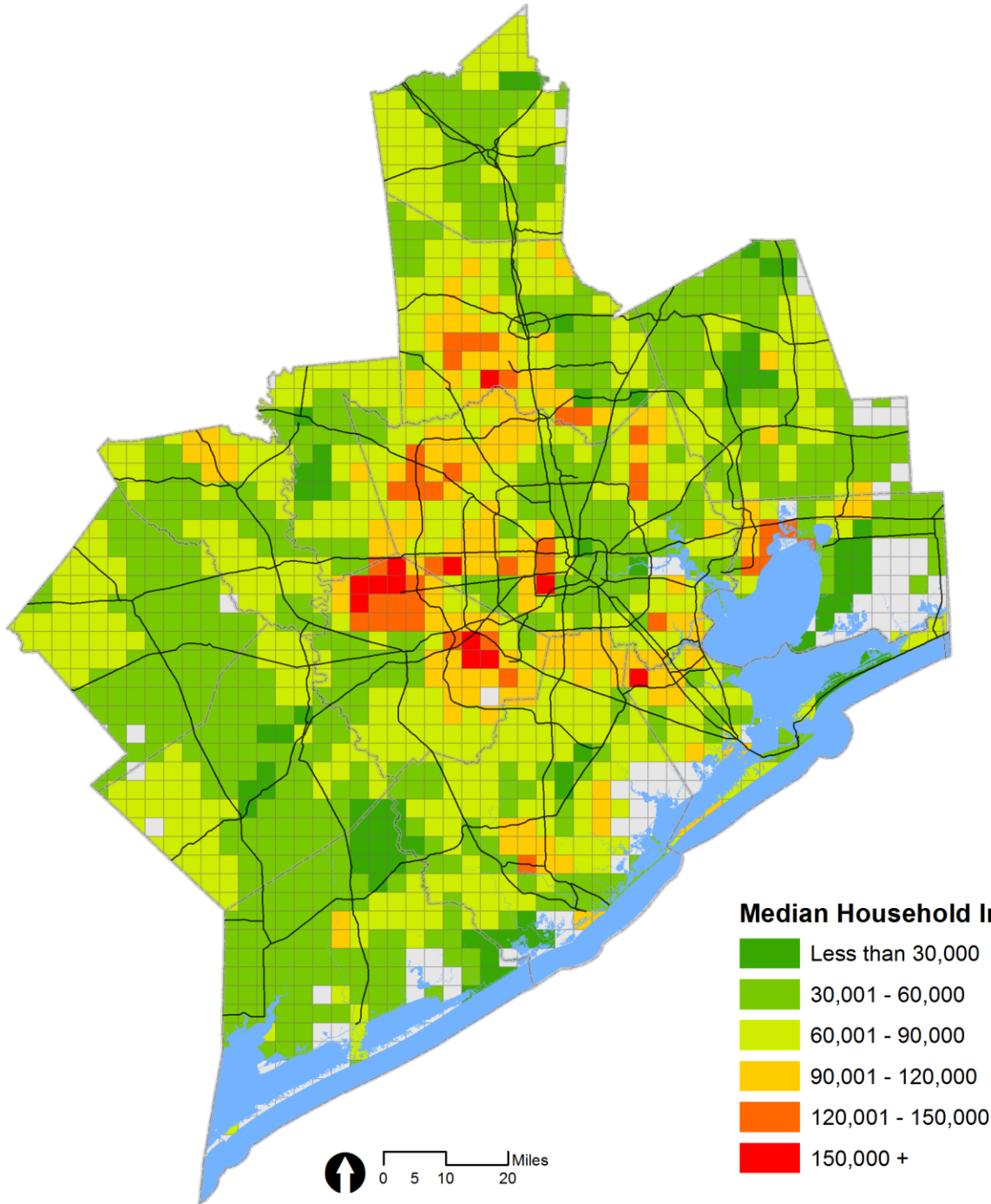
Residence: Share of Teleworkable Jobs



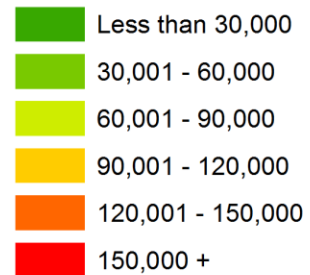
	Teleworkable Jobs (100%)	% of Teleworkable Jobs (100%)
H-GAC Region	1,286,248	38.9%
Austin	5,031	36.5%
Brazoria	64,379	39.0%
Chambers	6,709	37.6%
Colorado	2,947	31.1%
Fort Bend	167,270	47.4%
Galveston	60,328	39.4%
Harris	834,978	37.6%
Liberty	8,720	29.1%
Matagorda	4,722	30.1%
Montgomery	109,133	41.6%
Walker	8,787	35.3%
Waller	7,629	33.6%
Wharton	5,616	29.9%

Source- Dingel and Neiman 2020, US Census ACS 2014-2018 and H-GAC

Residence: Median Household Income



Median Household Income (\$) *3X3 Square-mile Grids



County	No. of Households	Median Household Income
H-GAC Region	2,368,252	66,058
Austin County	11,041	65,365
Brazoria County	118,762	79,270
Chambers County	13,529	76,850
Colorado County	7,511	49,504
Fort Bend County	230,381	95,561
Galveston County	119,181	69,369
Harris County	1,583,486	60,146
Liberty County	26,203	49,850
Matagorda County	13,636	45,500
Montgomery County	192,823	77,416
Walker County	21,636	41,855
Waller County	14,807	57,654
Wharton County	15,256	49,619

Source- US Census ACS 2014-2018 and H-GAC

Share of jobs that can be done at home, by industry

- The table aggregates the occupation classification to the 2-digit industry level. Whereas most jobs in finance, corporate management, and professional and scientific services could plausibly be performed at home, very few jobs in agriculture, hotels and restaurants, or retail could be.

NAICS CODE	NAICS TITLE	Teleworkable Job Share
61	Educational Services	0.826
54	Professional, Scientific, and Technical Services	0.803
55	Management of Companies and Enterprises	0.792
52	Finance and Insurance	0.762
51	Information	0.717
42	Wholesale Trade	0.518
53	Real Estate and Rental and Leasing	0.418
92	Federal, State, and Local Government, excluding state and local schools and hospitals and the U.S. Postal Service (OES Designation)	0.415
22	Utilities	0.37
81	Other Services (except Public Administration)	0.312
56	Administrative and Support and Waste Management and Remediation Services	0.311
71	Arts, Entertainment, and Recreation	0.297
21	Mining, Quarrying, and Oil and Gas Extraction	0.254
62	Health Care and Social Assistance	0.253
31-33	Manufacturing	0.225
23	Construction	0.186
48-49	Transportation and Warehousing	0.186
44-45	Retail Trade	0.143
11	Agriculture, Forestry, Fishing and Hunting	0.076
72	Accommodation and Food Services	0.035

