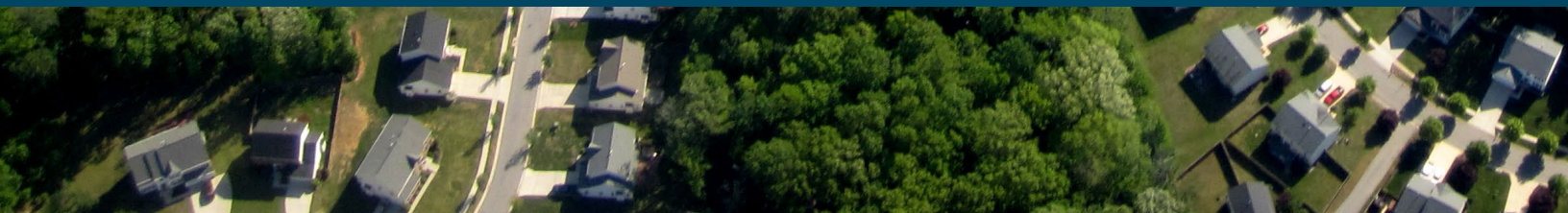
THE NEXT AMERICAN CITIES

January 2022



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Acknowledgments and Bios

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Introduction

Charles Blain

Can cities withstand the social, economic, and migratory challenges they face today, or will a new model prove to be the answer for Americans seeking better opportunities for their families? Cities will continue to thrive, but they seem politically and economically not well-suited for middle- and working-class families of all races.

The Next American City offers an answer to the problem plaguing those living in and around major cities. Offering a combination of affordability, amenities, and proximity to the large cities, but without the burdensome, heavy-handed regulations of local government or many of the social ills running rampant in our cities, these places – like the Woodlands and Bridgeland – are quickly shaping up to be the urban destinations of the future.

The locale of places of opportunity for new citizens and minorities have changed. The pandemic has led to people seeking more space which has driven the cost of housing. Couple that with the issues of crime, blight, cost of living, and standard of living in our large cities, it's no surprise that the urban cores are beginning to dwindle and that homeownership rates in the suburbs far outpace that of the cities.

These Next American Cities provide opportunities that many families thought were long gone.

America needs a revitalization of what was the American Dream. The desires remain the same, opportunity, affordability, and safety. What we need are more communities that address that aspiration.

After visiting burgeoning communities across the country, interviewing industry experts and residents, and looking at data, we came up with the Next American City concept. Places that offer everything, and more, that our major cities do, but minimize the downsides. As Americans continue to seek out new, affordable, safe alternatives to the status quo, New American Cities could become centers of growth — if they do not fall prey to the policies and politics that have driven people away from urban cores.

The Next American City

Wendell Cox and Joel Kotkin

> Town and country must be married and out of this joyous union will spring a new hope, a new life, a new civilization. —*Ebenezer Howard*,1898[1]

The urban form has shifted throughout history. This has been critical to its success. Today we are on the cusp of another transition, ushered in by new technologies and changing demographics, and accelerated by a devastating pandemic. Although these forces affect all geographies, the best chance of success and growth lies in what we define as The Next American City.

In the best case, the changes open the door for new kinds of cities: planned from the start, usually privately financed, found mostly in the outer suburbs and exurbs, and often a long commuting distance to a current major metropolis. We have identified the 50 highest-growth large counties in terms of net domestic migration percentage from 2015 to 2019. Virtually all are on the fringes of large metropolitan areas, or within little more than a two-hour commute by car. Many of these locations are in Florida, where large, planned communities often target seniors.[2]

The suburbs and exurbs have become extraordinarily diverse, with major increases in the population of Hispanics, African Americans, Asian Americans, and the foreign born. These areas, although they continue to attract families, are also seeing a surge in seniors. They have also experienced rapid job growth, far outstripping the more central portions of the metropolitan area.[3]

The pandemic-induced acceleration of remote work in both homes and satellite facilities has greatly reduced the importance of transit, which is particularly significant for the few dense, legacy cities (urban cores). It also adds additional demand for relatively new communities such as Columbia and Reston outside Washington DC, Irvine and Valencia in Southern California, the Woodlands and Cinco Ranch outside Houston, New Albany in metro Columbus, and the Domain in metro Austin. Numerous smaller, outer suburban and exurban developments are being affected as well. These communities serve not as

Lisa Hinson. Courtesy of New Albany Community Foundation. CC4.0 License

bedrooms for the urban core but as "garden cities" with their own or nearby offices, recreational facilities, and cultural amenities.[4]

Often, suburbs and exurbs serve as de facto town centers for surrounding, less heavily planned communities. Of course, many people—notably the young, unmarried, childless, or super-affluent—will continue to cluster in somewhat greater numbers in traditional urban cores, with their unique cultural appeal. But, like most past growth, future expansions are likely to continue to head towards the periphery, a trend that has accelerated.

Philcomanforterie, Office Buildings in The Woodlands, Texas CC 4.0License

The Historical Perspective

Cities are shaped by demographics, technology, and economics. Historically, most cities, dependent on pedestrians or even on horse-drawn conveyances, have been necessarily compact and hosted a small share of the population. Densities grew as the industrial revolution drove rural residents into cities that were polluted, overcrowded, crime-ridden and miserable for all but the upper classes.[5]

The 'garden city' movement, espoused by Britain's Ebenezer Howard, arose to allow the populace to disperse to more healthful settings. The ideas gained the support of a range of luminaries, from H.G. Wells to Fredrich Engels. Trolleys and trains allowed this process to begin, followed by the rise of the automobile, which eventually made suburbia predominant. As early as the 1920s the Olmstead brothers, the influential landscape designers, saw sprawling Los Angeles as "the first great metropolis that has emerged since the invention of the automobile."[6]

In 1950, the core cities accounted for nearly 24% of the US population; today the share is under 15%. In contrast, the suburbs and exurbs grew from housing 13% of the metropolitan population in 1940 to 86% in 2017, a gradual increase of 2% a year. Despite all the talk of "back to the city," suburbs account for about 90% of all metropolitan growth since 2010. Between 2010 and 2020 the suburbs and exurbs of the major metropolitan areas gained 2.0 million net domestic migrants, while the urban core counties lost 2.7 million.[7]

Overall, according to a recent MIT study, roughly 80% of the nation's metropolitan population lives in auto-dependent suburbs and exurbs, while barely 8% live in the urban core, and another 13% in traditional transit-oriented suburbs. The development of autonomous vehicles is expected to accelerate this trend.[8] (See sidebar, "Our Autonomous Suburban Future") Another estimate places the population shares of pre-automobile downtowns at less than two percent of the major metropolitan area population.[9]

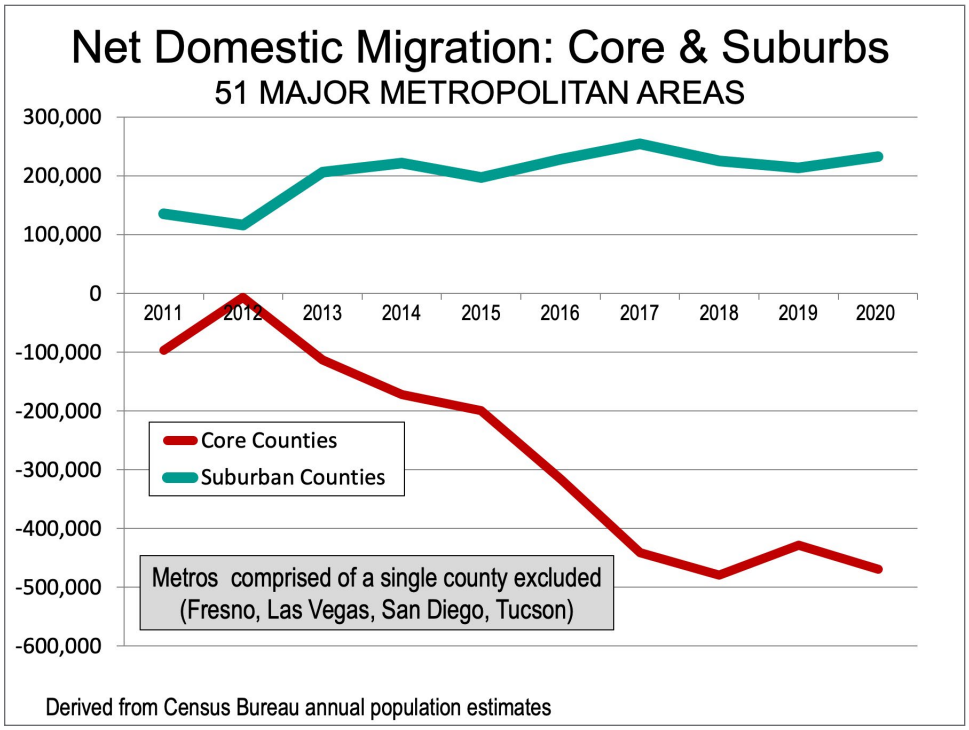

Figure 1. Net domestic migration, core counties vs. suburban counties

The Rise of the New Model

In the 1920s, suburbs grew at twice the rate of cities, but their progress was halted by the Depression and World War II. At that time, suburbs were largely seen as providing homes to the upper-middle class. During the New Deal the government experimented with building garden cities. Three new cities were started, with the aim of creating bucolic, planned rental communities. In 1949, the federal government sold these homes to their residents, which have largely become successful suburban developments.[10]

Generally, the private sector developed suburbia, as buyers took advantage of public mortgage programs to aid veterans returning from World War II. Developments such as Lakewood in the Los Angeles metro area and the Levittowns in Pennsylvania and on Long Island supplied workers in nearby plants and downtowns with lots of cheap housing.

Levittown early 1950s, courtesy MarkMathosian, CC 2.0 License

Like today's Next Cities, they employed new techniques, some taken from the experience of the military during World War II, to industrialize and rationalize production. The result: remarkably affordable housing. A typical house in Lakewood was from 825 to 1,050 square feet, and the most expensive model had a price in today's dollars of approximately $103,000. As late as the 1970s, California house prices, relative to incomes, were close to those of the rest of the country, despite enormously higher demand.[11]

These early suburbs were followed in the 1960s and 1970s by developments closer to the Garden City ideal. Reston, Columbia, Irvine, and Valencia, reflecting Howard's vision, sought to become economic, cultural, and retail centers in their own right. Texas's The Woodlands, Southern California's Irvine, and Maryland's Columbia were evaluated by Harvard Urban Planning Professor Ann Forsyth, who noted that these new communities fulfilled most of today's New Urbanists' underlying aim, and they did so at a grand scale (italics ours), exhibiting "cutting-edge planning and design strategies."[12]

The approaches adopted by planned cities, often emphasizing single family homes, offended many urbanists as "the manipulation of symbols of community" by delivering "such things as good schools, safety, and parks." Yet almost a half century later, these very communities are largely thriving.[13]

Irvine, south of Los Angeles, founded around 1960, epitomizes the new model: a huge employment pool, short commutes, and lots of workers based at home. With 270 parks and one-third of the land dedicated to open space, it represents by some accounts the most extensive urban park system in the country. The development has attracted an affluent population, much of it from Asia, with a safe community, good schools, and a low crime rate. Pre-COVID-19, the share of Irvine's workforce that worked at home, 12%,

North Lake, Woodbridge Irvine, CA; courtesy Timothy Gu, CC 3.0 License

was twice as large as the share within CA or the overall US (6% each). Yet it retains much of its natural appeal as a water-rich forested area — thus its name — and its surprisingly rustic feel.[14]

The Woodlands, started in 1971 by oilman George Mitchell, has enjoyed similar success. He developed his huge parcel west of Houston into something that would be environmentally attractive and commercially successful; a community available to a broad range of income groups. Today, with a population of 120,000 (roughly twice what it was in 2000), The Woodlands serves as the commercial hub for the roughly one million people who live within a half hour of the development. With over 1200 employers, the area now boasts nearly 40,000 jobs.[15]

The Woodlands and planned developments such as Cinco Ranch Bridgeland, Sienna Plantation, Sugar Land, and the Grand Parkway, which connects the metropolitan area with the giant new Exxon campus, represent the cutting edge of American urbanism in the 21st century. Yet they remain unpopular with advocates of restrictive land use policies, although the outer periphery garnered 83% of all growth in Houston, one of America's largest and fastest growing metropolitan regions.[16]

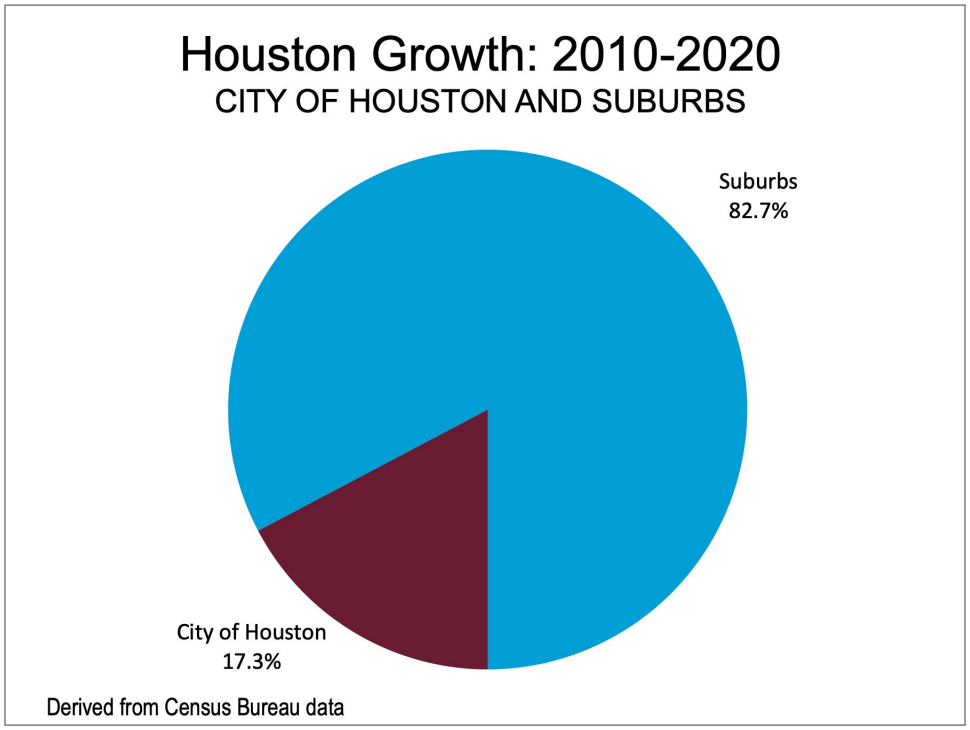

Figure 2. Houston growth, 2010 - 2020; City of Houston and suburbs

A National Trend

The Next American City has been emerging in the fastest growing parts of the country. Most (all but seven) of the 50 highest growth counties are within combined statistical areas (CSAs) of more than 500,000 residents. And each of these outer counties are within or close to a two-hour commute time of a central core county. Key areas include Atlanta, Dallas-Fort Worth and Orlando.[17]

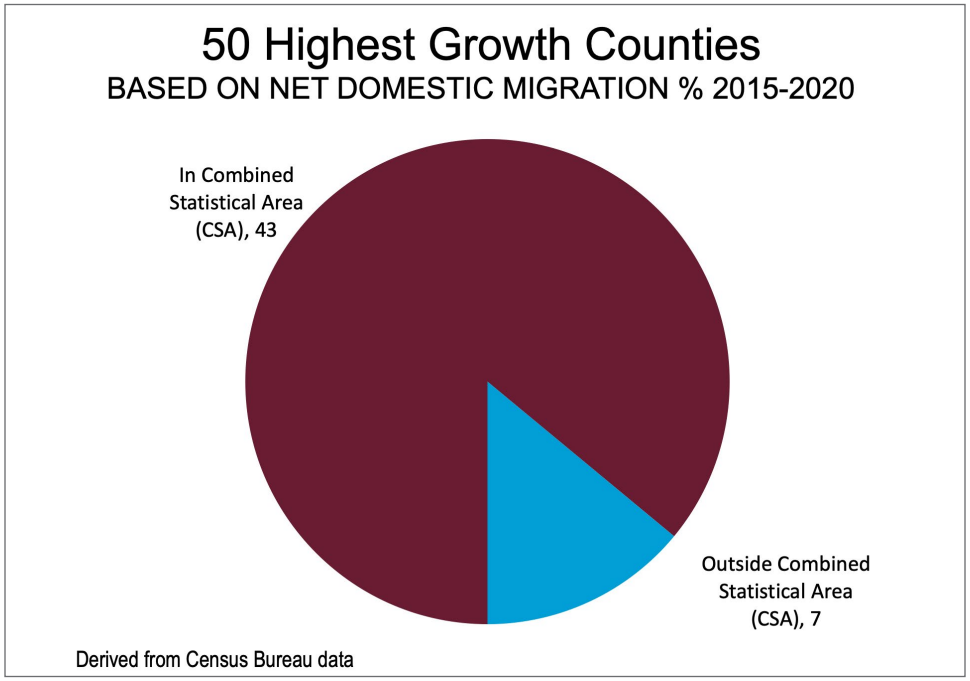

Figure 3. 50 Highest growth counties

Even before the pandemic, these exurban areas were growing quickly and nurturing new communities, particularly in more development-friendly states such as Texas, Nevada, and Arizona. Summerlin, in metro Las Vegas, boasts 250 parks, along with extensive recreational trails, shopping, and community centers. With 100,000 people, Summerlin is the nation's third fastest growing planned community. It's also conveniently located near major job centers.[18]

Lisa Hinson. Courtesy of New Albany Community Foundation. CC4.0 License

These features are repeated, in a very different climate, in New Albany, an outer suburban municipality in metro Columbus, Ohio. Over the past two decades, New Albany has relied on master planning to grow from 3,700 residents to more than 10,000. Meanwhile, employment at the business park has grown to 15,000. Its system of parks, neighborhoods and walking paths hasn't attracted only residents. Since 1998, New Albany

gained more than four billion dollars in private investment, 15,000 jobs and more than $100 million in income tax revenue, according to the New Albany Finance Department.[19]

But there's a downside to this success: dwindling affordability, particularly for first time buyers, who by 2016 constituted barely one-third of the nationwide housing market, a three-decade low. The median house price in Irvine is $1.1 million; houses in The Woodlands, New Albany, or Summerlin have median prices between $400,000 and $500,000.[20]

That falls above the national median price of about $350,000, which is the purchase price at which a median income buyer could qualify for a conventional mortgage. In the new Canvas Park homes now being sold at Ontario Ranch in Southern California, detached homes go for $600,000 to $700,000, even further above a price where a median income buyer would qualify.[21]

To house the next generation in sustainable, healthful communities and grant them an opportunity for home ownership, The Next American City needs to extend its reach throughout the country, and the best opportunities to do so are on and beyond the urban fringes.