Source- Dingel and Neiman 2020

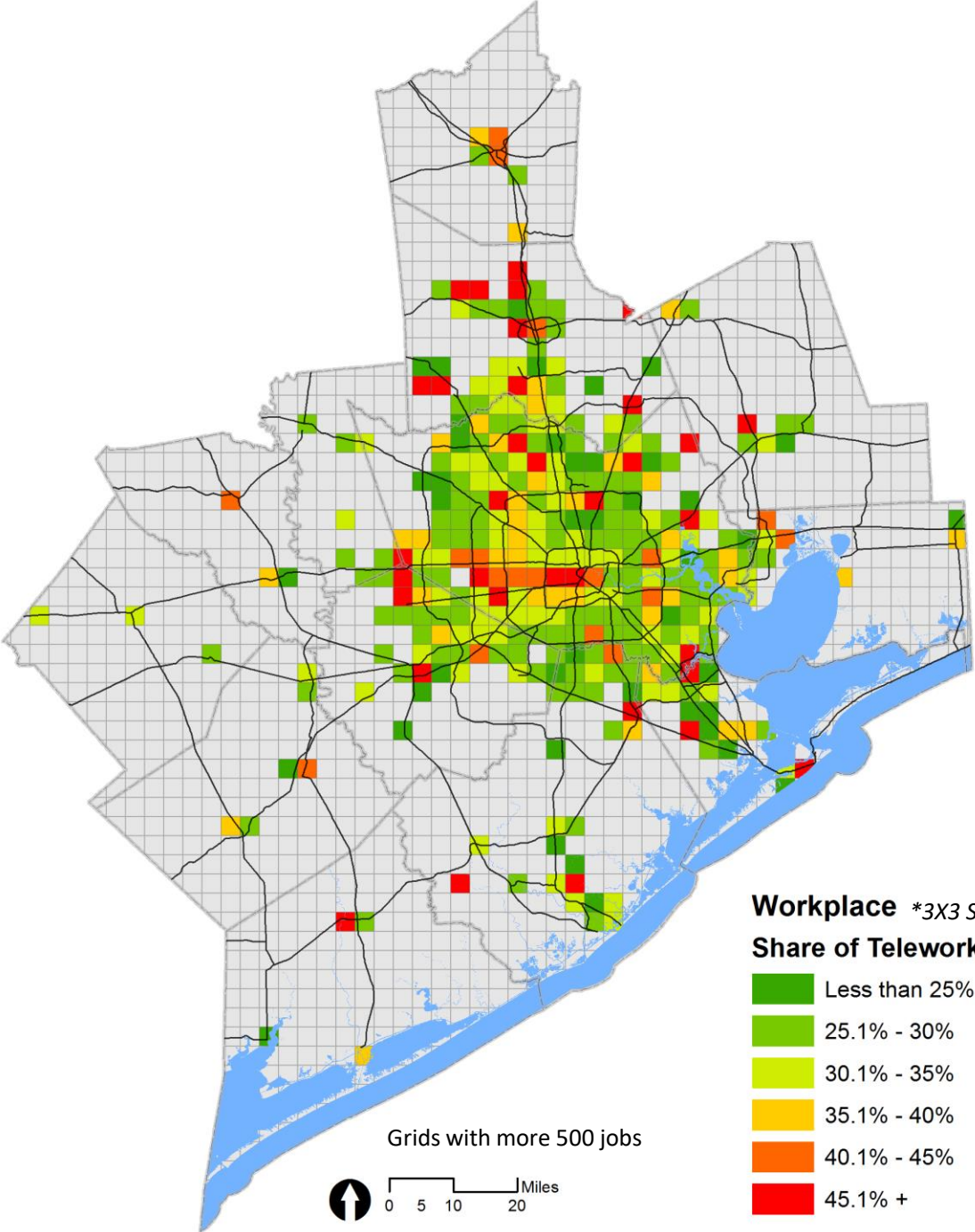
Share of Teleworkable Jobs by Industries in H-GAC Region

NAICS Code	NAICS TITLE	Teleworkable Job Share	H-GAC Region Jobs	Teleworkable Jobs
Total			3,055,499	(37%) 1,128,780
61	Educational Services	0.826	308,801	255,070
54	Professional, Scientific, and Technical Services	0.803	223,851	179,752
62	Health Care and Social Assistance	0.253	364,967	92,337
42	Wholesale Trade	0.518	171,857	89,022
52	Finance and Insurance	0.762	100,786	76,799
56	Administrative and Support and Waste Management and Remediation Services	0.311	218,369	67,913
31-33	Manufacturing	0.225	228,654	51,447
44-45	Retail Trade	0.143	322,178	46,071
23	Construction	0.186	231,916	43,136
92	Federal, State, and Local Government, excluding state and local schools and hospitals and the U.S. Postal Service (OES Designation)	0.415	88,677	36,801
55	Management of Companies and Enterprises	0.792	44,665	35,375
81	Other Services (except Public Administration)	0.312	89,289	27,858
51	Information	0.717	35,892	25,735
53	Real Estate and Rental and Leasing	0.418	61,064	25,525
48-49	Transportation and Warehousing	0.186	131,447	24,449
21	Mining, Quarrying, and Oil and Gas Extraction	0.254	85,890	21,816
71	Arts, Entertainment, and Recreation	0.297	38,078	11,309
72	Accommodation and Food Services	0.035	281,241	9,843
22	Utilities	0.370	21,779	8,058
11	Agriculture, Forestry, Fishing and Hunting	0.076	6,098	463

Source of Employment from Census Longitudinal Employer-Household Dynamics (LEHD) Workplace Data (2017)

Source- Dingel and Neiman 2020 and US Census LEHD 2017

Workplace: Share of Teleworkable Jobs

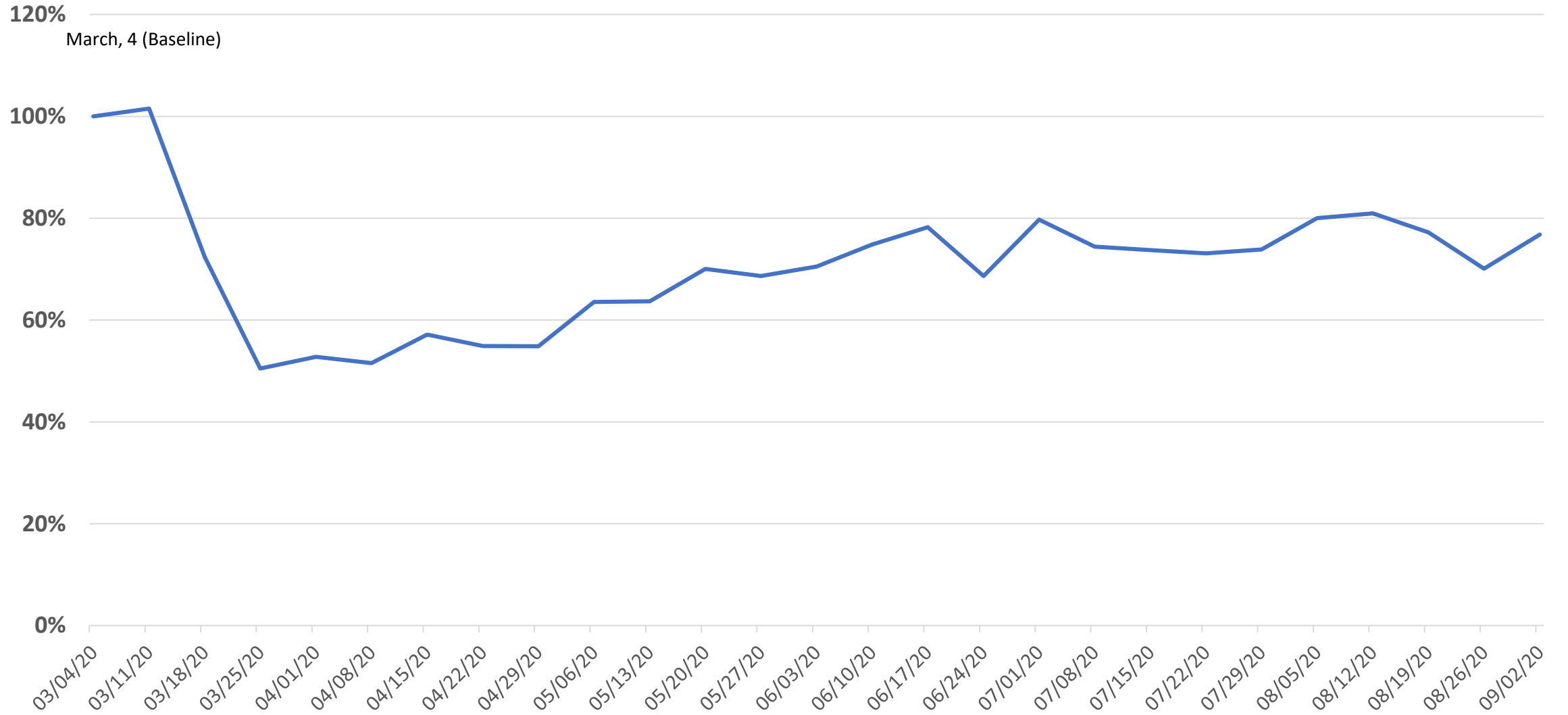


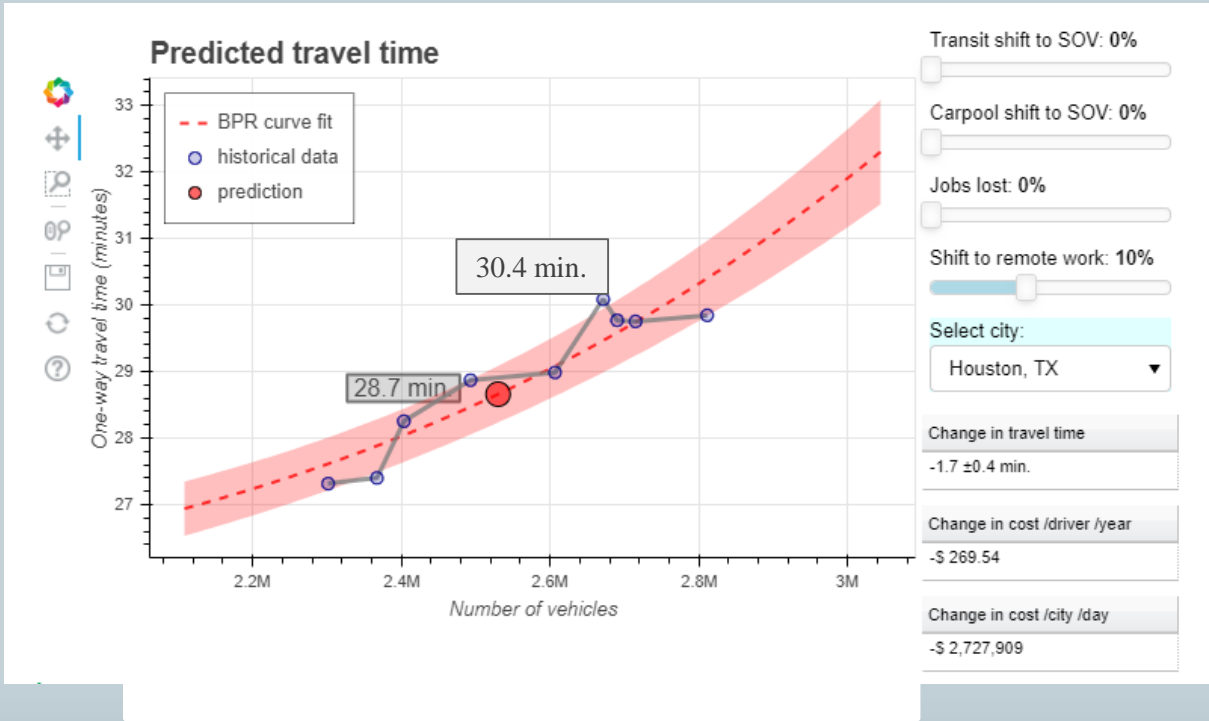
	Total Jobs (2017)	Teleworkable Jobs (100%)	% of Teleworkable Jobs (100%)
H-GAC Region	3,055,499	1,135,411	37.2%
Austin	8,735	2,792	32.0%
Brazoria	105,492	35,152	33.3%
Chambers	13,759	4,606	33.5%
Colorado	7,018	2,161	30.8%
Fort Bend	190,926	70,837	37.1%
Galveston	109,224	43,723	40.0%
Harris	2,341,907	872,247	37.2%
Liberty	15,676	5,329	34.0%
Matagorda	10,251	3,525	34.4%
Montgomery	177,868	66,345	37.3%
Walker	43,133	17,746	41.1%
Waller	16,423	6,086	37.1%
Wharton	15,087	4,862	32.2%

Source- Dingel and Neiman 2020, US Census LEHD 2017 and H-GAC

Change in Mobility and Spending

H-GAC 8-County Vehicle Miles Traveled (VMT) as Percent of March 4 VMT- Wednesdays Only





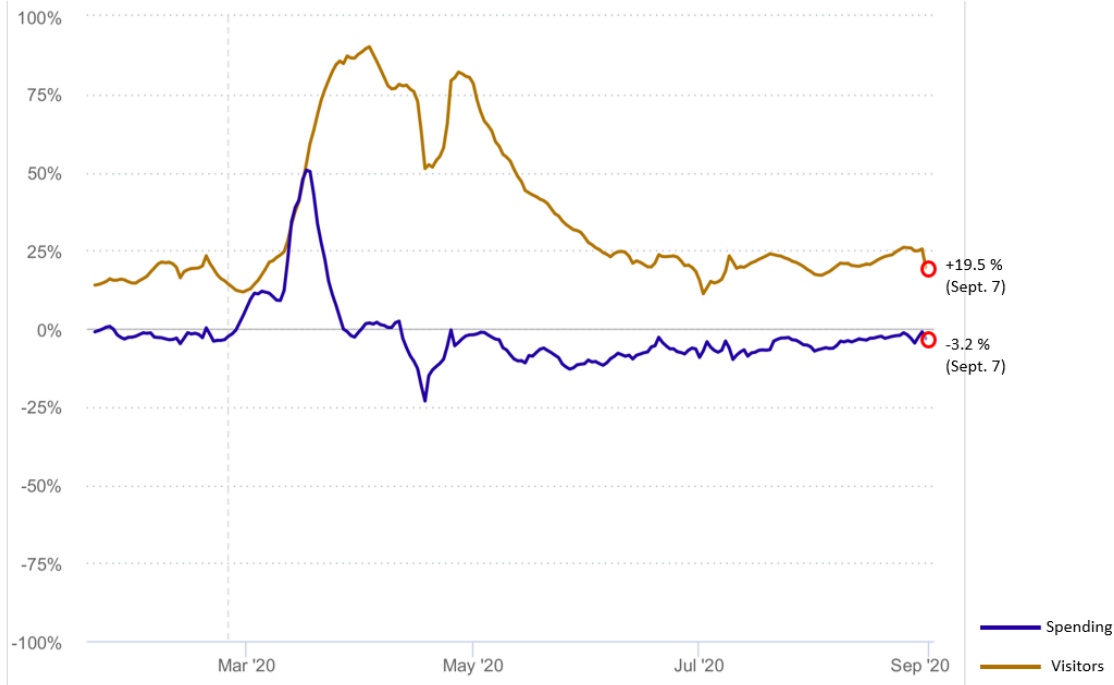
REBOUND CALCULATOR

- The tool estimates **one-way commute travel times** using models built around recent commuting data for most U.S. metro areas.
- Models are based on data from the census-defined metropolitan statistical areas, which include areas outside a city’s urban core.
- Shift to Telework:** This is the **percent of commuters who no longer travel to work** because they are working from home. Setting at 10% reduces the number of travelers by 10%, with the 10% reduction occurring for each mode. Increasing this number will reduce travel times.