The Exurban Ascendancy

> Fifteen years ago, it was common for the mainstream media to suggest that "America's suburban dream" was "collapsing into a nightmare." The exurbs were particularly excoriated, with one prominent urbanist suggesting they would become "the next slums," the equivalent of roadkill doomed by changing economics and demographics.[22]

The New York Times suggested how to carve up the suburban carcass, with some envisioning that suburban three-car garages would be "subdivided into rental units with streetfront cafés, shops and other local businesses," while abandoned pools would become skateboard parks. Arguments against homeownership, the key to exurbia, surfaced, bolstered by what turned out to be a short-lived drop in prices spurred by the proliferation of unsustainable sub-prime mortgages.[23]

Exurbs—places within a metropolitan area, but outside its largest urban area—have been widely ridiculed by the media, planners, and pundits over the past decade. But these areas have been growing nearly four times as fast as the rest of the country.

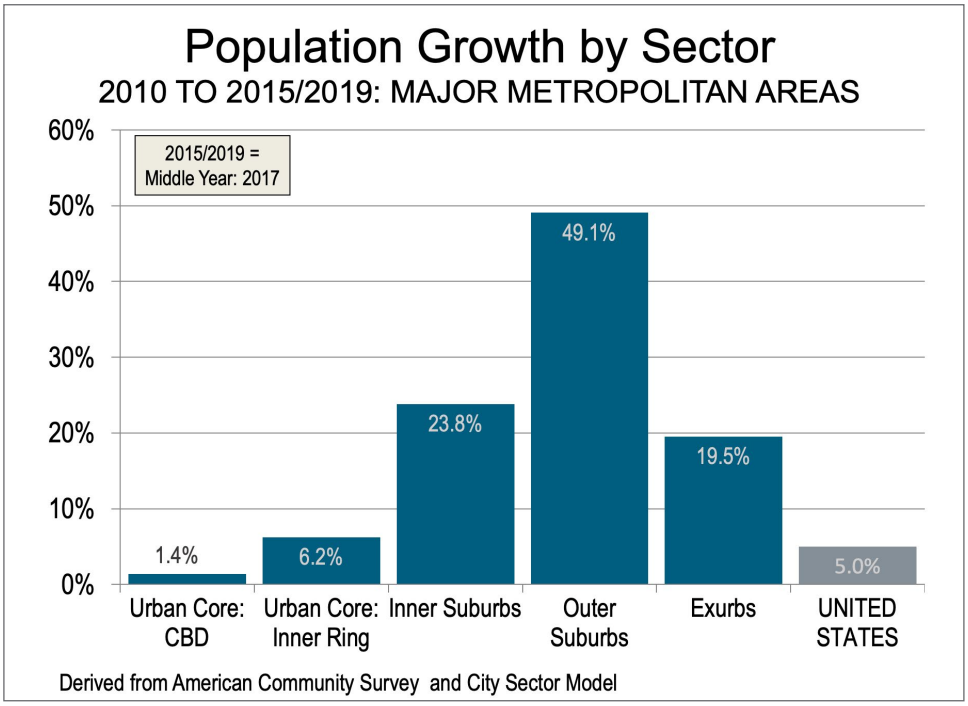

Figure 4. Outer suburban and exurban growth

Tracking net domestic migration nationwide, we found that it was the furthest periphery that was growing the fastest. The population in the 50 highest growth counties grew at 7.5 times the rate of the country's other 3,100 counties from 2015 to 2020. Moreover, the highest growth counties (including county equivalents) had 1.8 million net domestic migrants. Virtually all the fastest growing 50 counties in the country are suburban, exurban, or within about two hours of these areas. (The full list of high-growth counties appears in the "Appendix".)

Much of this growth comes from millennials; two thirds of that generation, before the pandemic, favored suburbs as their preferred residence. At that time, observers noted that even distant suburbs were evolving into a kind of "hipsturbia," with innovative retail, restaurants, and cultural amenities.[24]

The population growth of 25- to 34-year-olds in the highest growth counties is rising considerably faster than elsewhere in the nation. From 2015 to 2019, 25- to 34-year-olds increased 12.2% in these counties. This is almost four times their 3.4% growth rate in the other counties. This contrasts with the hopes of new urbanists like Peter Katz, who asserted that the nation's largest generation had "little interest in returning to the cul-de-sacs of their youth" and "[would] reverse the decades-old pattern of suburban dispersal."[25]

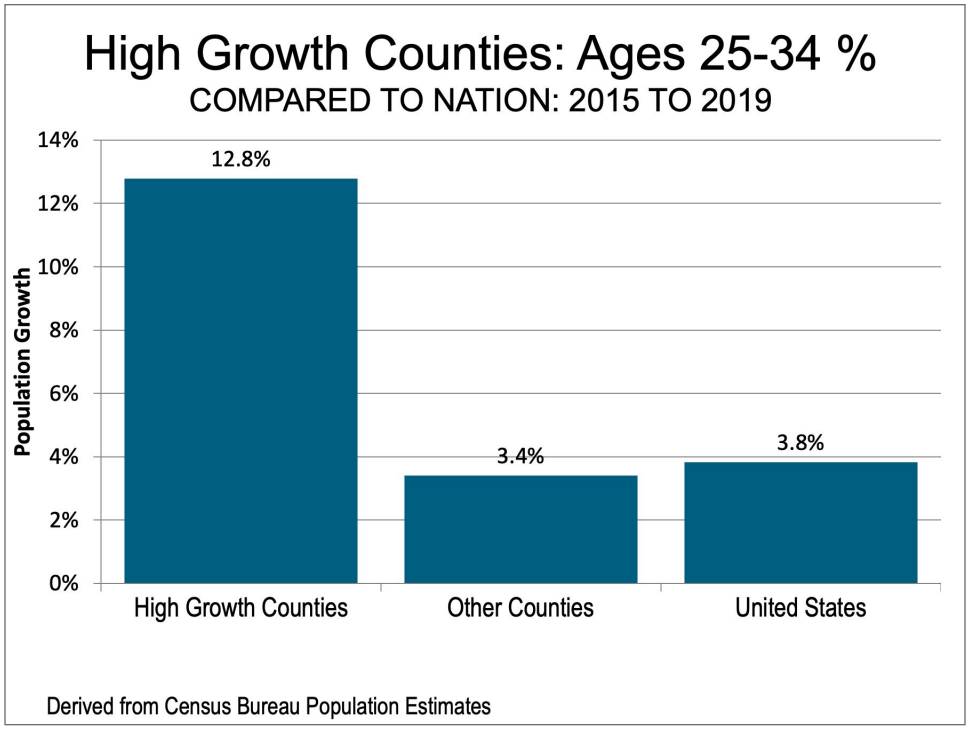

Figure 5. High growth counties, millennials population

The highest growth counties have a far higher rate of school age children (5 to 14-year-olds) per household than the rest of the nation—0.66 compared to 0.43 for the other counties. The highest growth counties have 3.5 times as many school age children per household than, for example, Manhattan and San Francisco.[26]

A Dispersing Economy

Silicon Valley: from exurb to global tech capital; Courtesy Patrick Nouhailler, CC 2.0 License

It has been an element of faith in the major media that the economic future lies primarily in a few, often very dense, "super-star cities." The rest of the nation was considered home to the undereducated, old analog industries, and permanent backwardness.[27]

Yet the economy has been dispersing for decades. This is particularly true of the tech industry, whether in coastal California, the suburbs of Seattle, Raleigh-Durham, or Boston. Tech, notes Stanford University's Margaret Pugh Omara, created a new reality, pushing closer to "classic definitions of cities in terms of their economic diversity and self-sufficiency." These communities may be defined by strip malls, housing tracts and automobile access, but they were no longer "amorphous extensions of the core." Rather, they were "cities of knowledge."[28]

The shifting of economic growth to the periphery been castigated by some as "job sprawl." However, the longer-term reality is that suburbs and exurbs have continued over the last 40 years to garner a growing percentage of the nation's wealth, notes a recent Harvard study. From 2010 to 2017, over 80% of all job growth was in the suburbs and exurbs. The 50 highest growth counties had an employment increase of more than 2.5 times that of other counties in 2019.[29]

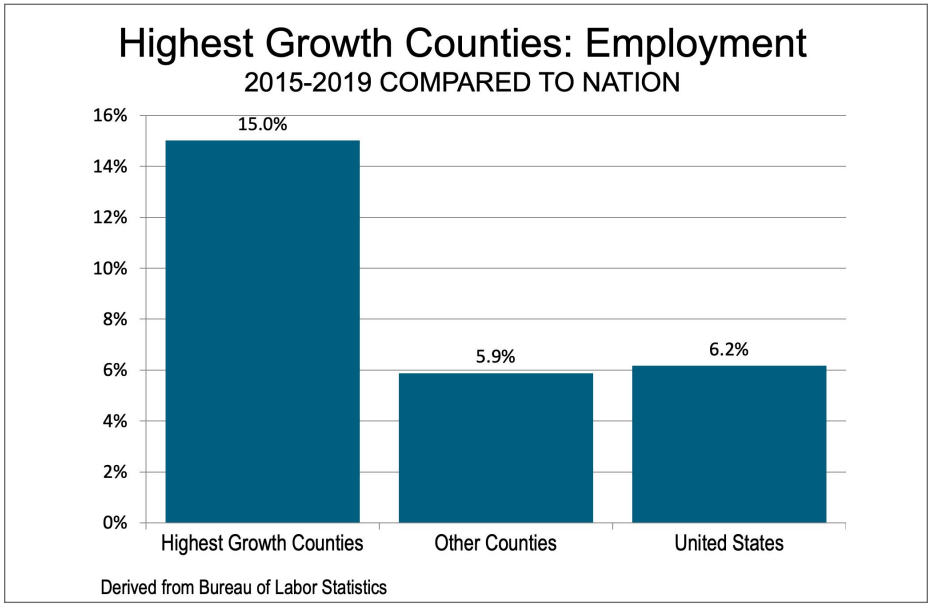

Figure 6. Job growth in 50 highest growth counties vs. other counties and U.S.

Starting in the 1960s, much of this growth took place in what journalist Joel Garreau described as office tower-dominated "edge cities," and these still flourish in many parts of the country, including in places like Irvine and the Woodlands. But now, most job growth takes place in what author Robert Lang called "edgeless cities": small office locations scattered across the metropolitan landscape. Yet even Lang's findings may need to be supplemented, as we will demonstrate, by new, even more dispersive technologies and greater movement to the urban fringe and beyond, a pattern definitely intensified by the COVID-19 pandemic.[30]

The Racial and Ethnic Dimension

> In the 50 largest US metro areas, 44% of residents live in racially and ethnically diverse suburbs in which non-whites make up between 20% and 60% of the population.

During the first phase of mass suburbanization many communities—Levittown and Lakewood are well-known examples—excluded ethnic minorities. The fact that they used to be overwhelmingly white has provided planners and 'smart growth' advocates a rationale for claims that single-family neighborhoods are inherently racist.[31]

This assertion is seriously out of date. In the 50 largest US metro areas, ***44% of residents live in racially and ethnically diverse suburbs*** in which non-whites make up between 20% and 60% of the population. Over the past decade, ***non-Hispanic whites*** accounted for less than four per cent of growth in suburbs and exurbs, while Latinos accounted for nearly half, with Asians, African-African-Americans, mixed raced and other groups making up the balance. Meanwhile, regions with strong suburban land use policies like the San Francisco Bay Area have become ever-more segregated.[32]

Indeed, by the 1990s, newcomers to America began to head, not to the urban centers as previous generations had, but directly to the suburbs. The highest growth counties still have a smaller percentage of foreign-born residents and ethnic minorities than the nation as a whole. However, they have experienced considerably higher foreign-born population growth than the rest of the country, having added 19% from 2015 to 2019. This is approximately six times the rate in the other counties. Newcomers, notes one recent study, particularly those who are educated, tend to settle in these freshly minted communities, where they become ground floor residents.[33]

Most minorities and immigrants are likely to move to the periphery for the same reasons others do, such as good schools, parks, and safety. They also are attracted by the opportunity for home ownership. African American home ownership is nearly 50% higher in the suburbs than in the

urban core. Overall, home ownership rates are almost 75% higher in the suburbs than in the urban core. Much of this has been driven by an increase in Latino homeownership, which rose from 45% in 2015 to near 50% five years later.[34]

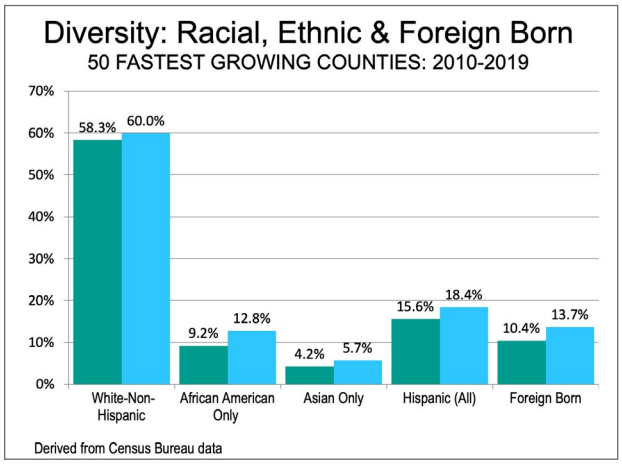

Figure 7. Foreign born & minorities in 50 highest growth counties

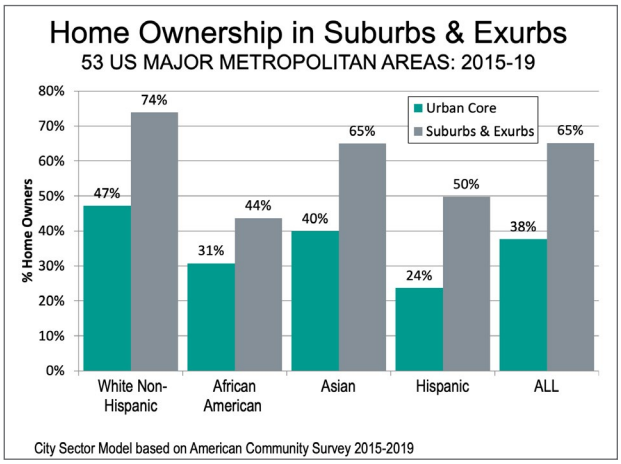

Figure 8. Home ownership by ethnicity compared to urban core

Even though they tend to dominate the high ends of regions, the model Next American City is not a white –non-Hispanic enclave. The Woodlands is roughly 30% Hispanic, African American and Asian. In Irvine, a majority of the population is non-white; it is over 40% Asian.[35]

In newer communities like Bridgeland, home to over 6,000, the non-white population approaches 50%. Ontario Ranch, a new development in the region's east, is roughly 50% minority, according to development officials. In the Tres Lagos development in McAllen, Texas, three-quarters of all buyers are Hispanic, notes developer Nick Rhodes, for houses that average under $200,000.