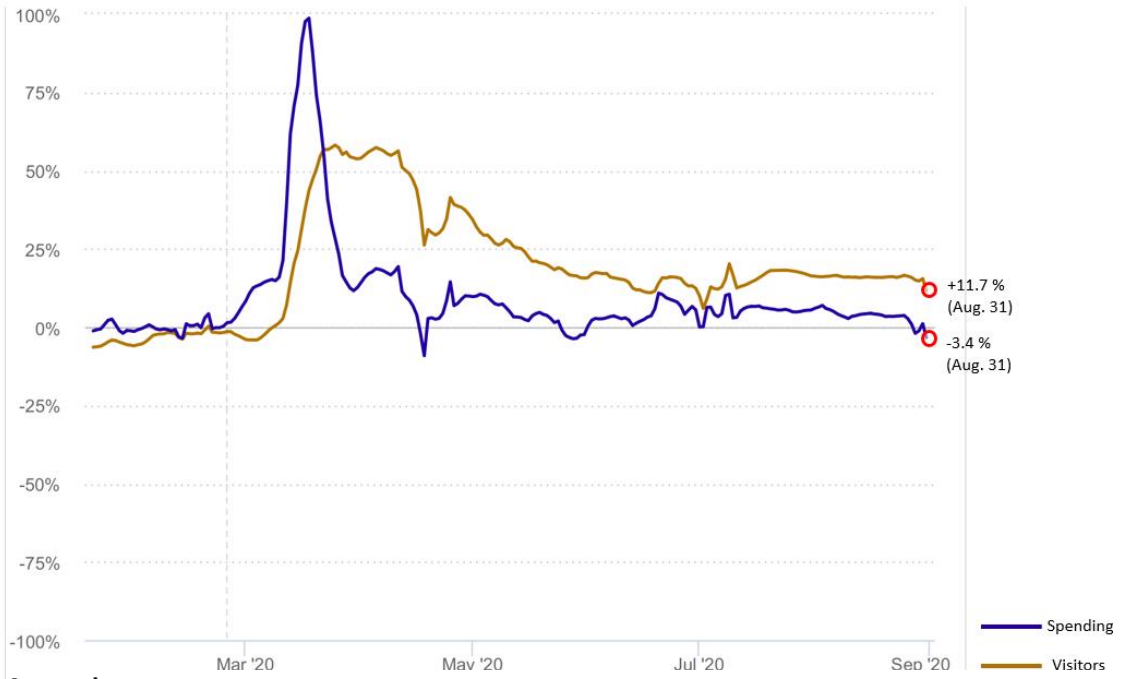
Shift to Telework	Change in travel time (minute)	Change in cost/driver/year (\$)	Change in cost/city/day (\$)
5%	- 0.9	-145	-1,553,131
10%	- 1.7	-269	-2,727,900
15%	- 2.4	-374	-3,580,934
20%	- 3.0	-462	-4,162,857
25%	- 3.5	-535	-4,518,710