> "We have a young population that is looking for larger homes and safety," suggests the 27-year-old Rhodes. "These are people who cannot afford Irvine or even Dallas but want parks and good schools."

The Pandemic Effect

The pandemic has spread across the country, but the worst results, except for some isolated cases, have been in areas with the highest urban densities (10,000 and over). These areas, in spite of severe lockdowns, have experienced upwards of two times or more overall adjusted COVID fatalities. Lower fatality rates are generally in car-dominated places, particularly in suburbs, where people can afford space, key to reducing "exposure density" to the disease.

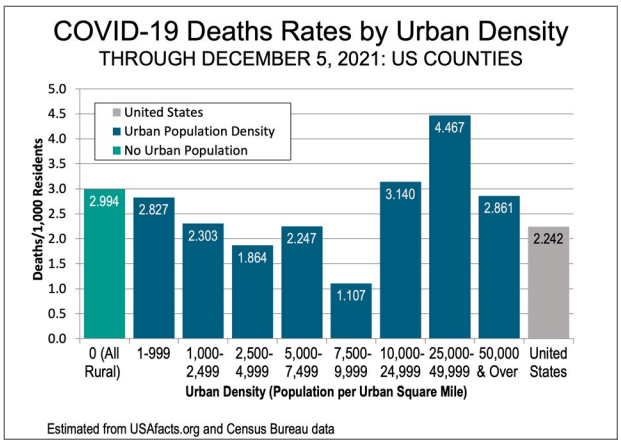

Figure 9. COVID deaths by urban density

The pandemic has engendered what Zillow calls "the great re-shuffling," an acceleration of an already-decided trend towards suburbs, the sunbelt, and smaller cities. Between 2019 and 2021, preference for larger homes in less dense areas grew from 53% to 60%, according to Pew Research Center.[36]

The National Association of Realtors found that households are "looking for larger homes, bigger yards, access to the outdoors and more separation from neighbors." Concerns about space are likely to continue, particularly if other pandemics follow. In 2020, exurbs enjoyed a 37% growth in migration and price increases twice the national average, according to a *Wall Street Journal* analysis.[37]

In this changing environment, home sales in the nation's 50 largest planned communities exceeded expectations in the first half of 2021, with a pace that indicates the potential for a 12% increase by year's end compared with 2020; total growth would exceed 35%.

> "Robert Schottenstein, CEO of Columbus-based M/I Homes, Inc., a builder with 15 projects in the Midwest, Southeast, and Texas explains, "This is a flight to safety and security. The millennials are getting older and they are transitioning as they start families."[38]"

In 2020, San Francisco, Chicago, and New York experienced a net loss of households from the previous year. By a New York Times estimate, New York City lost 420,000 residents in the early months of the pandemic. This is nearly as much as the entire 455,000 gain from 1950 to 2019. Some of these urban migrants head to smaller metros, but ***Bloomberg City Lab*** found that 84% of movers in the top 50 metros stayed within the same metropolitan areas, most likely due to proximity to jobs, cultural centers, airports and family.[39]

US Postal Service data showed that between March and November of 2020, 72% of those who filed for address changes in the San Francisco Bay Area moved only as far as another Bay Area county. This includes moves to counties that were growing fast even before he pandemic. There has also been migration to nearby communities beyond the Bay Area but generally within a two-hour commute, where homes tend be larger and up to 50% cheaper than closer to the Bay."[40]

The USPS change of address data reveals similar shifts in peripheral counties around New York, with major net migration to the Scranton metropolitan area (Luzerne and Lackawanna), the Allentown metro area (Lehigh and Carbon), and the southern tip of New Jersey (Cape May) as well as to counties in Connecticut. This trend may not be ending soon. There is plenty of suitable land for new housing development in and beyond the periphery of New York, though the opportunities are greater in Pennsylvania, due in part to less restrictive land use regulation.[41]

The Fading of the Central Business District

Traditional urban systems, based around dense downtowns, have been losing ground since World War II in every major metropolitan area, according to research by Bumsoo Lee and Peter Gordon at the University of Southern California. For example, the average downtown in the major metropolitan areas supplied less than 10% of employment in 2008, and in New York, with by far the nation's largest Central Business District (CBD), the share was only 22%.[42]

This percentage seems likely to shrink further. Many CBDs, including New York and San Francisco, were very hard hit by the pandemic. Many resembled "ghost towns," noted the Financial Times. Since COVID-19 began, tenants gave back around 200 million square feet, according to data from California commercial real estate advisers Marcus & Millichap, and the office vacancy rate stands at 16.2%, matching the peak of the financial crisis.[43]

Sharon Hahn Darlin; deserted Market Street, San Francisco; CC 2.0 License

The pandemic has revealed how the CBD's reliance on high-end business service work left them dangerously exposed. Even San Francisco, with one of the nation's strongest CBDs, continues to see ***rising office vacancies***, three times the pre-pandemic levels; enough to fill the Salesforce Tower, the city's tallest building, 17 times.

Things should improve, but most companies there, according to a ***Bay Area Council survey***, expect

employees to come to the office three days a week or less, with barely one in five seeing a return to "normal."[44]

Similarly, in metro New York, even as health conditions improve, office recovery has been slow; ***barely half*** that of Dallas-Fort Worth or Houston. According to California security firm Kastle Systems, the pace is due in large part to virus concerns around public transportation, skyscrapers, and the city's population density.

> A survey by Partnership for New York of its members revealed the expectation that roughly three in four will allow either a hybrid model that requires two to three days at the office, or no office days at all.[45]

Once confident of their economic predominance, our biggest metros––Los Angeles, New York, and Chicago––account for three of the five highest unemployment rates among our 51 largest metropolitan areas. Things could get ugly as some $2 trillion in commercial real estate debt is due by 2025, particularly in large, transit dependent central business districts. Reluctance among commuters to ride public conveyances, as well as concern over crime and social disorder may have an impact.[46]

The economic future is likely to be more dispersed. A new survey by Site Selectors guild suggests that only 10% of companies are looking to expand in large cities, one-sixth as many as those that choose suburbs, and one-third as many as those who favor rural areas. Overall, it is widely expected that CBD office rents will not recover for at least five years.[47]

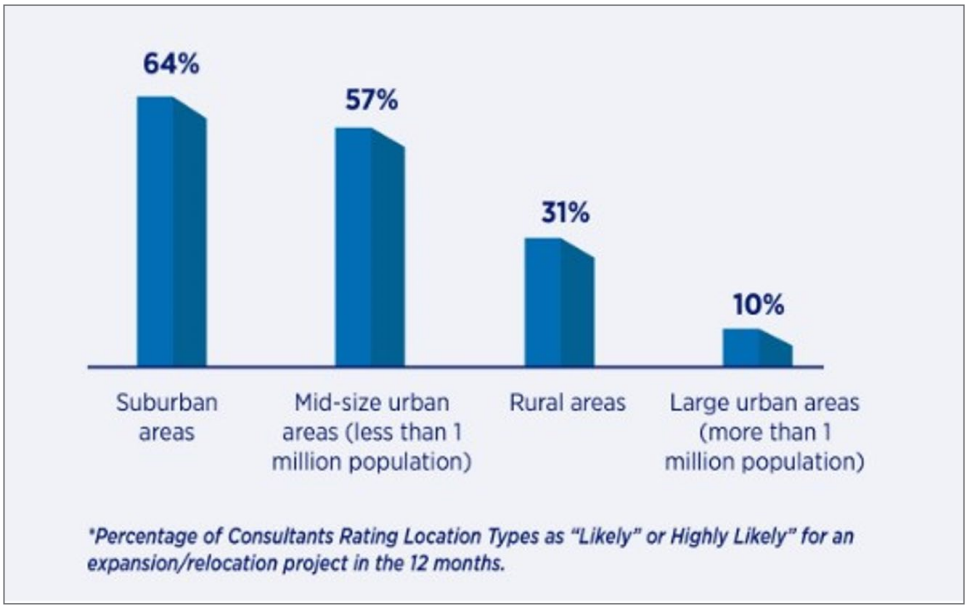

Figure 10. Site selection preferences increasingly favor suburban areas

The CBD and the core city will certainly reinvent themselves, as H.G. Wells predicted over a century ago, to play the role of "places of rendezvous and concourse." Some of the youngest workers may still want to rent temporarily in big "gateway cities," where they can mix with each other and be noticed by their bosses. But in the future, CBDs are unlikely to retain their status.[48]

Game-Changer: The Shift to Remote Work

What was most remarkable about the past year was how well the economy continued to function in a dispersed manner. Futurists have long argued about how remote work would impact urban geographies. Some predicted a spur to concentration in big cities and high-rises, but others recognized that telecommunications would have the opposite effect. Many firms—though certainly not all—found that remote work often produced surprising productivity gains.[49]

Early in the pandemic, perhaps 42% of the 155 million-strong US labor force was working from home full-time, up from 5.7% in 2019, and had easily exceeded the share of workers commuting by transit. When the pandemic ends, new research from Jose Maria Barrero, Nicholas Bloom, and Steven J. Davis suggests a "residual fear of proximity" and the preference for shorter commutes or none at all will meant that roughly 20% or more of all work will be done from home, almost four times the already-growing rate before the pandemic.[50]

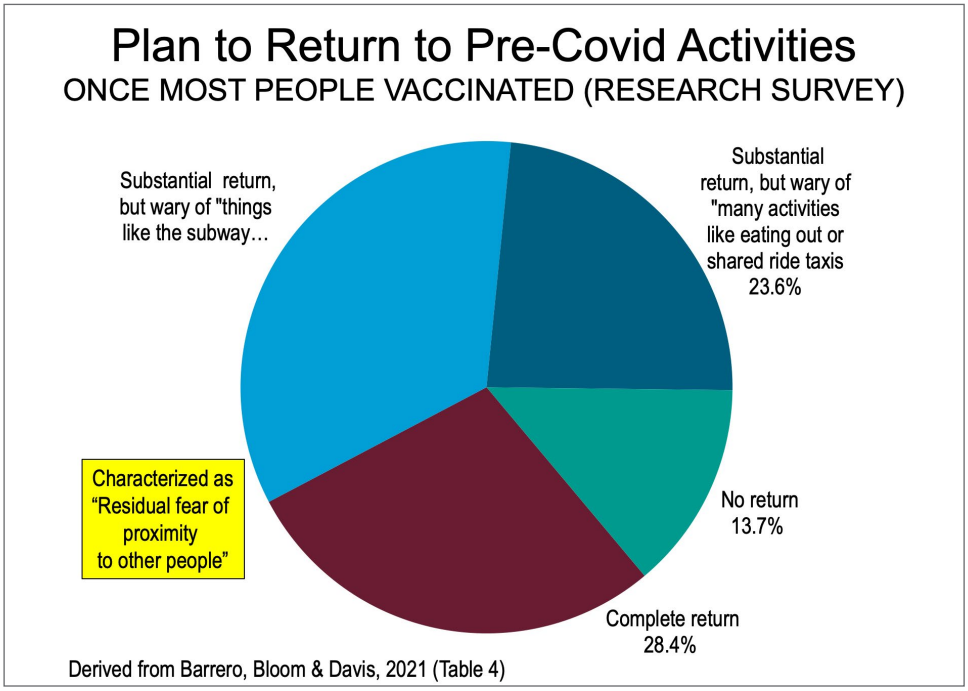

Figure 11. Survey of plans to return to pre-COVID activities

This is not an extravagant claim. Studies from the National Bureau of Economic Research and from the University of Chicago suggest this could grow to as much as one-third of the workforce, and as high as 50% in Silicon Valley. Roughly 40% of all California jobs, including 70% of

higher paying ones, could be done at home, according to research by the ***Center of Jobs and the Economy***.[51]

This shift is likely to be resisted by many managers who want to frog march people back to the office. Some companies have threatened to reduce ***the incomes of remote workers***, and others have warned darkly that those most reluctant to return to the five day a week grind would find their own ambitions ***ground down*** to dust. Media reports have suggested that workers are pining to return to downtown office routines.[52]

Yet some 60% of US teleworkers, according to Gallup, wish to keep doing so, at least for now. In a recent survey of over 5,000 employed adults, four in ten American workers expected some level of remote work flexibility post-pandemic. McKinsey & Company reports that more than one-half of surveyed employees would like their employers to adopt more flexible hybrid working models. More than one quarter of employees indicated that "they would consider switching employers if their organization returned to fully on-site work."[53]

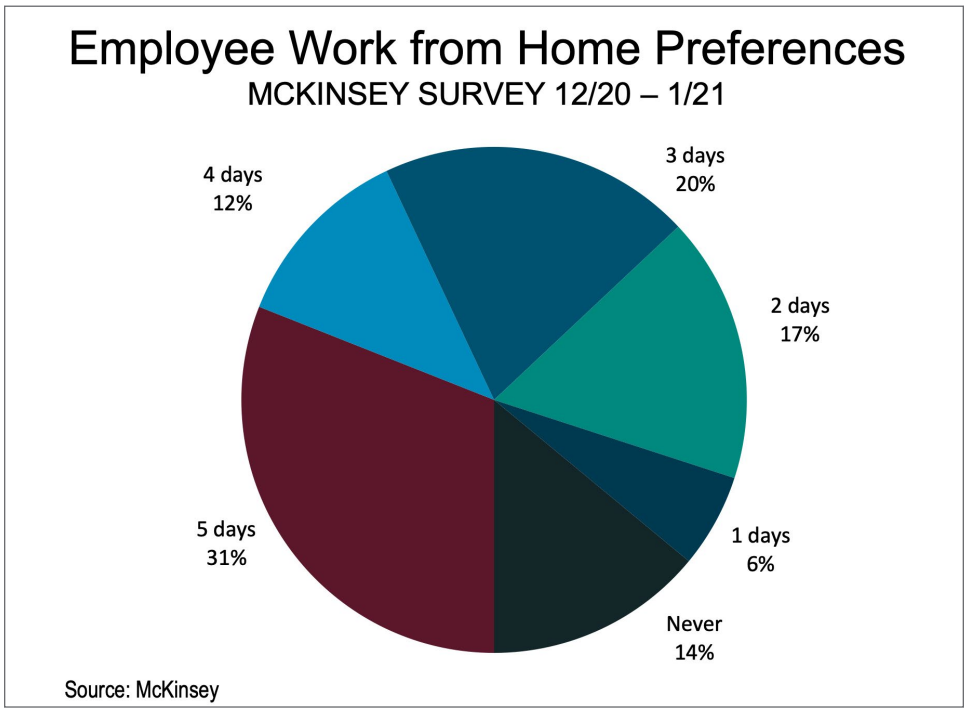

Figure 12. Employee expectations and preferences on working from home

> The work at home shift addresses issues that are especially important to millennials, according to a Conference Board survey, like enhanced "life-work balance."

The majority of workers with children favor continuing work mostly or entirely at home. For those who choose to work in an office, a market for remote suburban offices offers a potential alternative.[54]

Support for a dispersed work model, notes an August study from Price Waterhouse, has risen through the pandemic for workers: 41% now report wanting to continue fully remote. Among managers, the percentage reporting on-line work to be "successful" rose is now 83%. Nine out of ten organizations will be combining remote and on-site geographies. Price Waterhouse recently announced that virtually all of its professional staff will be able to work remotely from anywhere in the US.[55]

Attempts to reverse this situation may prove difficult, due to deep-seated labor shortages. This is particularly true for applicants for coveted technical and engineering jobs, many of whom are ***insisting*** on being able to work from home part of the time. "It's become really sort of a requirement if you're looking for top talent," according to a software executive.[56]

> "You see tons of bold statements. Companies saying, 'No remote work.' But in reality, it's the employees calling the shots. Some companies are saying, 'We're getting rid of all of our offices,'" says ***Bret Taylor***, president and chief operating officer of Salesforce. "There's like a free market of the future of work, and employees are choosing which path that they want to go on."[57]

Making the Model Work

In Texas, liberal land regulation allows developers to build their own water, sewage, road, and other infrastructure on county lands through Municipal Utility Districts (MUDs). Texas has more than 900 MUDs averaging about 1,000 acres each; about two-thirds are in the Houston metro area.[58]

These laws have allowed for the construction of new communities not only in the Dallas-Fort Worth and Houston areas, but in the border metro of McAllen, which is approaching 900,000 residents.[59] (See sidebar, "MUDs") Similarly, Colorado has over 1,800 metro districts, which are similar in purpose and scope to the Texas MUDS. Colorado's Metro District Education Coalition says that metro districts allow new growth to pay for new public infrastructure. When these infrastructure costs, sometimes called "the costs of sprawl," have been imposed on general municipal taxpayers, communities have sometimes limited new housing construction. MUDs and metro districts are a way around that hurdle.[60]

Modular construction cuts housing costs, CC 3.0 License

Affordable housing development, CC 2.0 License

Another important innovation attracting much new investment could be the greater use of manufactured housing. Manufactured housing is increasingly being used to cut costs by as much as 50% in many new planned developments. And modular construction has the potential to also speed construction by as much as 50%, according to a 2019 McKinsey & Company report.[61]

These improvements in affordability could still be stymied by mounting pressure *from* urban planners and radical environmentalists who want all suburban expansion curtailed for the sake of the climate.[62] Others, largely libertarians, support plans to eliminate single-family zoning and to replace it with much higher housing densities. Densification advocates generally claim this will reduce housing costs, yet evidence from the American Community Survey shows the opposite — that urban areas with higher population densities have higher housing prices relative to incomes.[63]

Future new planned developments may become problematic from planners following the densification mantra. Indeed, California's recent ban on single family zoning could make it all but impossible to build planned developments anywhere in the state, notes one high level Irvine company

official. This latest regulation comes on the heel of soaring fees, strenuous environmental revies, and requirements to reduce car use, making housing statewide unaffordable for virtually all but those in the top 20% of incomes. Not surprisingly, California ranked low in its number of fast-growing new communities during 2020; three-quarters of these places are in less regulated states like Texas, Florida, and Nevada.[64]

Reviving America's Dreamscape

Affordable, safe, healthy, communities are vital to maintaining our country's greatest asset: the families creating the next generation. The fastest-growing counties have 75% more school age children per household than other counties in the United States.[65]

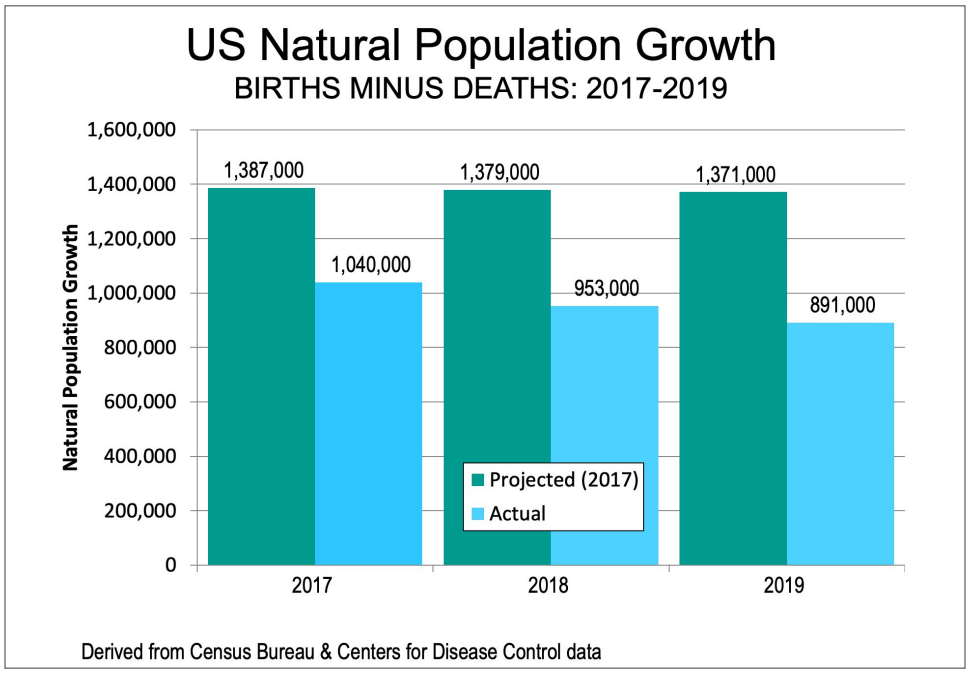

Figure 13. Natural population growth in the U.S.

"It's back to the past, like I was a child—you can run around and play in the streets," says Michelle Cordero, a leading real estate salesperson in the burgeoning Denver exurbs, where median prices now approach $600,000. "Lots of people work at home, which makes this kind of place more attractive. People want to go back to a world where people get together for barbecues in the backyard."

The ability to create ideal environments for families is critical to our economic future. Virtually all our leading economic competitors have seen their birthrates crater, and then remain at ***historic lows***. China's shrinking workforce is expected to drop 20% by 2050.[66]

Until recently, the United States had a healthier demographic outlook than many of our economic rivals. But even before the pandemic, the US marriage rate had fallen to an all-time low, and fertility rates to the lowest ever reported. Natural population growth (births minus deaths) has fallen strongly relative to the most recent Census Bureau projections (2017), resulting in lower population of 1.25 million over three years. The pandemic made things even worse, with the pandemic predicted to result in 300,000 fewer US births during 2021. These trends are expected to lead to slower economic growth and a continued erosion of the family as the central institution in society.[67]

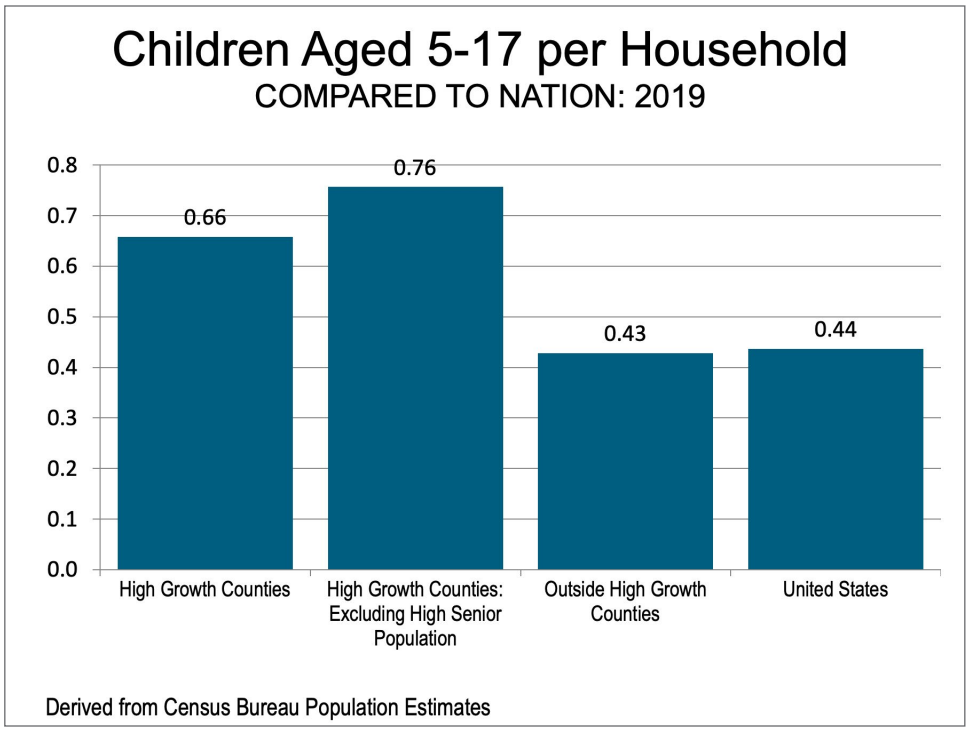

Figure 14. Children in high growth vs. outside high growth counties and U.S.

The migration to the exurbs and the growth of next American cities could also help address the threatening ***concentration of ownership*** by Wall Street landlords. This has been an important factor in the now well documented decline of the middle-class, noted by the Organization for Economic Cooperation and Development internationally and in the US. Extending the ownership opportunity is fundamental to maintaining a strong middle-class and alleviating poverty.[68]

The Urban Future

The Next American City can become an important part of a future that offers both opportunity and amenities to millions of Americans, while preserving and enhancing the natural environment. Many academics, planners and the media insist that "living smaller, living closer" is the key to reducing greenhouse gases (GHGs). Yet these accounts have often ignored changes in car exhausts and the rise of remote work, and at the same time discounted urban phenomenon such as "heat islands" caused by too many buildings packed together in one place.[69]

Technology can help make the next cities much greener. At Ontario Ranch, the nation's seventh fastest-growing new community, there's an emphasis on high-speed telecommunications of up to 1,000 megabits per second, critical for telecommuters. The development even provides a robot carrier (called Gita) to help people lug groceries home without the need for a car. These features should attract suburban-oriented millennials, particularly given the shortage of affordable starter homes.[70]

Ontario commercial area; Courtesy Mack Male, CC 2.0 License

Ontario Ranch suburban area, CC 3.0 License

There is also growing skepticism about the environmental advantages of dense, high-rise cities, in terms of their impact on GHGs. Even green advocates know the benefits of forced densification are not impressive. According to projections by the Terner Center at U.C. Berkeley, working under the assumption that housing development would be limited to infill (no greenfield development), the GHG savings of 1.8 million tons would contribute only one percentage point to the mandated state reduction by 2030. Densification would require even more stringent land use regulations than those of today, and therefore seems likely to lead to further degradation of housing affordability. This would also make it even more challenging for the state to reduce the huge backlog in demand for low-income housing.[71]

In contrast, remote work eliminates the trip to a workplace, or reduces it, on days that people are not required to commute to a central location. This reduces both greenhouse gases and personal

vehicle use and has been widely recognized by environmental groups like Resources for the Future and 'progressive' Silicon Valley firms like Sun Microsystems.[72]

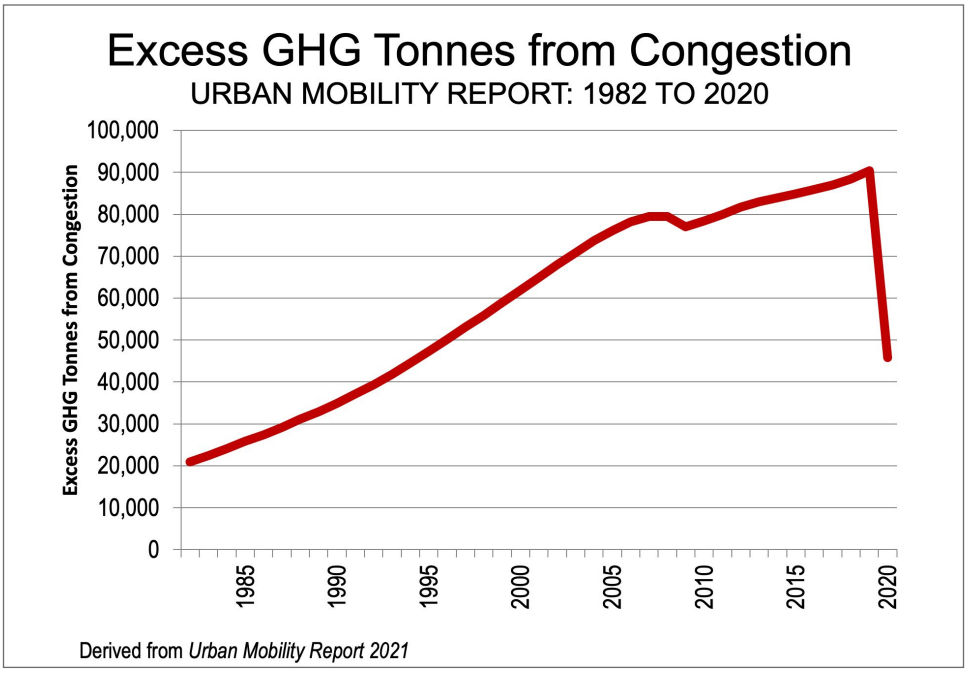

Figure 15. Commuting/GHG emissions from urban mobility

Changes in echnology, such as innovative materials and sophisticated systems for controlling energy and water use, could make these new communities even more environmentally sustainable, as demonstrated by MIT professor Alan Berger.[73] (See sidebar, "Our Autonomous Suburban Future") Well-planned new developments could reduce greenhouse gases by using rooftop solar systems, electric cars, and, eventually, autonomous taxis. And with their ample open space, these areas are ideal for enhancing biodiversity through thriving populations of insects, birds, and mammals.[74]

Contrary to the dystopian portrayals common in the media, suburbanites have generally enjoyed a stronger sense of community than their urban counterparts, a pattern confirmed by a 2009 Pew Research Center report. Many next cities strive to promote community, with clubhouses, Main Streets, and cultural amenities.[75]

Elyson community; Courtesy Brookfield Properties

This made them particularly good places to endure the pandemic. In 2019 Natalie Clark moved from Houston to Elyson, a new expansive project along the city's periphery, along with her husband, two kids aged six and eleven, three dogs, and two bunnies. "This is what we wanted and it turned out to be the greatest pandemic community," she said over coffee with friends, overlooking the development's lake, built on former rice field

drainage. "We felt safer here. Having space made us good neighbors. On my street most people worked from home."[76]

People at Elyson are attracted, particularly in light of the pandemic, by its 30 miles of trails and over 750 acres of open space. "There's an urgent need emerging in science and at the gut level to increase the nature experience. This field is just exploding," says Gretchen Daily, a professor of environmental science at Stanford University.[77]

People moving into Elyson and similar communities fulfill much of Ebenezer Howard's dream of building "a new life, a new hope and a new civilization." Cinco Ranch, Valencia, New Albany, the Woodlands, Summerlin, or Irvine are not destroyers of urbanism, but simply pioneers of its latest adaptation to the future. Such communities, suggested Frank Lloyd Wright, could serve as "a means of liberation" for families by allowing them to work at home or nearby, and close to the blessings of nature. It should not be seen as an abandonment of the city, but rather as a sign of its continuing reinvention. As Wright suggested:

> "After all is said and done, he—the citizen—is really the city. The city is going wherever he goes."[78]

MUDs

Tory Gattis

> "MUDs have been crucial in allowing an adequate housing supply and keeping home prices lower than in other high-growth states. Without MUDs, or some other means of financing local infrastructure to accommodate a rapidly expanding population and escalating housing demand, new-home construction would be severely limited and much more expensive and overall housing costs would escalate. That's what happened in such high-growth areas as California and Florida, where supply was constrained by local infrastructure development and highly restrictive, costly land-use regulations."
> —*Dr. James Gaines, chief economist of the Real Estate Center at Texas A&M University*[79]

Texas' Municipal Utility Districts (MUDs) represent one of the most innovative ways to supply housing in America. These privately-organized special purpose districts allow developers to independently create housing and support infrastructure outside of municipalities—i.e., in unincorporated areas of counties—and thus keep the supply of housing up and its costs down. MUDs issue bonds to repay developers for the infrastructure they create, and those bonds are paid back over time through property taxes on properties within the MUD.

Texas has more than 900 MUDs averaging about 1,000 acres each, and more than 620 of these (about two-thirds) are in the Houston metro area. This additional housing supply has helped keep Houston one of the most affordable major metros in America, with a median home price of approximately $291,300. The MUDs have also helped keep Texas one of the most affordable states in America, with a median home value of $289,700.[80]

Free from layers of government oversight and delay, MUDs represent a cost-efficient way to develop new housing. Meyers Research found that new homes in MUDs are about $154,000 cheaper than homes built outside of MUDs; $339,000 versus $493,000. With MUD tax rates around 1.75% in total (including operating and maintenance costs), MUD taxes capitalize about $90,000 of infrastructure into a new home. Seventy-eight percent of Houston new home sales are in MUD master-planned communities that are not just affordable, but compete vigorously on amenities to attract residents, far more than traditional incorporated cities do.[81]

MUDs have many advantages: they provide safe, high-quality essential infrastructure that pays for itself and meets city design and construction standards. They provide faster approvals and

allow for local public ownership of utilities. They reduce barriers to entry, which enables more affordable housing developments while putting the financial risk on private developers rather than on taxpayers. And they qualify for tax-exempt financing, just like municipalities.[82]

Like cities, MUDs build and operate water, sewer and drainage facilities; enforce water and sewer rules; enforce deed restrictions; collect garbage; hire law enforcement officers to protect MUD property; buy and sell water rights; finance roads and firefighting facilities; use the power of eminent domain on a limited basis; and own and operate parks and recreational facilities. They have shown themselves capable of providing high levels of service for everything from wastewater and solid waste treatment to flood control and emergency services.

MUDs are tightly regulated by the Texas Commission on Environmental Quality, and they are subject to the same laws as cities and counties with respect to open meetings, open records, public bids, nepotism, elections, public official ethics, attorney general approval of bonds, investment of public funds, setting debt service and maintenance tax rates, limitations on expenditures of public funds, and conflicts of interest.

The housing crunch in the rest of America can be eased by MUDs as well. By financing utilities, drainage and other items with bonds, MUDS allow a developer to produce a lower cost lot, and thus a lower cost home with a smaller mortgage and lower payments. Relative to competing markets throughout the country, MUDs have made it possible to keep housing affordable for working class and younger families.