Source: Work Research Group Rebound Calculator Vanderbilt University

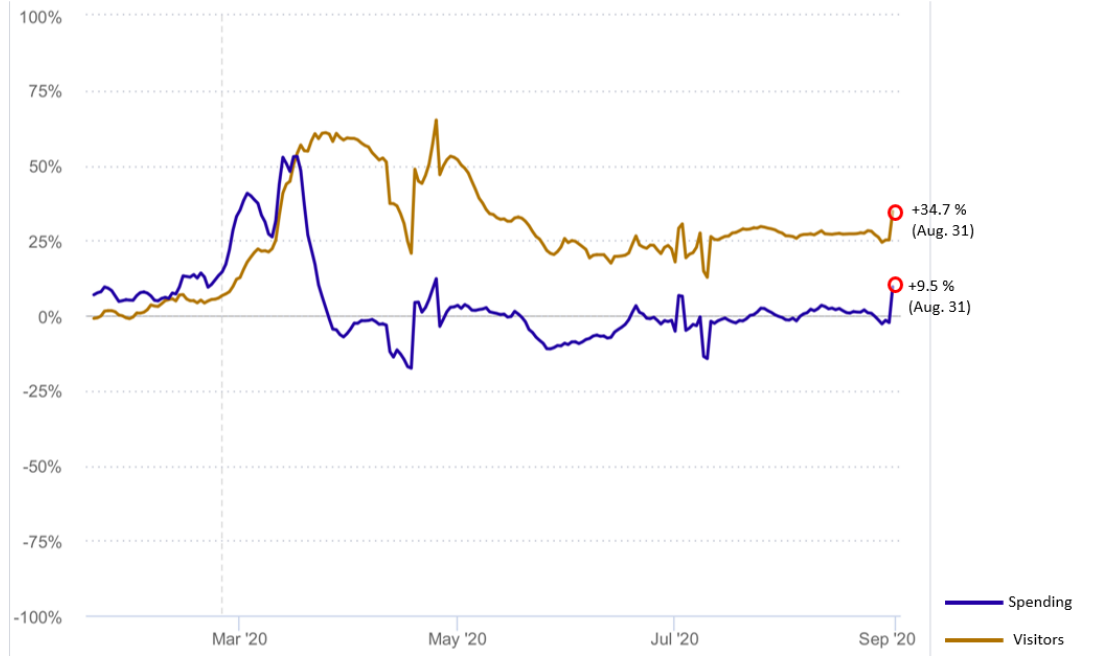
Big Box Store



Grocery



Wholesale Club



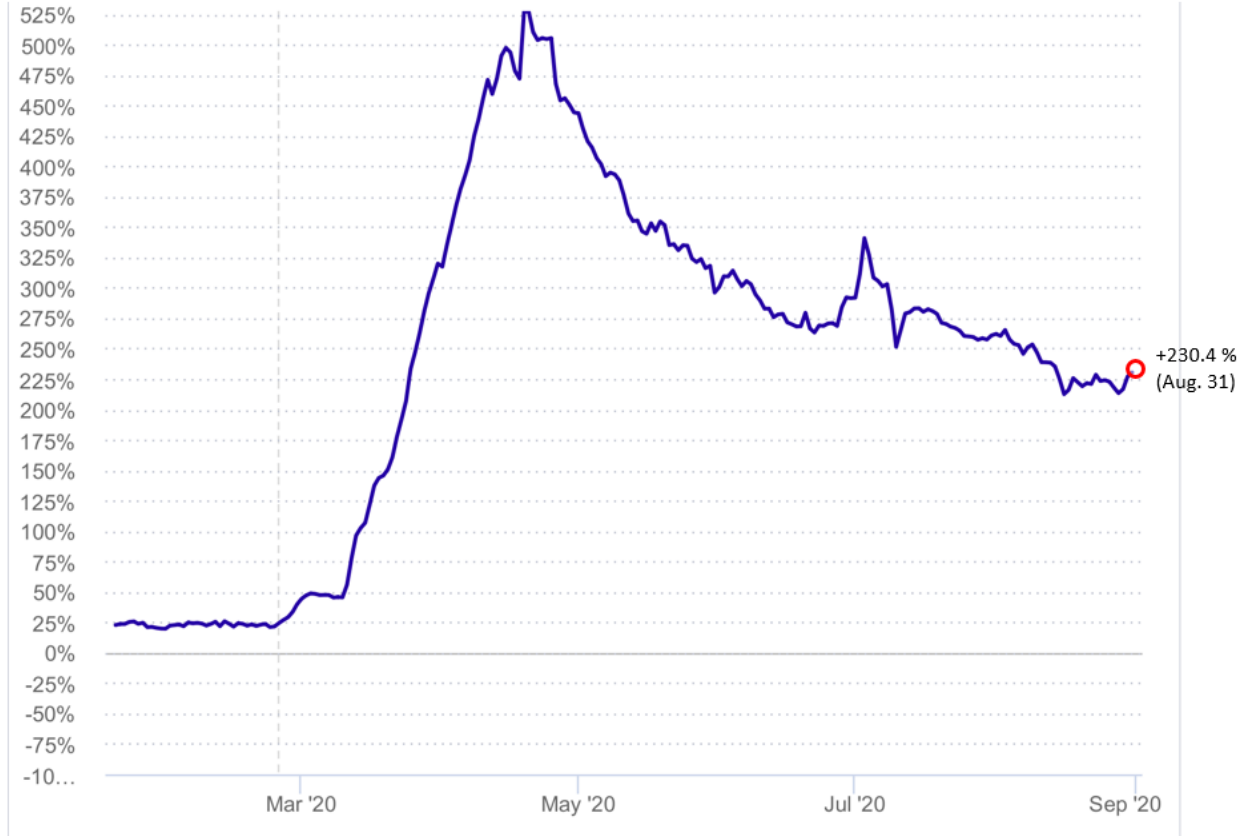
Apparel



Food Delivery



Grocery Delivery

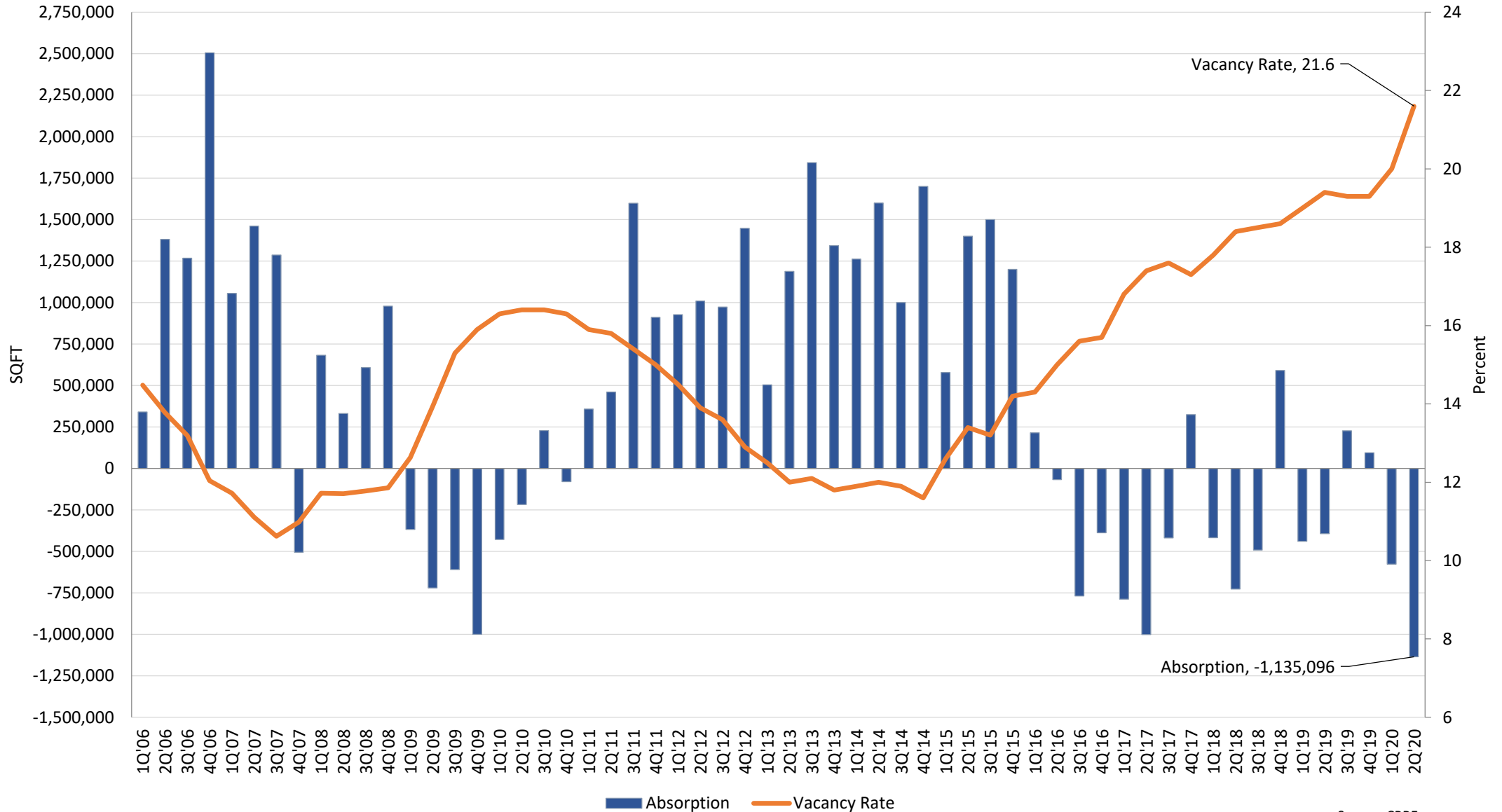


Resource: 1010data