Fortunately, this approach is also being adopted in other states. In Colorado, it is now possible to set up "authorities" that do much of what MUDs do in Texas. The special districts in Colorado and special districts now allowed in Utah can issue tax exempt municipal bonds for any public infrastructure. Bond issues are not restricted to private bonds for public infrastructure. Hopefully, these innovations will spread further.

MUDs represent a market-based mechanism for increasing affordable housing on the periphery of metro areas. All states—and especially those facing home affordability challenges—should consider creating similar mechanisms.

Our Autonomous Suburban Future

Alan M. Berger

> "Great cities are planned and grow without any regard for the fact that they are parasites on the countryside which somehow supply food, water, air, and degrade huge quantities of wastes."[83]
> —*Eugene P. Odum, considered the father of modern ecology*

Cities have always relied on their peripheral areas for environmental resources, ecosystem services, and other critical supplies. In the future, this is unlikely to change as population, production and jobs continue to head towards the periphery. It is here—in areas that will still be considered within the urban footprint—that a significant portion of America's future will be determined.

One key question facing American metropolitan regions is how to grow and thrive without inflicting severe environmental problems. Though urban population growth over the past century has occurred on a very small portion of the global terrestrial surface (less than 3%), the impact of urbanization has been catastrophic, with 78% of carbon emissions, 60% of residential water use, and 76% of wood used for industrial purposes attributed to cities, affecting energy flows, bio-geochemical cycles, climatic conditions, biodiversity and ecosystem functioning far beyond its limits. Urban, suburban, and even rural areas all constitute parts of the same anthropogenic settlement system, each one an ecosystem with more or with less human intervention.[84]

Here's why all this is significant: it means that there are ecological, social, and physical conditions where suburbia could prove critical to preserving ecosystem services, including clean air, water, energy, and food, to entire metropolitan areas. It's a concept that dates back to Ebenezer Howard's Garden City, which sought to ease unhealthy overcrowding in cities with a new model that merged town and country life.[85]

Initially, commuter suburbs spidered outside the urban centers, as steam railroads and electrification replaced the limitations of horse-powered mobility.[86] Today, suburbanization is less tied to the urban core, with the highest growth areas home to multiple centers of employment and commercial development. In the resulting landscape, concentrations of jobs and urban services are spread across the metropolitan space.[87]

The hub and spoke commuting patterns of the single, central city have been replaced by the need to travel from one suburban node to another. The latest edition of *Commuting in America* estimates that almost 70% of metropolitan area workers now live and work in the suburbs. Today,

trips within suburbs or suburb-to-suburb commutes constitute more than double all US metropolitan commutes that have the central business district as the final destination.[88]

In this new world, despite opposition from many planners, the car is king, and likely to remain so. In 1925, barely 17% of households owned cars; today, it's over 93%. Only about 5% of the US working population uses public transit to get to work, and this percentage has moved little between 1995 and today. This dominance is likely to have expanded during the pandemic and is likely to remain, as people desire more safe, private space while they travel.[89]

Urbanists like to argue that only by increasing suburban density can we address environmental issues, but numerous studies show that up-zoning residential land use capacity in suburban settings doesn't influence transportation choices, given the efficiencies of car travel and the difficulties of creating transit systems for the spread-out nature of suburbia. Decisions made in the past on where to place new roads, buildings, and other facilities constrain the options available today.[90]

And while planners often try to retrofit suburbs into faux cities built around largely riderless transit systems, these strategies seem impractical, given the suburban landscape and public tastes. They are unlikely to please suburban residents concerned about removal of open space, real estate value loss to neighboring areas, and traffic congestion.[91]

The Ecological Benefits of Suburbs: Land, Energy and Carbon

One concern with suburban expansion is the loss of agricultural land. That worry is largely unfounded: agricultural production is not threatened by urbanization, nor is the US overall in danger of running out of land. The material, food, and energy needs of a city are often produced in areas remote from the final consumption, and made possible by low-priced domestic and international transportation. Americans in northern locations would not be able to eat fresh fruit from southern climates without cheaply driven trucks, trains, planes, and processing.[92]

Another concern about traditional car-based suburbs relates to energy usage. Findings are mixed regarding the relationship between high energy usage and density, but the differences between suburbs and cities are not huge once all the energy components, such as elevators, common areas, and other urban infrastructure, are considered. The few studies that do account for a more complete life-cycle assessment of the goods and services flowing to an urban area do not find a significant difference between dense and less dense areas. A new life-cycle study finds that higher density and taller buildings do not reduce metropolitan greenhouse gas (GHG) emissions.[93]

One area that does appear to have consensus in the literature: the larger carbon footprint of suburban and exurban areas is due to more fossil-fuel sourced driving. On a per household basis, the National Highway Traffic Safety Administration reports that US households took 5.1 daily vehicular trips in 2017. The majority (65%) were for shopping, errands, and social/recreational trips. Many fewer trips were made for work, a trend likely to continue in the post-covid era of telecommuting. Even with a modest reduction of work trips, transportation is the largest source

of planet-warming greenhouse gases in the US, and according to the Environmental Protection Agency (EPA), nearly 60% of those emissions come from the country's millions of passenger cars, S.U.V.s and pickup trucks.[94]

How do we then reduce greenhouse gas emissions (GHGs) in car-based suburbs? Many commentators have argued that promoting higher density is the only way. But there are, fortunately, more effective and less expensive options to moving suburbanites into dense areas or forcing density in existing neighborhoods: developing energy efficient vehicles or renewable electricity sources. These might well generate larger reductions in emissions at lower cost, and with far less disruption to lives, than attempting to increase residential density.

Any new development, dense or not, will lead to increased carbon emissions. But architect Hugh Byrd's study based in Auckland, New Zealand shows how suburbs could be net positive energy generators that support their entire metropolitan regions. Byrd calculated that the rooftop potential for solar energy generation is far better in lower density areas because of greater available rooftop space, and that the highest density area was not suitable to energy generation at all. Thus, suburban areas could become the generators of renewable energy to scale a future metropolitan electric mobility network.[95]

Along with renewable energy platforms, autonomous driving and autonomous electric vehicles (AD and AEV) could further enhance GHG reductions. This will take several decades, because there are 285 million cars in the US, but only 14 million are retired each year.[96]

It can be done without increasing emissions, and even accommodate increased travel. California, for example, was able to grow while reducing air pollution, due to technological advances that reduced emissions in vehicles. So, the promise of a near-zero emissions AEV fleet has great potential.[97]

Ecological Opportunities for Suburbs

Dense urban development is extremely detrimental to ecological processes and is a major cause of the homogenization of living things, notes Urban Ecologist Michael McKinney. In contrast, suburbia's geographical heterogeneity offers environmental conditions that foster greater biodiversity than cities or even agricultural areas. Urban ecologists are now discovering that biodiversity (defined as species richness) actually peaks in suburban environments.[98]

Other ecologists have found similar results with butterflies, mammals, and birds. Ecologist Robert Blair, who has studied avian biodiversity in urban, suburban, and rural settings found that suburban sites have the highest levels of species richness when compared to both urban and rural sites.[99]

Metro areas are searching harder than ever for solutions to mitigate flooding. According to the National Oceanic and Atmospheric Administration (NOAA), 2016 and 2017 saw more billion-dollar

flooding events than any year in the previous four decades. As the result of urbanization processes––more permeable surfaces being paved over––and of higher precipitation events, the EPA estimates that excess stormwater impairs around 60,000 miles of rivers and streams, 767,000 acres of lakes, reservoirs, and ponds, and 17,000 square miles of bays and estuaries.

An M.I.T. research team has suggested that suburban residential neighborhoods be targeted for constructed wetlands, since half of the US wetlands lost over the last few decades were due to careless suburban development. Constructed wetlands––used extensively in developments around Houston––are a promising multifunctional, decentralized, and low-cost solution to storm-water problems and, more broadly, to mitigating precipitation due to climate change. Wetlands could also help organize and structure new suburban development. They could connect new places to older suburbs and downtowns via recreational trails, add highly desired open space, and bring new aesthetic and real estate value to surrounding areas.[100]

New research also shows the significance of residential landscape design choices and planting patterns. Suburban landscapes with mature trees, shrubs and undisturbed soil, and swaths of land with vegetative litter left in place, are likely to store more carbon.[101]

Looking Forward

My research group at M.I.T., a collaboration of transportation scientists, urban planners, and land-scape architects, has been studying how to integrate near-zero carbon transportation forms such as autonomous electric mobility platforms (AEVs, etc.) into the design of suburban communities.

Today's suburbs, particularly along the outer edges of metropolitan areas, tend to be car-based, low density communities with repetitive, single-family houses that rest on uniform, private lots set back from over-scaled roadways. (Figure 16, below)

Everything about the typical suburban community—with its land-use regulations designed to enforce homogeneity, wide streets, excessive parking lots, superfluous driveways and garages, and residential floor plan entry sequences—is based on the speeds, geometries, and material requirements of the car. Cars require an enormously wasteful investment in redundant infrastruc-ture. These design features have not changed meaningfully since the post-war housing boom that initially gave birth to the modern suburban era.

Figure 16 shows a traditional car-based US suburb. This is based on the national average of a 2,600 sq. ft. house (or 3,100 including two-car garage), using 2016 data. The drawing shows 44 homes on 81 acres, of which two homes are enlarged for scale to show roughly double the average size, at 4,000+ sq. ft. on double-size lots. Homes of this size make-up 11% of the homes built at that time. The local roadway space for cars, parking, and access lanes in suburban areas totals about 1,200 to 3,200 sq. ft. of pavement per capita.[102]

Many suburban areas devote more space to cars than to housing, creating tremendously wasteful, costly redundancies. For example, an aerial study of Sacramento, California showed the total percent-age of land in residential areas devoted to cars is 28%, rising to around 50% in commercial areas.[103]

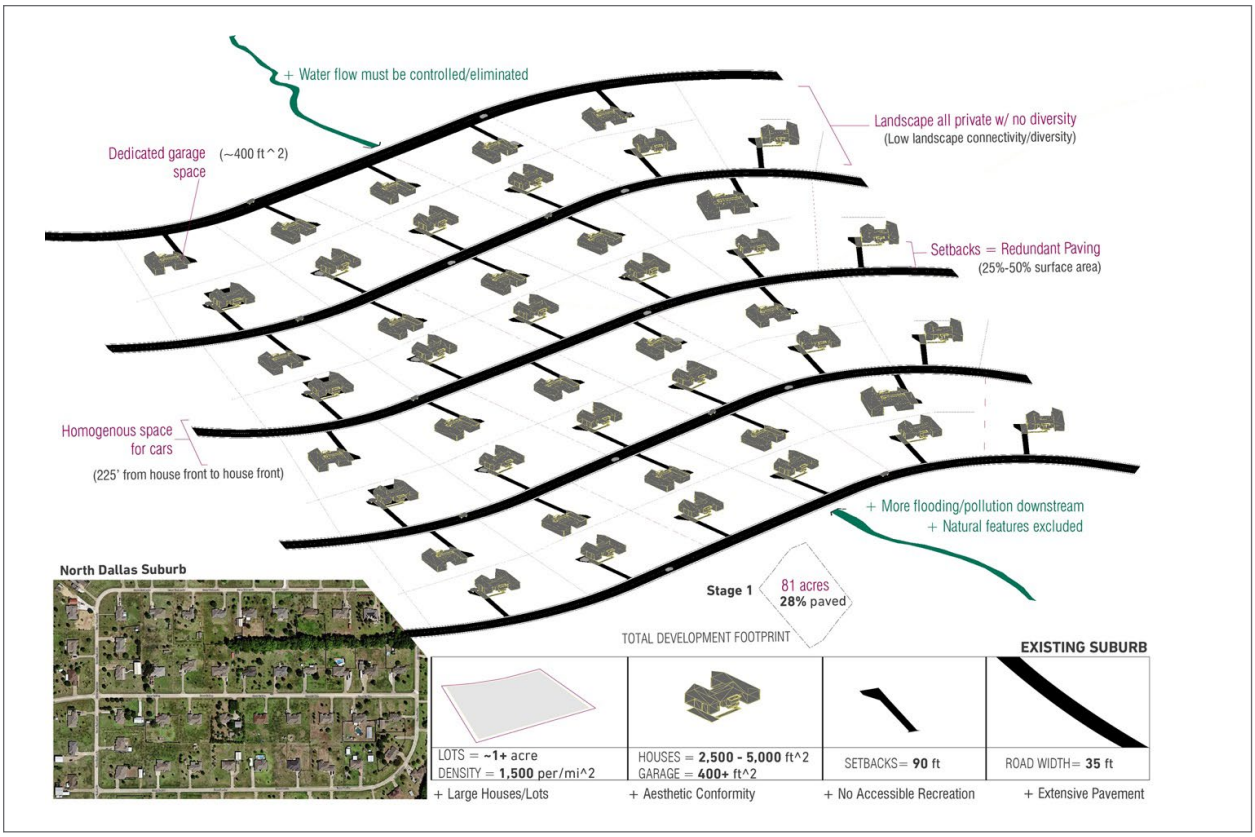

Figure 16. A traditional car-based suburb based on the US national average lot size, density, setback, and road dimensions. The diagram reveals wasteful paving and destructive landscape redundancies designed around the automobile.

The autonomous suburb of the future––one that is reliant on solar-powered, autonomous vehicles––reduces the amount of space needed for parking, which is oversupplied in the US: it occupies a spatial footprint larger than the state of Connecticut, with about four spaces for every car. The regulatory, planning, and demand factors that resulted in the enormous parking supply have changed little since the mid-20th Century.[104]

AV/AEVs could reduce these parking needs. One modeling study shows that parking lots can be reduced by 62% and accommodate the same number of vehicles if designed for AV/AEVs. AV/AEVs mixed with mobility-on-demand services could reduce parking in dense areas by 20% to 35%. Chandler, Arizona already allows developers to build less parking if they create passenger loading zones with attached amenity-laden waiting areas for ride-shares.[105]

Under the new land-use codes in Chandler, developers can reduce parking up to 40% if a parking demand study determines AV/AEV and ridesharing reduces demand.

Future autonomous suburbs will also be able to accommodate the growth of drone delivery networks, with a drone delivery pad for each house, which would drastically reduce household trips. Planning and design considerations for drone distribution hubs/warehouses would include roof ports, interfaces for trucks, obstruction-free surroundings, and buffers for noise disturbances.

Another option may transfer the warehousing function to aerial ports, as patented by Amazon and Wal-Mart. Modeling studies also indicate that a blended system of drones and trucks would deliver the best carbon emission reductions.[106]

Road design also would change in autonomous-optimized suburban development. The "clothoid" form, a type of smooth curve, has been shown to be an ideal shape for autonomous vehicle travel, given controllable speeds and turning radii. The clothoid (or alternative road forms) should be moldable enough to connect well to existing city grids, yet flexible enough to avoid ecologically sensitive areas. Autonomous vehicles will eliminate the need for street parking and parking lots, as they do not need to be stored near destinations. New space will be created for such uses as natural areas, parks, bikeways and other benefits.[107] (Figure 17)

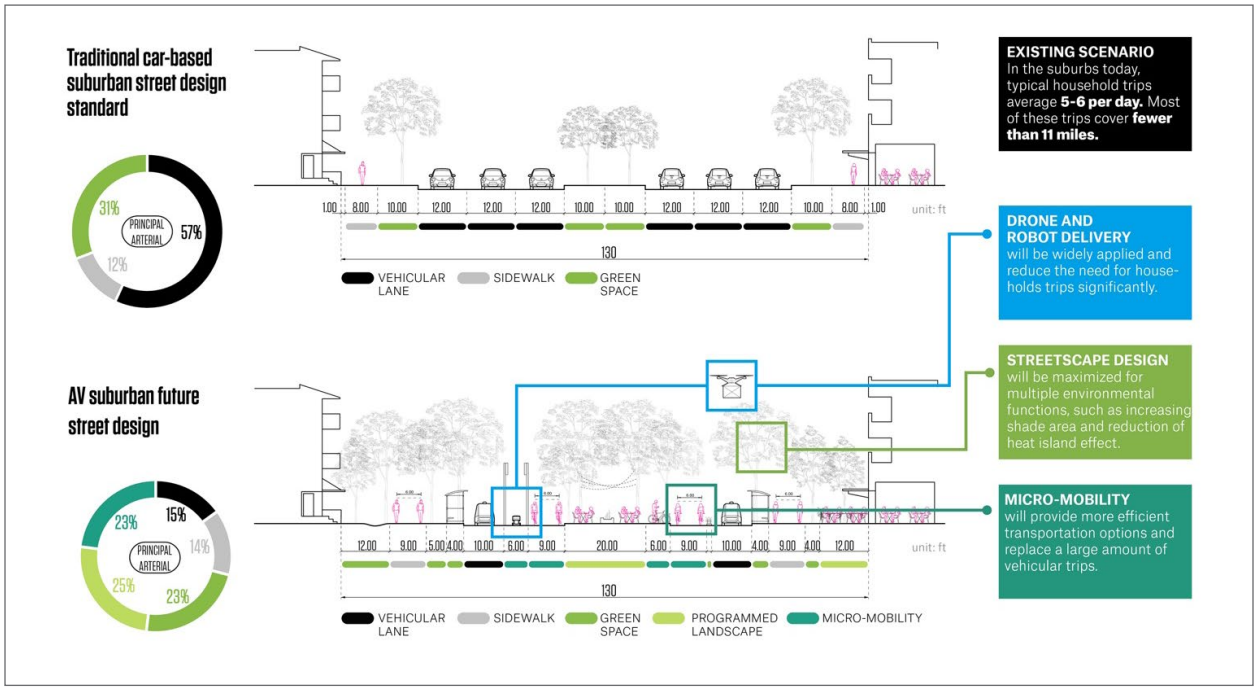

Figure 17. Top: Streetscape design for a traditional car-based suburb. Bottom: Streetscape design for a future autonomous suburb. For a typical multi-laned street, this could result in a roughly 50% reduction in standard traffic lanes.

The Future Autonomous Suburb

In the near future, with the electrification of drivetrains and the adoption of autonomous, driverless technologies, a radically different type of suburban landscape can be designed. These places will require far less road and parking surfaces, and use tree-lined, short-distance transportation networks. They would provide a dramatic increase in contiguous open space and stormwater capture potential. (Figure 18)

When this redesigned block concept is repeated to form a multi-block corridor, the new structure allows for a potential 50% increase in permeable surface area, which, if planted with trees, can

substantially decrease summer temperatures and increase carbon sequestration capacity by more than 300%, depending on the geographical location.[108] (Figure 19)

The new mobility options may also facilitate a more granular neighborhood fabric. In this scenario, autonomous delivery programs along with a more pedestrian-friendly environment and downscaled commercial amenities (no more big-box retail surrounded by oceans of parking) will contribute to a significant reduction in daily household trips. (Figure 20)

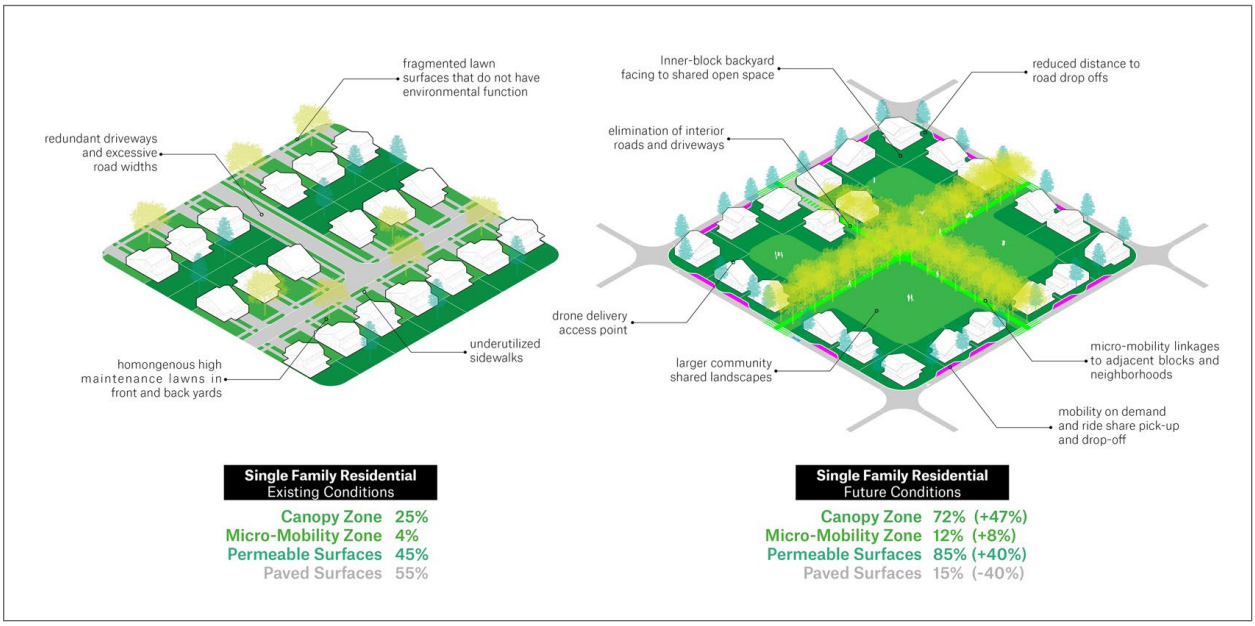

Figure 18. Prototypical traditional car-based suburban block for single-family detached zoning vs. the future, optimized AV suburb. In the AV suburb, homes on the same size block can be designed with 47% more tree canopy, 40% more permeable surfaces, and 40% less paving for vastly better environmental outcomes.

The autonomous suburb represents a potential breakthrough for the future. It allows for lower density mixed-use and single-family housing to thrive together, with less negative environmental impacts than previous generations of car-designed suburbs. Excessive amounts of paved surfaces engineered for cars in suburbs of the past can be converted to community uses and environment functions.

No longer will we have to choose between the community we desire and the needs of the environment.

Figure 19. Top: Prototypical traditional car-based suburban residential block configuration with minimal tree planting. Bottom: the future AV residential block with new micro-mobility and open space network, and integrated tree canopy areas planted around a clustered housing configuration that replaces redundant paving with consolidated pick-up/drop-off points for each cluster.

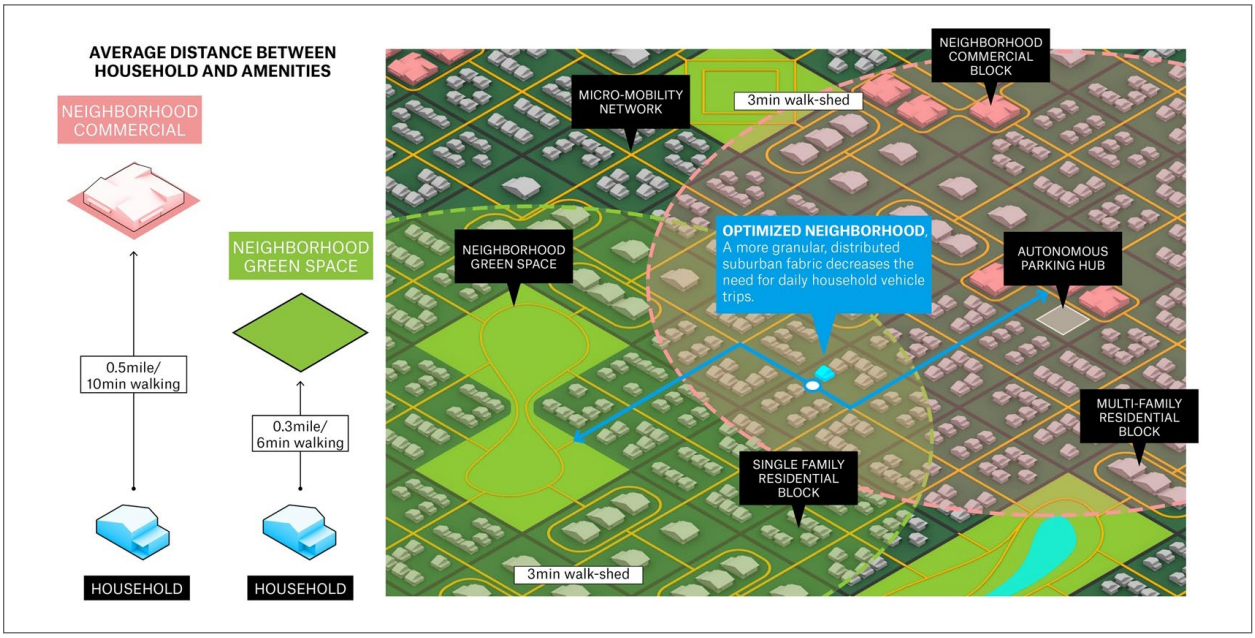

Figure 20. The future AV suburban area should not be single-use zoning, but rather a smaller scale, mixed-use community, ideally created for 3-to-10-minute walksheds that promote alternatives to using cars for every errand. Cars will be stored and charged in shared AV parking hubs. A better blend of private/public landscape spaces provides backyards and community parks close to each home, which is highly desirable in the post-Covid work-from-home era. Household trips will be greatly reduced in this design scenario.

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Table 1
50 HIGHEST GROWTH COUNTIES: BASIC DATA

Rank	County	State	CSA or MSA	POPULATION 2015	POPULATION 2020	POPULATION 2015-20	POPULATION Change	NET DOMESTIC MIGRATION 2015-20	NET DOMESTIC MIGRATION 2015-20
TOTALS				14,787,173	16,945,122	2,157,949	14.6%	1,804,182	12.20%
1	St. Johns County	Florida	Jacksonville-St. Marys-Palatka, FL-GA	226,582	278,715	52,133	23.0%	50,509	22.29%
2	Hays County	Texas	Austin-Round Rock-Georgetown, TX	194,588	241,365	46,777	24.0%	37,771	19.41%
3	Williamson County	Texas	Austin-Round Rock-Georgetown, TX	507,728	617,855	110,127	21.7%	86,422	17.02%
4	Charlotte County	Florida	North Port-Sarasota, FL	172,607	194,711	22,104	12.8%	29,138	16.88%
5	Washington County	Utah	OUTSIDE: Near Las Vegas	154,839	184,913	30,074	19.4%	25,809	16.67%
6	Pinal County	Arizona	Phoenix-Mesa, AZ	405,922	480,828	74,906	18.5%	66,016	16.26%
7	Lake County	Florida	Orlando-Lakeland-Deltona, FL	325,338	375,492	50,154	15.4%	51,576	15.85%
8	Pasco County	Florida	Tampa-St. Petersburg-Clearwater, FL	495,130	570,412	75,282	15.2%	77,373	15.63%
9	Deschutes County	Oregon	OUTSIDE: Near Portland	174,392	201,769	27,377	15.7%	25,960	14.89%
10	Citrus County	Florida	OUTSIDE: Near Tampa-St. Petersburg, Orlando	140,397	153,010	12,613	9.0%	20,446	14.56%
11	Ellis County	Texas	Dallas-Fort Worth, TX-OK	163,331	191,760	28,429	17.4%	23,751	14.54%
12	Hernando County	Florida	Tampa-St. Petersburg-Clearwater, FL	178,036	198,792	20,756	11.7%	25,794	14.49%
13	Forsyth County	Georgia	Atlanta--Athens-Clarke County--Sandy Springs, GA-AL	211,368	250,847	39,479	18.7%	30,416	14.39%
14	Johnston County	North Carolina	Raleigh-Durham-Cary, NC	185,130	216,246	31,116	16.8%	26,177	14.14%
15	Kootenai County	Idaho	Spokane-Spokane Valley-Coeur d'Alene, WA-ID	149,566	170,628	21,062	14.1%	19,975	13.36%
16	York County	South Carolina	Charlotte-Concord, NC-SC	250,785	289,105	38,320	15.3%	33,263	13.26%
17	Sussex County	Delaware	OUTSIDE: Near Philadelphia, Washington, Baltimore	214,828	241,635	26,807	12.5%	28,274	13.16%
18	Manatee County	Florida	North Port-Sarasota, FL	362,821	411,219	48,398	13.3%	47,728	13.15%
19	Denton County	Texas	Dallas-Fort Worth, TX-OK	778,799	919,324	140,525	18.0%	100,211	12.87%
20	Montgomery County	Texas	Houston-The Woodlands, TX	535,913	626,351	90,438	16.9%	68,281	12.74%
21	Williamson County	Tennessee	Nashville-Davidson--Murfreesboro, TN	211,713	245,348	33,635	15.9%	26,774	12.65%
22	St. Lucie County	Florida	Miami-Port St. Lucie-Fort Lauderdale, FL	297,471	337,186	39,715	13.4%	37,539	12.62%
23	Baldwin County	Alabama	Mobile-Daphne-Fairhope, AL	203,101	229,287	26,186	12.9%	25,478	12.54%
24	Santa Rosa County	Florida	Pensacola-Ferry Pass, FL-AL	166,451	189,139	22,688	13.6%	20,838	12.52%
25	Polk County	Florida	Orlando-Lakeland-Deltona, FL	648,823	744,552	95,729	14.8%	80,452	12.40%
26	Indian River County	Florida	Miami-Port St. Lucie-Fort Lauderdale, FL	147,547	162,518	14,971	10.1%	18,290	12.40%
27	Berkeley County	South Carolina	Charleston-North Charleston, SC	203,313	235,987	32,674	16.1%	24,844	12.22%
28	Weld County	Colorado	Denver-Aurora, CO	286,493	333,983	47,490	16.6%	33,953	11.85%
29	Yavapai County	Arizona	OUTSIDE: Near Phoenix	221,019	240,226	19,207	8.7%	25,559	11.56%
30	Paulding County	Georgia	Atlanta--Athens-Clarke County--Sandy Springs, GA-AL	151,691	173,359	21,668	14.3%	16,804	11.08%
31	Canyon County	Idaho	Boise City-Mountain Home-Ontario, ID-OR	206,956	237,053	30,097	14.5%	22,684	10.96%
32	Collin County	Texas	Dallas-Fort Worth, TX-OK	915,014	1,072,069	157,055	17.2%	99,949	10.92%
33	Marion County	Florida	OUTSIDE: Near Tampa-St. Petersburg, Orlando, Jacksonville	342,388	373,513	31,125	9.1%	37,218	10.87%
34	Guadalupe County	Texas	San Antonio-New Braunfels-Pearsall, TX	150,608	170,608	20,000	13.3%	16,328	10.84%
35	Johnson County	Texas	Dallas-Fort Worth, TX-OK	159,346	179,575	20,229	12.7%	16,708	10.49%
36	Cabarrus County	North Carolina	Charlotte-Concord, NC-SC	196,483	221,479	24,996	12.7%	19,696	10.02%

38	Mohave County	Arizona	OUTSIDE: Near: Las Vegas	204,890	217,206	12,316	6.0%	20,389	9.95%
39	Sumner County	Tennessee	Nashville-Davidson--Murfreesboro, TN	175,467	195,561	20,094	11.5%	17,172	9.79%
40	Volusia County	Florida	Orlando-Lakeland-Deltona, FL	517,144	561,497	44,353	8.6%	50,435	9.75%
41	Fort Bend County	Texas	Houston-The Woodlands, TX	715,260	839,706	124,446	17.4%	68,955	9.64%
42	Rutherford County	Tennessee	Nashville-Davidson--Murfreesboro, TN	298,401	339,261	40,860	13.7%	28,744	9.63%
43	Cherokee County	Georgia	Atlanta--Athens-Clarke County--Sandy Springs, GA-AL	235,424	265,274	29,850	12.7%	22,566	9.59%
44	Brevard County	Florida	Palm Bay-Melbourne-Titusville, FL	566,133	608,459	42,326	7.5%	49,640	8.77%
45	Spartanburg County	South Carolina	Greenville-Spartanburg-Anderson, SC	296,741	326,205	29,464	9.9%	25,143	8.47%
46	Osceola County	Florida	Orlando-Lakeland-Deltona, FL	323,860	385,315	61,455	19.0%	27,288	8.43%
47	Alamance County	North Carolina	Greensboro--Winston-Salem--High Point, NC	157,104	171,346	14,242	9.1%	13,094	8.33%
48	Iredell County	North Carolina	Charlotte-Concord, NC-SC	169,592	185,770	16,178	9.5%	13,977	8.24%
49	Henry County	Georgia	Atlanta--Athens-Clarke County--Sandy Springs, GA-AL	216,548	239,139	22,591	10.4%	17,711	8.18%
50	Douglas County	Colorado	Denver-Aurora, CO	322,333	360,750	38,417	11.9%	25,981	8.06%

Source: Census Bureau data

OUTSIDE CSA/MSA: County is not within a CSA/MSA over 500,000 population.