Houston Area Real Estate Markets

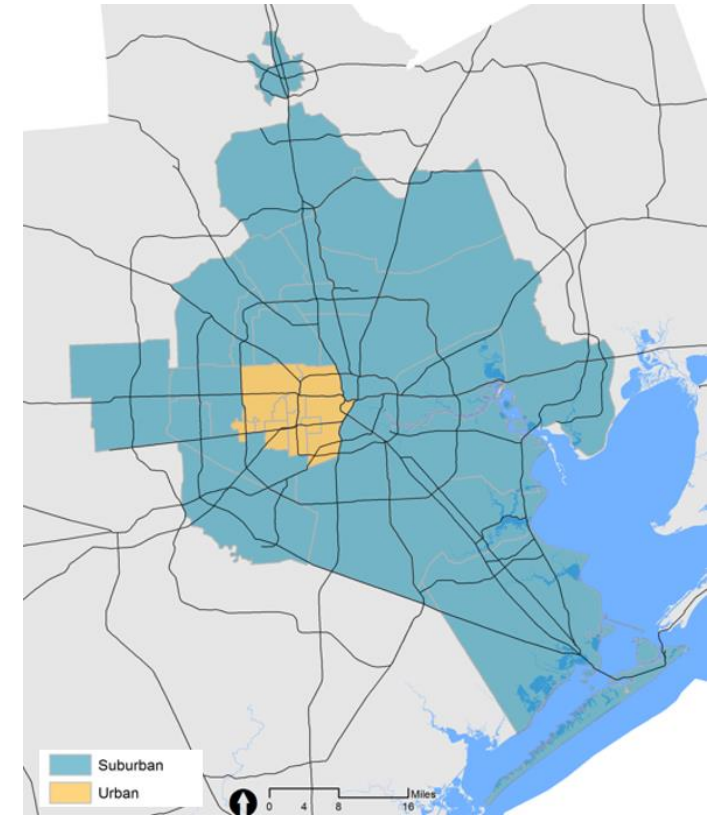
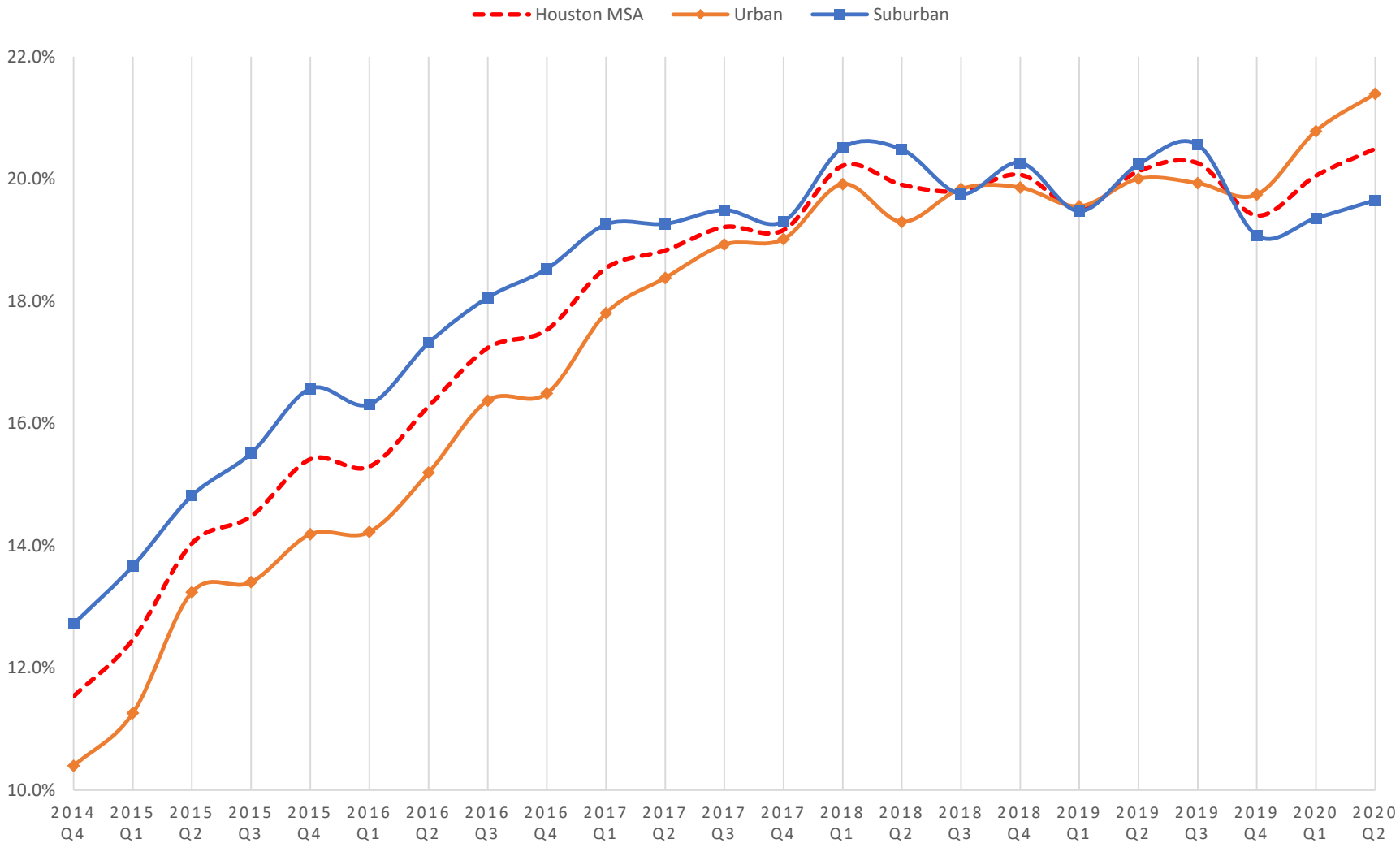
Quarterly Office Net Absorption & Vacancy Rate

Houston Area



Source: CBRE

HISTORICAL OFFICE VACANCY RATE (URBAN/SUBURBAN)

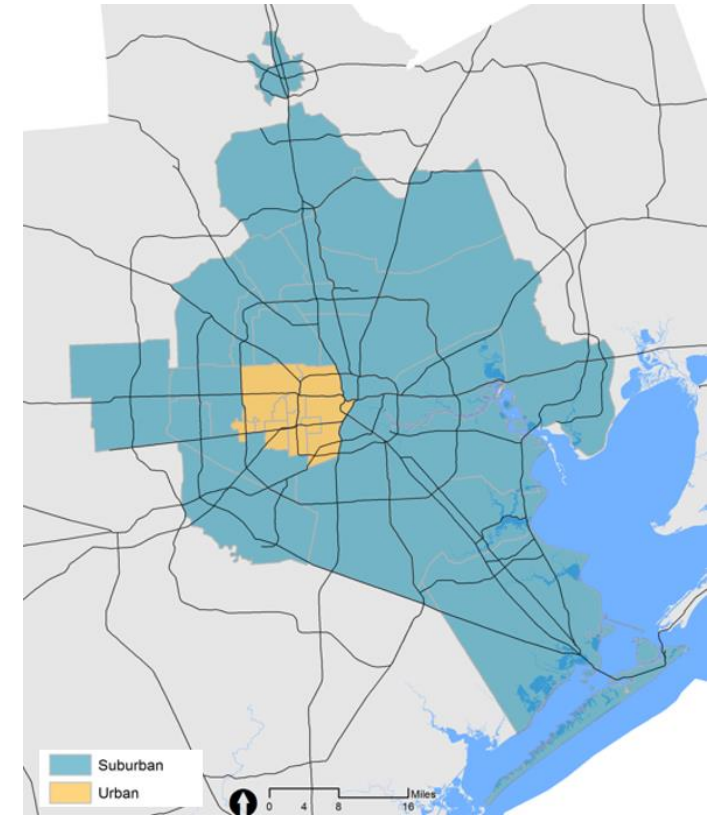
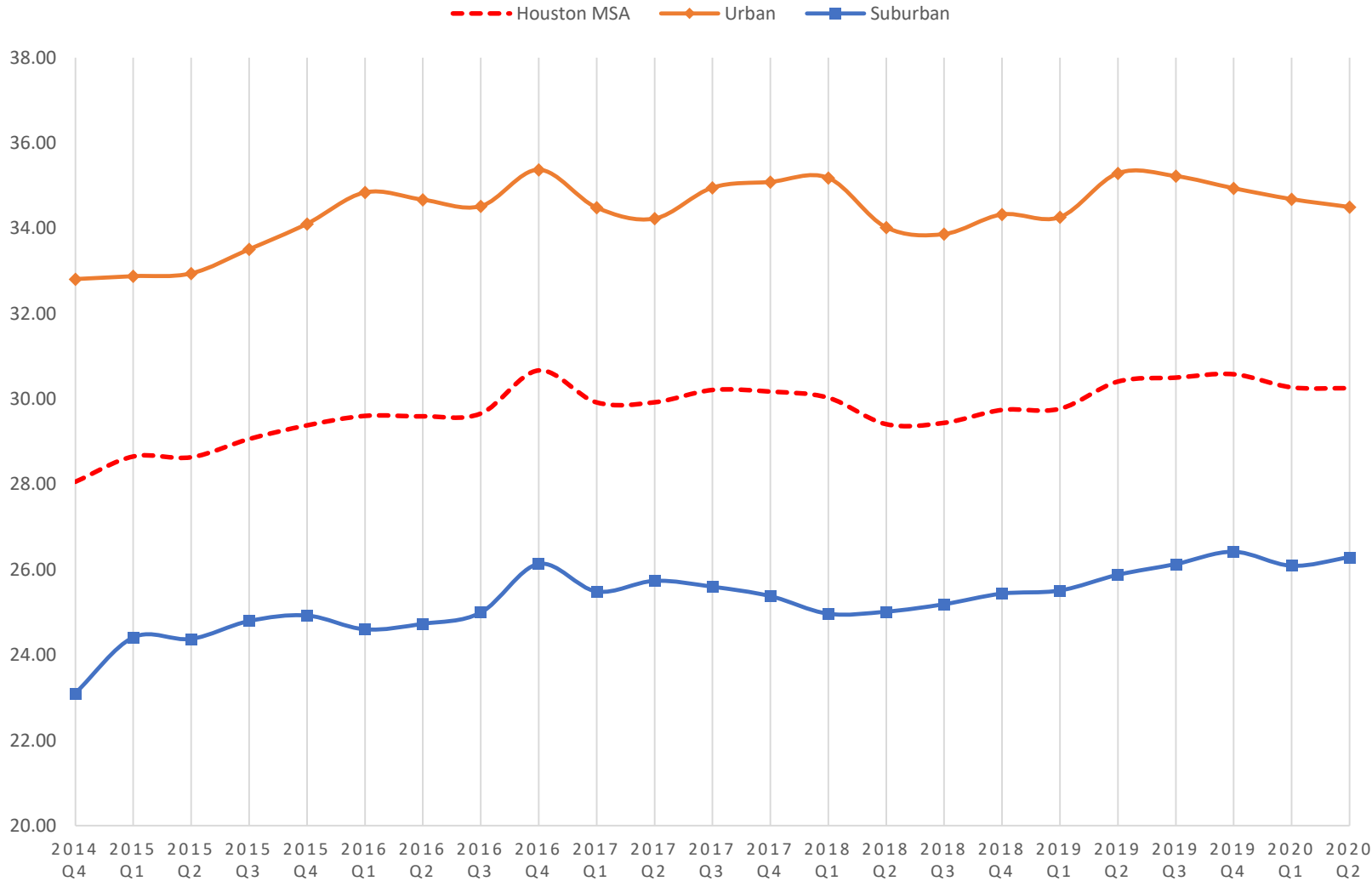