Table 2

50 HIGHEST GROWTH COUNTIES: RACIAL & ETHNIC DATA

Rank	County, State	2019: RACE & ETHNICITY				2015: RACE & ETHNICITY				CHANGE: 2015-2019					SHARE OF CHANGE: 2015-2019				CHANGE: 2015-2019			
		WNH	AA	Asian	Hispanic	WNH	AA	Asian	Hispanic	WNH	AA	Asian	Hispanic	Total	WNH	AA	Asian	Hispanic	WNH	AA	AS	HISP
TOTALS		10,692,136	1,686,877	776,862	2,863,685	10,027,110	1,475,123	611,502	2,364,761	665,026	211,754	165,360	498,924	1,541,064	43.2%	13.7%	10.7%	32.4%	6.6%	14.4%	27.0%	21.1%
1	St. Johns County, Florida	215,871	15,216	6,379	19,759	189,151	13,284	7,032	14,404	26,720	1,932	(653)	5,355	33,354	80.1%	5.8%	-2.0%	16.1%	14.1%	14.5%	-9.3%	37.2%
2	Hays County, Texas	120,713	9,776	3,279	92,274	107,792	9,387	3,498	73,180	12,921	389	(219)	19,094	32,185	40.1%	1.2%	-0.7%	59.3%	12.0%	4.1%	-6.3%	26.1%
3	Williamson County, Texas	342,254	40,399	44,897	146,602	309,737	32,210	31,068	122,527	32,517	8,189	13,829	24,075	78,610	41.4%	10.4%	17.6%	30.6%	10.5%	25.4%	44.5%	19.6%
4	Charlotte County, Florida	158,224	10,244	2,523	14,591	146,247	9,820	2,183	11,796	11,977	424	340	2,795	15,536	77.1%	2.7%	2.2%	18.0%	8.2%	4.3%	15.6%	23.7%
5	Washington County, Utah	148,785	1,498	1,186	19,318	131,841	1,343	817	15,759	16,944	155	369	3,559	21,027	80.6%	0.7%	1.8%	16.9%	12.9%	11.5%	45.2%	22.6%
6	Pinal County, Arizona	259,125	21,264	6,642	142,276	234,617	17,831	6,433	119,001	24,508	3,433	209	23,275	51,425	47.7%	6.7%	0.4%	45.3%	10.4%	19.3%	3.2%	19.6%
7	Lake County, Florida	249,615	39,377	7,842	61,388	232,464	32,429	5,719	47,055	17,151	6,948	2,123	14,333	40,555	42.3%	17.1%	5.2%	35.3%	7.4%	21.4%	37.1%	30.5%
8	Pasco County, Florida	402,218	33,988	14,880	91,616	379,345	27,792	12,256	69,900	22,873	6,196	2,624	21,716	53,409	42.8%	11.6%	4.9%	40.7%	6.0%	22.3%	21.4%	31.1%
9	Deschutes County, Oregon	171,029	1,355	2,762	16,324	153,674	1,128	1,805	13,832	17,355	227	957	2,492	21,031	82.5%	1.1%	4.6%	11.8%	11.3%	20.1%	53.0%	18.0%
10	Citrus County, Florida	130,458	5,014	2,561	9,166	124,719	4,043	2,301	7,531	5,739	971	260	1,635	8,605	66.7%	11.3%	3.0%	19.0%	4.6%	24.0%	11.3%	21.7%
11	Ellis County, Texas	108,813	20,038	844	49,705	102,422	16,441	1,061	41,708	6,391	3,597	(217)	7,997	17,768	36.0%	20.2%	-1.2%	45.0%	6.2%	21.9%	-20.5%	19.2%
12	Hernando County, Florida	147,308	11,013	1,931	28,776	141,267	9,660	2,204	21,458	6,041	1,353	(273)	7,318	14,439	41.8%	9.4%	-1.9%	50.7%	4.3%	14.0%	-12.4%	34.1%
13	Forsyth County, Georgia	167,871	9,585	35,925	23,606	159,092	6,402	21,652	20,399	8,779	3,183	14,273	3,207	29,442	29.8%	10.8%	48.5%	10.9%	5.5%	49.7%	65.9%	15.7%
14	Johnston County, North Carolina	139,688	34,923	2,028	29,475	127,385	30,183	1,088	24,845	12,303	4,740	940	4,630	22,613	54.4%	21.0%	4.2%	20.5%	9.7%	15.7%	86.4%	18.6%
15	Kootenai County, Idaho	149,586	340	1,971	8,187	136,611	387	937	6,558	12,975	(47)	1,034	1,629	15,591	83.2%	-0.3%	6.6%	10.4%	9.5%	-12.1%	110.4%	24.8%
16	York County, South Carolina	195,819	53,790	7,068	16,642	179,113	49,189	5,115	12,744	16,706	4,601	1,953	3,898	27,158	61.5%	16.9%	7.2%	14.4%	9.3%	9.4%	38.2%	30.6%
17	Sussex County, Delaware	175,136	28,824	3,339	21,780	160,511	25,598	2,697	20,408	14,625	3,226	642	1,372	19,865	73.6%	16.2%	3.2%	6.9%	9.1%	12.6%	23.8%	6.7%
18	Manatee County, Florida	283,494	36,200	8,590	68,094	260,580	33,227	7,645	58,100	22,914	2,973	945	9,994	36,826	62.2%	8.1%	2.6%	27.1%	8.8%	8.9%	12.4%	17.2%
19	Denton County, Texas	510,935	89,107	84,816	173,905	474,531	75,611	62,543	149,823	36,404	13,496	22,273	24,082	96,255	37.8%	14.0%	23.1%	25.0%	7.7%	17.8%	35.6%	16.1%
20	Montgomery County, Texas	390,671	31,579	18,788	152,837	363,791	23,220	14,434	124,265	26,880	8,359	4,354	28,572	68,165	39.4%	12.3%	6.4%	41.9%	7.4%	36.0%	30.2%	23.0%
21	Williamson County, Tennessee	199,559	8,940	10,989	11,724	180,666	10,365	8,467	10,092	18,893	(1,425)	2,522	1,632	21,622	87.4%	-6.6%	11.7%	7.5%	10.5%	-13.7%	29.8%	16.2%
22	St. Lucie County, Florida	183,442	64,013	6,945	65,310	176,048	57,621	6,434	53,323	7,394	6,392	511	11,987	26,284	28.1%	24.3%	1.9%	45.6%	4.2%	11.1%	7.9%	22.5%
23	Baldwin County, Alabama	185,180	18,338	2,160	10,534	168,668	23,049	303	9,268	16,512	(4,711)	1,857	1,266	14,924	110.6%	-31.6%	12.4%	8.5%	9.8%	-20.4%	612.9%	13.7%
24	Santa Rosa County, Florida	150,939	11,268	4,445	10,858	137,624	8,081	3,159	9,000	13,315	3,187	1,286	1,858	19,646	67.8%	16.2%	6.5%	9.5%	9.7%	39.4%	40.7%	20.6%
25	Polk County, Florida	410,125	110,868	13,001	178,402	397,044	98,182	11,084	133,079	13,081	12,686	1,917	45,323	73,007	17.9%	17.4%	2.6%	62.1%	3.3%	12.9%	17.3%	34.1%
26	Indian River County, Florida	119,481	15,496	1,688	20,383	112,446	13,365	1,862	17,846	7,035	2,131	(174)	2,537	11,529	61.0%	18.5%	-1.5%	22.0%	6.3%	15.9%	-9.3%	14.2%
27	Berkeley County, South Carolina	142,638	54,804	5,306	15,903	129,011	49,660	4,291	12,525	13,627	5,144	1,015	3,378	23,164	58.8%	22.2%	4.4%	14.6%	10.6%	10.4%	23.7%	27.0%
28	Weld County, Colorado	210,494	4,242	4,719	97,348	189,478	2,742	4,172	82,786	21,016	1,500	547	14,562	37,625	55.9%	4.0%	1.5%	38.7%	11.1%	54.7%	13.1%	17.6%
29	Yavapai County, Arizona	188,004	2,020	2,543	34,642	178,997	1,082	2,243	32,023	9,007	938	300	2,619	12,864	70.0%	7.3%	2.3%	20.4%	5.0%	86.7%	13.4%	8.2%
30	Paulding County, Georgia	115,405	31,020	2,404	11,906	111,139	25,413	2,441	8,876	4,266	5,607	(37)	3,030	12,866	33.2%	43.6%	-0.3%	23.6%	3.8%	22.1%	-1.5%	34.1%
31	Canyon County, Idaho	160,050	1,063	2,428	58,947	147,204	563	1,607	51,369	12,846	500	821	7,578	21,745	59.1%	2.3%	3.8%	34.8%	8.7%	88.8%	51.1%	14.8%
32	Collin County, Texas	569,126	106,861	168,405	160,636	541,468	85,968	125,839	138,810	27,658	20,893	42,566	21,826	112,943	24.5%	18.5%	37.7%	19.3%	5.1%	24.3%	33.8%	15.7%
33	Marion County, Florida	253,721	48,342	4,194	51,636	246,157	45,593	5,893	41,785	7,564	2,749	(1,699)	9,851	18,465	41.0%	14.9%	-9.2%	53.3%	3.1%	6.0%	-28.8%	23.6%
34	Guadalupe County, Texas	82,026	14,668	2,211	64,251	77,749	11,383	2,465	56,499	4,277	3,285	(254)	7,752	15,060	28.4%	21.8%	-1.7%	51.5%	5.5%	28.9%	-10.3%	13.7%
35	Johnson County, Texas	122,975	8,127	1,893	39,763	116,814	6,050	591	32,766	6,161	2,077	1,302	6,997	16,537	37.3%	12.6%	7.9%	42.3%	5.3%	34.3%	220.3%	21.4%
36	Cabarrus County, North Carolina	136,079	40,511	9,020	24,034	133,958	35,165	6,041	19,837	2,121	5,346	2,979	4,197	14,643	14.5%	36.5%	20.3%	28.7%	1.6%	15.2%	49.3%	21.2%
37	Benton County, Arkansas	202,658	4,371	10,818	47,630	185,212	4,698	8,876	40,834	17,446	(327)	1,942	6,796	25,857	67.5%	-1.3%	7.5%	26.3%	9.4%	-7.0%	21.9%	16.6%
38	Mohave County, Arizona	162,524	1,496	1,923	35,919	158,047	2,453	2,743	33,111	4,477	(957)	(820)	2,808	5,508	81.3%	-17.4%	-14.9%	51.0%	2.8%	-39.0%	-29.9%	8.5%
39	Sumner County, Tennessee	158,654	15,485	3,487	10,147	149,073	11,293	2,087	7,880	9,581	4,192	1,400	2,267	17,440	54.9%	24.0%	8.0%	13.0%	6.4%	37.1%	67.1%	28.8%
40	Volusia County, Florida	390,405	58,899	10,431	82,949	378,698	56,739	9,120	65,746	11,707	2,160	1,311	17,203	32,381	36.2%	6.7%	4.0%	53.1%	3.1%	3.8%	14.4%	26.2%
41	Fort Bend County, Texas	258,470	164,866	164,074	202,492	247,234	150,245	139,855	172,672	11,236	14,621	24,219	29,820	79,896	14.1%	18.3%	30.3%	37.3%	4.5%	9.7%	17.3%	17.3%
42	Rutherford County, Tennessee	229,075	50,241	13,065	28,850	216,765	41,011	9,592	22,246	12,310	9,230	3,473	6,604	31,617	38.9%	29.2%	11.0%	20.9%	5.7%	22.5%	36.2%	29.7%
43	Cherokee County, Georgia	199,322	19,696	4,634	28,607	187,650	15,368	4,229	23,827	11,672	4,328	405	4,780	21,185	55.1%	20.4%	1.9%	22.6%	6.2%	28.2%	9.6%	20.1%
44	Brevard County, Florida	443,227	53,058	15,018	65,612	427,777	57,147	12,952	54,828	15,450	(4,089)	2,066	10,784	24,211	63.8%	-16.9%	8.5%	44.5%	3.6%	-7.2%	16.0%	19.7%
45	Spartanburg County, South Carolin	216,693	65,752	8,364	23,303	204,010	60,907	7,227	19,413	12,683	4,845	1,137	3,890	22,555	56.2%	21.5%	5.0%	17.2%	6.2%	8.0%	15.7%	20.0%
46	Osceola County, Florida	112,099	45,340	10,167	209,796	111,965	36,530	8,414	165,344	134	8,810	1,753	44,452	55,149	0.2%	16.0%	3.2%	80.6%	0.1%	24.1%	20.8%	26.9%
47	Alamance County, North Carolina	106,519	34,307	3,008	22,130	102,675	29,618	2,643	19,651	3,844	4,689	365	2,479	11,377	33.8%	41.2%	3.2%	21.8%	3.7%	15.8%	13.8%	12.6%
48	Iredell County, North Carolina	136,913	20,825	5,102	14,603	129,439	21,451	4,317	12,583	7,474	(626)	785	2,020	9,653	77.4%	-6.5%	8.1%	20.9%	5.8%	-2.9%	18.2%	16.1%
49	Henry County, Georgia	93,773	112,316	7,704	16,983	101,757	89,920	6,668	14,093	(7,984)	22,396	1,036	2,890	18,338	-43.5%	122.1%	5.6%	15.8%	-7.8%	24.9%	15.5%	20.5%
50	Douglas County, Colorado	284,947	6,114	18,465	32,066	267,447	4,276	13,399	27,356	17,500	1,838	5,066	4,710	29,114	60.1%	6.3%	17.4%	16.2%	6.5%	43.0%	37.8%	17.2%