Office Vacancy Rate (2020-Q1/Q2)

Type	2020-Q1	2020-Q2	Change
Houston MSA	20.1%	20.5%	0.4%
Urban	20.8%	21.4%	0.6%
Suburban	19.4%	19.6%	0.3%

Source: Colliers International, Houston Office Research & Forecast Report

HISTORICAL OFFICE VACANCY RATE (\$/SF) (URBAN/SUBURBAN)

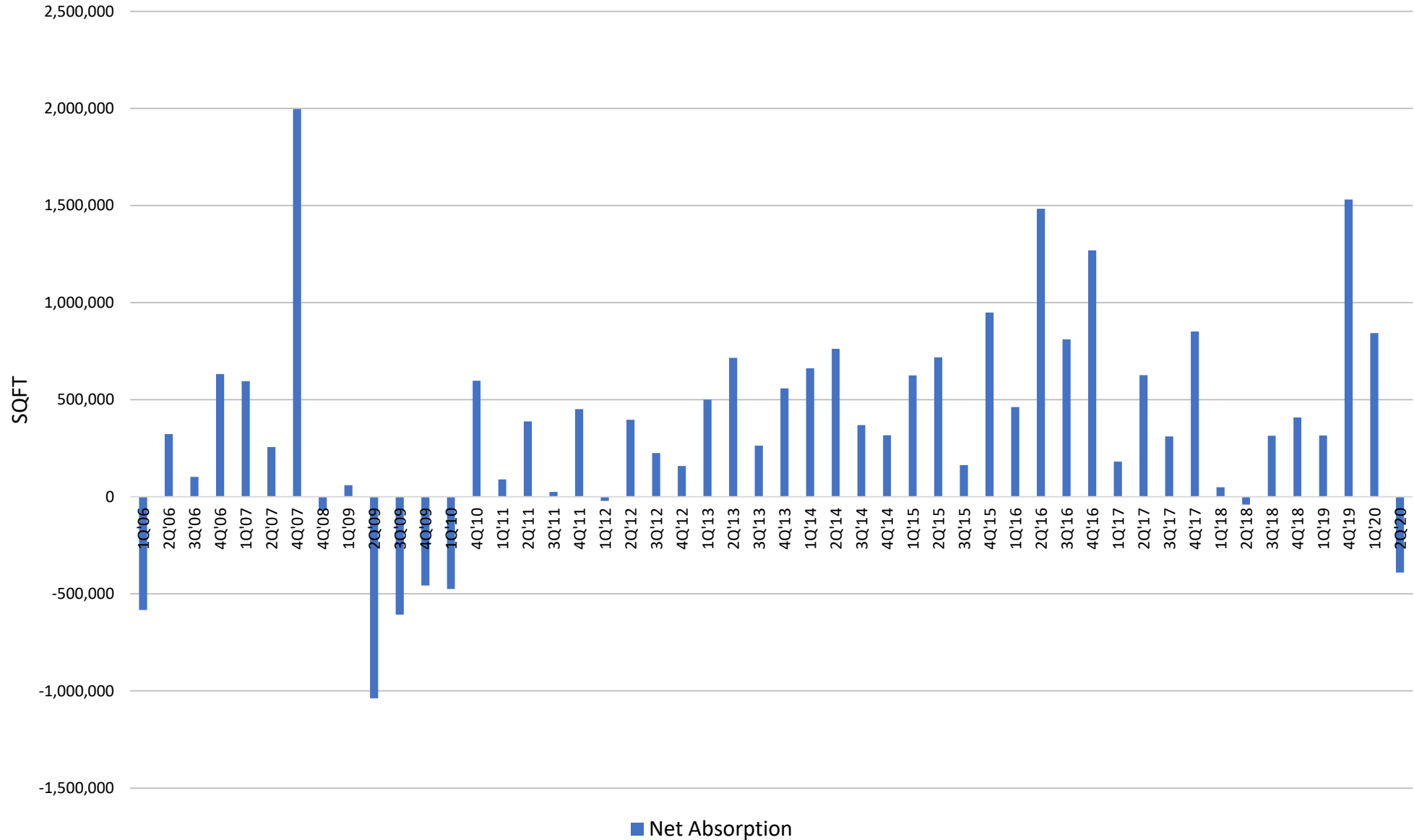


Office Vacancy Rate (2020-Q1/Q2)

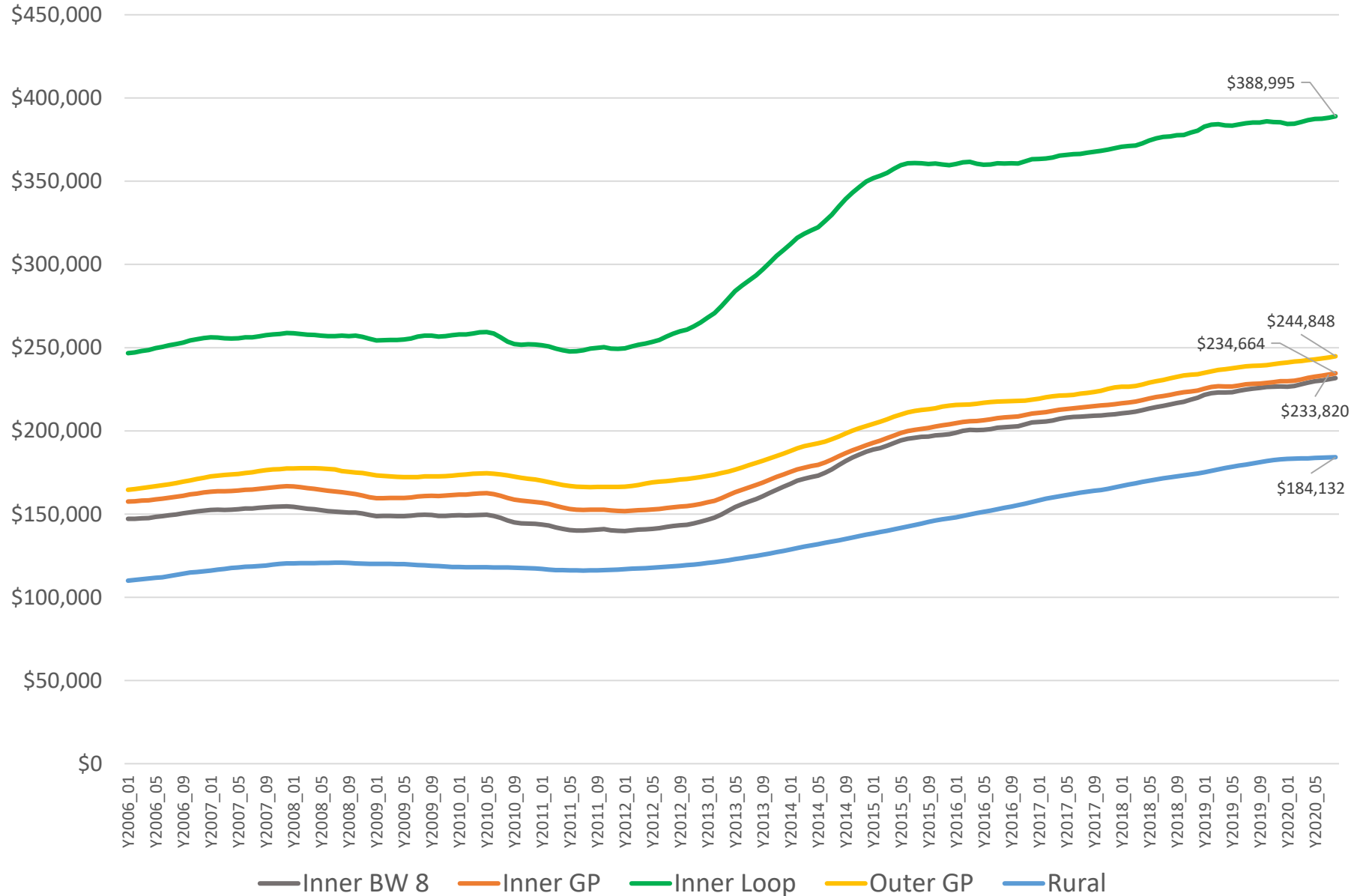
Area	Office Rental Rate		Change %
	2020-Q1	2020-Q2	
Houston MSA	30.27	30.25	-0.1%
Urban	34.68	34.50	-0.5%
Suburban	26.09	26.29	0.8%

Source: Colliers International, Houston Office Research & Forecast Report

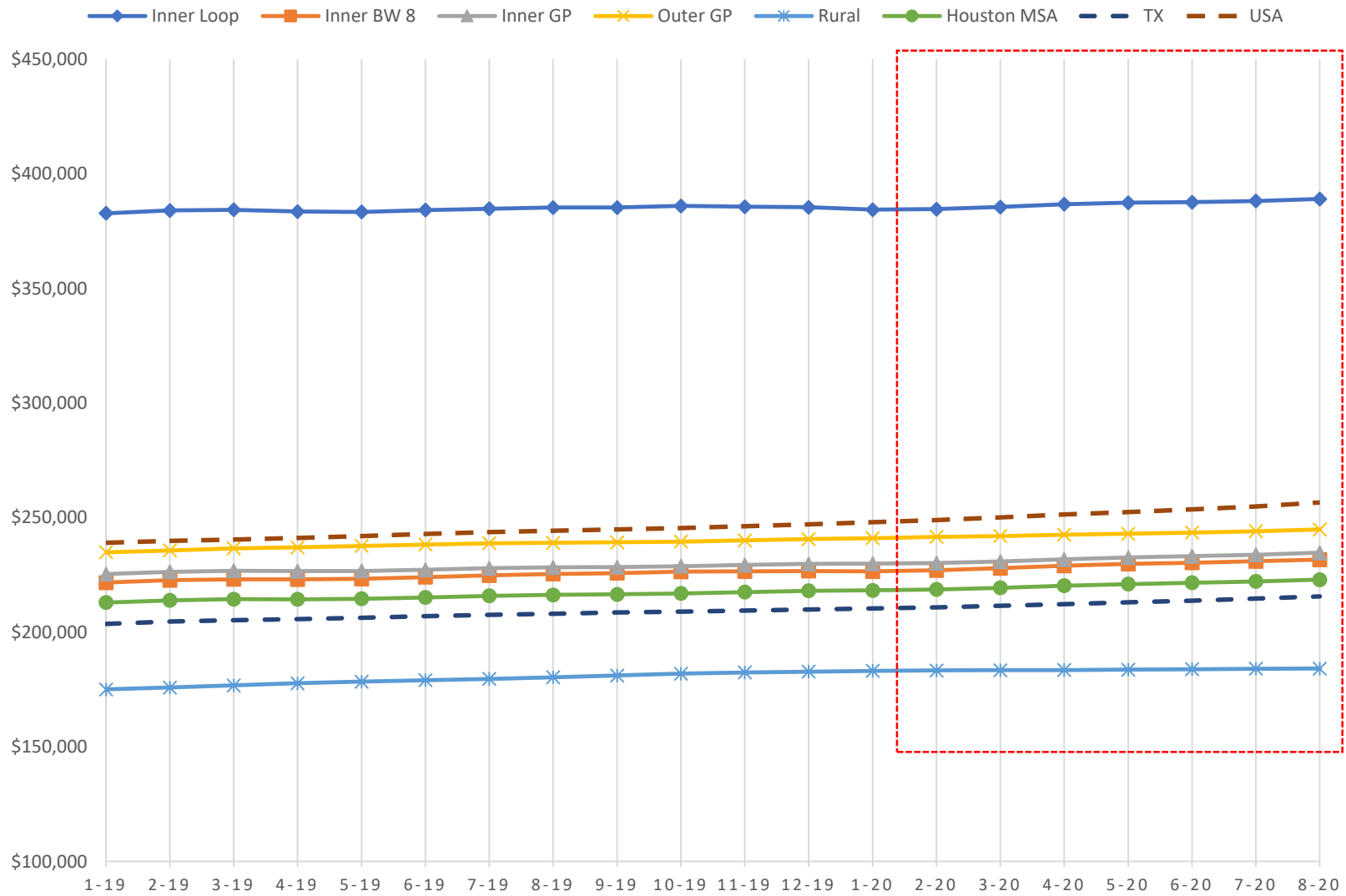
Quarterly Retail Net Absorption



H-GAC 13-County Zillow Mid-Tier Home Value Index



MEDIAN HOME PRICE CHANGE (2019-2020) weighted by housing units (2018)



Median Home Price Change (Feb. – Aug. 2020)

	Feb. 2020	Aug. 2020	Change (%)
USA	248,982	256,663	3.1%
TX	210,830	215,658	2.3%
Houston MSA	218,692	222,936	1.9%
Inner Loop	384,597	388,995	1.1%
Inner BW 8	227,017	231,688	2.1%
Inner GP	230,164	234,664	2.0%
Outer GP	241,632	244,848	1.3%
Rural	183,338	184,132	0.4%

Source: zillow.com

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