Source: Census Bureau data

Table 3
50 HIGHEST GROWTH COUNTIES: AGE DATA

		AGE 25-34					SENIOR CITIZENS (65+)						AGED 5-17 CHILDREN PER HOUSEHOLD: 2019		
Rank	County, State	2015	2019	% of Total	Change	Relative	2015	2019	% of Total	Change	Relative	Senior?	Households	Children	Per Hhld
TOTALS		1,763,174	2,005,351	12.2%	13.7%	9.5%	2,486,434	2,970,455	18.0%	19.5%	5.5%		4,283,049	2,816,724	0.658
1	St. Johns County, Florida	23,981	23,330	10.3%	-2.7%	-6.3%	41,514	55,242	24.4%	33.1%	17.5%	0	78,695	45,046	0.572
2	Hays County, Texas	27,054	31,916	16.4%	18.0%	13.6%	19,939	25,657	13.2%	28.7%	13.6%	0	49,386	39,097	0.792
3	Williamson County, Texas	69,996	82,727	16.3%	18.2%	13.8%	57,273	73,213	14.4%	27.8%	12.8%	0	127,124	111,685	0.879
4	Charlotte County, Florida	11,675	14,987	8.7%	28.4%	23.6%	66,546	77,915	45.0%	17.1%	3.4%	1	62,695	17,062	0.272
5	Washington County, Utah	17,362	20,411	13.1%	17.6%	13.2%	30,912	39,235	25.2%	26.9%	12.0%	1	45,516	33,753	0.742
6	Pinal County, Arizona	53,156	60,718	14.9%	14.2%	10.0%	77,986	95,666	23.5%	22.7%	8.3%	0	120,045	77,083	0.642
7	Lake County, Florida	33,043	39,087	12.0%	18.3%	13.9%	85,252	98,904	30.4%	16.0%	2.4%	1	102,101	52,709	0.516
8	Pasco County, Florida	52,537	60,791	12.2%	15.7%	11.4%	112,631	125,406	25.2%	11.3%	-1.7%	1	159,385	83,592	0.524
9	Deschutes County, Oregon	20,556	24,463	14.0%	19.0%	14.6%	33,698	40,670	23.2%	20.7%	6.5%	0	54,130	30,640	0.566
10	Citrus County, Florida	10,632	12,271	8.7%	15.4%	11.2%	50,943	55,390	39.3%	8.7%	-4.0%	1	53,473	16,050	0.300
11	Ellis County, Texas	20,775	22,799	13.9%	9.7%	5.7%	20,070	23,269	14.2%	15.9%	2.3%	0	47,805	36,440	0.762
12	Hernando County, Florida	16,961	19,730	11.1%	16.3%	12.0%	49,322	53,268	29.9%	8.0%	-4.7%	1	63,644	27,258	0.428
13	Forsyth County, Georgia	21,066	22,546	10.6%	7.0%	3.1%	23,862	30,475	14.3%	27.7%	12.7%	0	69,327	51,560	0.744
14	Johnston County, North Carolina	20,023	24,528	13.2%	22.5%	18.0%	24,254	27,663	14.9%	14.1%	0.7%	0	54,042	39,512	0.731
15	Kootenai County, Idaho	19,359	20,618	13.7%	6.5%	2.6%	26,344	32,082	21.3%	21.8%	7.5%	0	45,183	28,279	0.626
16	York County, South Carolina	30,956	35,852	14.3%	15.8%	11.5%	33,199	42,057	16.7%	26.7%	11.8%	0	75,855	50,929	0.671
17	Sussex County, Delaware	21,851	22,491	10.4%	2.9%	-0.9%	54,120	67,796	31.4%	25.3%	10.6%	1	78,546	31,892	0.406
18	Manatee County, Florida	36,905	41,082	11.3%	11.3%	7.2%	94,092	113,970	31.4%	21.1%	6.9%	1	111,853	53,999	0.483
19	Denton County, Texas	117,188	131,152	16.8%	11.9%	7.8%	70,983	94,076	12.1%	32.5%	17.0%	0	201,627	161,031	0.799
20	Montgomery County, Texas	66,968	75,709	14.1%	13.1%	8.9%	66,201	81,311	15.1%	22.8%	8.4%	0	149,814	118,137	0.789
21	Williamson County, Tennessee	18,338	20,472	9.7%	11.6%	7.5%	25,585	32,208	15.2%	25.9%	11.1%	0	69,642	50,889	0.731
22	St. Lucie County, Florida	34,366	36,644	12.3%	6.6%	2.7%	68,211	81,133	27.2%	18.9%	5.0%	1	88,743	47,698	0.537
23	Baldwin County, Alabama	23,734	24,401	12.0%	2.8%	-1.0%	39,981	47,688	23.4%	19.3%	5.3%	1	65,297	36,287	0.556
24	Santa Rosa County, Florida	22,378	24,795	14.8%	10.8%	6.7%	24,558	31,248	18.7%	27.2%	12.3%	0	49,872	29,670	0.595
25	Polk County, Florida	81,168	95,470	14.7%	17.6%	13.3%	127,409	149,025	22.9%	17.0%	3.2%	0	165,489	117,513	0.710
26	Indian River County, Florida	12,512	15,260	10.3%	22.0%	17.5%	45,613	54,727	37.0%	20.0%	5.9%	1	49,409	20,017	0.405
27	Berkeley County, South Carolina	31,277	34,458	17.0%	10.2%	6.1%	25,953	31,802	15.7%	22.5%	8.2%	0	56,964	40,111	0.704
28	Weld County, Colorado	41,568	49,494	17.4%	19.1%	14.7%	32,494	40,855	14.3%	25.7%	11.0%	0	81,888	61,628	0.753
29	Yavapai County, Arizona	20,241	19,717	8.9%	-2.6%	-6.2%	64,274	77,130	34.7%	20.0%	5.9%	1	72,672	27,946	0.385
30	Paulding County, Georgia	19,008	20,199	13.3%	6.3%	2.3%	14,958	17,883	11.7%	19.6%	5.5%	0	43,699	33,354	0.763
31	Canyon County, Idaho	26,227	31,419	15.1%	19.8%	15.4%	26,641	32,652	15.7%	22.6%	8.2%	0	55,994	47,886	0.855
32	Collin County, Texas	116,004	132,326	14.5%	14.1%	9.9%	92,088	116,575	12.8%	26.6%	11.7%	0	227,747	202,479	0.889
33	Marion County, Florida	35,340	39,613	11.5%	12.1%	8.0%	97,275	106,950	31.2%	9.9%	-2.9%	1	104,152	49,381	0.474
34	Guadalupe County, Texas	19,125	21,605	14.3%	13.0%	8.8%	19,747	23,182	15.3%	17.4%	3.6%	0	42,881	31,232	0.728
35	Johnson County, Texas	19,205	22,064	13.8%	14.9%	10.7%	21,718	25,007	15.6%	15.1%	1.6%	0	42,639	34,541	0.810
36	Cabarrus County, North Carolina	22,448	29,190	14.8%	30.0%	25.2%	25,664	30,519	15.5%	18.9%	5.0%	0	50,749	41,401	0.816
37	Benton County, Arkansas	35,204	41,123	16.5%	16.8%	12.5%	32,732	38,185	15.3%	16.7%	3.0%	0	68,376	54,982	0.804
38	Mohave County, Arizona	20,344	20,109	9.8%	-1.2%	-4.8%	56,316	65,827	32.2%	16.9%	3.2%	1	65,788	26,608	0.404
39	Sumner County, Tennessee	20,387	23,312	13.2%	14.3%	10.1%	26,597	30,839	17.5%	15.9%	2.4%	0	51,747	33,421	0.646
40	Volusia County, Florida	58,333	65,058	12.6%	11.5%	7.4%	123,180	137,196	26.5%	11.4%	-1.7%	1	157,050	70,630	0.450
41	Fort Bend County, Texas	89,480	95,950	13.4%	7.2%	3.3%	70,796	94,199	13.2%	33.1%	17.5%	0	196,119	167,566	0.854
42	Rutherford County, Tennessee	41,608	46,301	15.5%	11.3%	7.2%	29,080	35,755	12.0%	23.0%	8.5%	0	72,513	60,091	0.829
43	Cherokee County, Georgia	27,439	32,323	13.7%	17.8%	13.5%	29,324	38,347	16.3%	30.8%	15.4%	0	69,351	47,623	0.687
44	Brevard County, Florida	60,580	70,135	12.3%	15.8%	11.5%	130,756	145,774	25.7%	11.5%	-1.6%	1	178,306	82,029	0.460
45	Spartanburg County, South Carolina	36,742	43,317	14.6%	17.9%	13.5%	46,163	51,888	17.5%	12.4%	-0.8%	0	87,991	54,030	0.614
46	Osceola County, Florida	44,795	52,744	16.3%	17.7%	13.4%	41,851	50,781	15.7%	21.3%	7.1%	0	69,399	68,030	0.980
47	Alamance County, North Carolina	18,784	21,436	13.5%	14.1%	9.9%	26,026	29,060	18.4%	11.7%	-1.4%	0	44,067	27,399	0.622
48	Iredell County, North Carolina	18,365	21,523	12.7%	17.2%	12.9%	25,294	28,554	16.8%	12.9%	-0.4%	0	50,487	31,806	0.630

49	Henry County, Georgia	24,150	28,384	13.0%	17.5%	13.2%	23,450	28,010	12.9%	19.4%	5.4%	0	52,756	46,129	0.874
50	Douglas County, Colorado	31,980	39,301	12.2%	22.9%	18.4%	33,559	44,191	13.7%	31.7%	16.2%	0	101,016	68,593	0.679

Source: Census Bureau data
Relative: Adjusted for national growth
Senior?: 1=High share of senior citizen population (30%+ higher than the national average)

Table 4
50 HIGHEST GROWTH COUNTIES: FOREIGN BORN & JOB DATA

		FOREIGN BORN POPULATION					COUNTY JOBS			CSA JOBS		
	County, State	2015	2019	% of Total	Change	Relative				Jobs: 2015	Jobs:2019	Change
TOTALS		1,603,132	1,908,099	11.6%	19.0%	14.7%	4,497,749	5,173,461	15.0%			
1	St. Johns County, Florida	17,728	19,458	7.4%	9.8%	5.7%	66,461	79,214	19.2%	646,393	719,868	11.4%
2	Hays County, Texas	17,069	19,908	8.6%	16.6%	12.4%	60,654	73,371	21.0%	923,098	1,062,305	15.1%
3	Williamson County, Texas	60,569	79,290	13.4%	30.9%	26.1%	150,953	181,546	20.3%	923,098	1,062,305	15.1%
4	Charlotte County, Florida	20,769	21,510	11.4%	3.6%	-0.2%	44,757	48,722	8.9%	327,355	360,649	10.2%
5	Washington County, Utah	7,141	10,720	6.0%	50.1%	44.6%	56,348	69,835	23.9%	-	-	Note
6	Pinal County, Arizona	41,273	39,275	8.5%	-4.8%	-8.3%	57,552	63,101	9.6%	1,889,407	2,140,333	13.3%
7	Lake County, Florida	25,377	39,931	10.9%	57.4%	51.6%	89,592	101,311	13.1%	1,529,736	1,737,090	13.6%
8	Pasco County, Florida	50,705	57,216	10.3%	12.8%	8.7%	108,451	121,741	12.3%	1,200,179	1,314,522	9.5%
9	Deschutes County, Oregon	8,032	9,105	4.6%	13.4%	9.2%	72,423	85,372	17.9%	-	-	Note
10	Citrus County, Florida	8,298	8,814	5.9%	6.2%	2.3%	31,799	32,436	2.0%	-	-	Note
11	Ellis County, Texas	12,809	14,192	7.7%	10.8%	6.7%	46,860	52,681	12.4%	3,397,560	3,758,358	10.6%
12	Hernando County, Florida	12,261	11,546	6.0%	-5.8%	-9.3%	39,829	45,069	13.2%	1,200,179	1,314,522	9.5%
13	Forsyth County, Georgia	30,954	44,629	18.3%	44.2%	38.9%	69,173	77,639	12.2%	2,728,964	3,031,170	11.1%
14	Johnston County, North Carolina	12,918	18,626	8.9%	44.2%	38.9%	45,765	50,751	10.9%	886,337	983,823	11.0%
15	Kootenai County, Idaho	3,649	4,147	2.5%	13.6%	9.5%	56,061	64,072	14.3%	275,369	303,378	10.2%
16	York County, South Carolina	13,528	18,168	6.5%	34.3%	29.4%	84,859	100,346	18.3%	1,147,754	1,279,518	11.5%
17	Sussex County, Delaware	15,347	19,461	8.3%	26.8%	22.2%	73,903	83,715	13.3%	-	-	Note
18	Manatee County, Florida	43,071	45,105	11.2%	4.7%	0.9%	115,192	130,433	13.2%	327,355	360,649	10.2%
19	Denton County, Texas	114,096	143,440	16.2%	25.7%	21.1%	218,585	260,697	19.3%	3,397,560	3,758,358	10.6%
20	Montgomery County, Texas	67,479	84,519	13.9%	25.3%	20.7%	165,177	192,400	16.5%	2,953,771	3,100,820	5.0%
21	Williamson County, Tennessee	15,446	21,334	8.9%	38.1%	33.1%	115,195	140,073	21.6%	899,507	1,028,321	14.3%
22	St. Lucie County, Florida	51,344	56,660	17.3%	10.4%	6.3%	70,409	79,958	13.6%	2,628,508	2,849,472	8.4%
23	Baldwin County, Alabama	5,158	11,002	4.9%	113.3%	105.5%	67,585	76,419	13.1%	238,476	251,839	5.6%
24	Santa Rosa County, Florida	8,727	7,324	4.0%	-16.1%	-19.1%	34,791	39,865	14.6%	173,586	191,321	10.2%
25	Polk County, Florida	64,301	72,594	10.0%	12.9%	8.8%	203,802	228,202	12.0%	1,529,736	1,737,090	13.6%
26	Indian River County, Florida	12,773	19,132	12.0%	49.8%	44.3%	48,684	53,518	9.9%	2,628,508	2,849,472	8.4%
27	Berkeley County, South Carolina	11,126	14,424	6.3%	29.6%	24.9%	45,871	55,299	20.6%	313,148	351,391	12.2%
28	Weld County, Colorado	24,525	30,540	9.4%	24.5%	20.0%	101,497	114,396	12.7%	1,651,845	1,821,268	10.3%
29	Yavapai County, Arizona	12,293	17,050	7.3%	38.7%	33.6%	59,769	65,202	9.1%	-	-	Note
30	Paulding County, Georgia	6,333	11,565	6.9%	82.6%	75.9%	21,730	25,229	16.1%	2,728,964	3,031,170	11.1%
31	Canyon County, Idaho	15,281	17,259	7.5%	12.9%	8.8%	58,616	71,576	22.1%	308,336	359,736	16.7%
32	Collin County, Texas	185,056	227,971	22.0%	23.2%	18.7%	364,657	430,949	18.2%	3,397,560	3,758,358	10.6%
33	Marion County, Florida	24,544	29,581	8.1%	20.5%	16.1%	96,719	105,829	9.4%	-	-	Note
34	Guadalupe County, Texas	11,156	11,634	7.0%	4.3%	0.5%	34,126	41,465	21.5%	955,189	1,041,158	9.0%
35	Johnson County, Texas	8,978	8,988	5.1%	0.1%	-3.5%	45,380	48,391	6.6%	3,397,560	3,758,358	10.6%
36	Cabarrus County, North Carolina	16,125	21,293	9.8%	32.0%	27.2%	68,499	76,888	12.2%	1,147,754	1,279,518	11.5%
37	Benton County, Arkansas	28,337	34,015	12.2%	20.0%	15.6%	109,474	122,478	11.9%	212,361	235,539	10.9%

38	Mohave County, Arizona	13,043	13,242	6.2%	1.5%	-2.2%	46,839	51,173	9.3%	-	-	Note
39	Sumner County, Tennessee	7,574	11,132	5.8%	47.0%	41.6%	49,872	55,801	11.9%	899,507	1,028,321	14.3%
40	Volusia County, Florida	38,717	45,092	8.1%	16.5%	12.2%	160,541	176,018	9.6%	1,529,736	1,737,090	13.6%
41	Fort Bend County, Texas	209,157	230,738	28.4%	10.3%	6.3%	169,860	196,218	15.5%	2,953,771	3,100,820	5.0%
42	Rutherford County, Tennessee	21,379	31,164	9.4%	45.8%	40.4%	115,733	134,019	15.8%	899,507	1,028,321	14.3%
43	Cherokee County, Georgia	22,220	25,133	9.7%	13.1%	9.0%	53,283	65,071	22.1%	2,728,964	3,031,170	11.1%
44	Brevard County, Florida	48,873	50,672	8.4%	3.7%	-0.1%	194,456	222,374	14.4%	194,456	222,374	14.4%
45	Spartanburg County, South Carolina	19,973	21,222	6.6%	6.3%	2.4%	127,009	147,638	16.2%	580,710	634,979	9.3%
46	Osceola County, Florida	69,132	87,174	23.2%	26.1%	21.5%	84,340	99,610	18.1%	1,529,736	1,737,090	13.6%
47	Alamance County, North Carolina	12,260	14,641	8.6%	19.4%	15.1%	58,102	62,633	7.8%	682,960	713,311	4.4%
48	Iredell County, North Carolina	11,858	11,792	6.5%	-0.6%	-4.2%	69,564	75,674	8.8%	1,147,754	1,279,518	11.5%
49	Henry County, Georgia	20,008	17,205	7.3%	-14.0%	-17.2%	54,084	66,218	22.4%	2,728,964	3,031,170	11.1%
50	Douglas County, Colorado	24,362	27,466	7.8%	12.7%	8.6%	112,868	130,825	15.9%	1,651,845	1,821,268	10.3%

Source: Census Bureau data

Jobs: Data for CSA/MSA's 500,000 and over only.

Note: County not in a CSA/MSA 500,000+

Table 5
HYPERDENSE CBDS & URBAN EMPLOYMENT DENSITY: 2006-2010
Census Tracts Over 50,000 Jobs/Square Mile (See notes)

Metropolitan Area	Urban Area Employment	Hyperdense CBD Employment	CBD Density	Compared to Outside Hyperdense CBDs	Land Area	Share of Hyperdense Employment	Share of Urban Area Employment	Transit Commuters	Transit Share	Share of Hyperdense CBD Commuting
New York, NY-NJ-CT	8,384,000	2,352,000	195,000	202	12.08	43.6%	28.1%	1,705,000	72.5%	59.6%
Chicago, IL-IN-WI	3,864,000	507,000	169,000	175	2.99	9.4%	13.1%	286,000	56.4%	10.0%
Washington, DC-VA-MD-WV	2,276,000	433,000	114,000	118	3.80	8.0%	19.0%	176,000	40.6%	6.2%
San Francisco, CA	1,607,000	359,000	115,000	119	3.13	6.6%	22.3%	169,000	47.1%	5.9%
Boston, MA-NH	2,057,000	348,000	122,000	126	2.86	6.4%	16.9%	160,000	46.0%	5.6%
Philadelphia, PA--NJ--DE--MD	2,445,000	300,000	114,000	118	2.63	5.6%	12.3%	119,000	39.7%	4.2%
Minneapolis--St. Paul, MN--WI	1,276,000	127,000	88,000	91	1.43	2.4%	10.0%	35,000	27.6%	1.2%
Seattle, WA	1,488,000	124,000	122,000	126	1.02	2.3%	8.3%	49,000	39.5%	1.7%
Pittsburgh, PA	796,000	120,000	111,000	115	1.08	2.2%	15.1%	35,000	29.2%	1.2%
Los Angeles, CA	5,487,000	216,000	87,000	90	2.48	4.0%	3.9%	36,000	16.7%	1.3%
Houston, TX	2,032,000	169,000	115,000	119	1.47	3.1%	8.3%	22,000	13.0%	0.8%
Atlanta, GA	1,871,000	103,000	76,000	79	1.34	1.9%	5.5%	15,000	14.6%	0.5%
Denver, CO	1,049,000	97,000	91,000	94	1.07	1.8%	9.2%	22,000	22.7%	0.8%
Portland, OR-WA	866,000	45,000	117,000	121	0.39	0.8%	5.2%	15,000	33.3%	0.5%
Baltimore, MD	1,051,000	99,000	124,000	129	0.80	1.8%	9.4%	17,000	17.2%	0.6%
Subtotal: Hyperdense CBDs	36,549,000	5,399,000	140,000	145	38.57	100.0%	14.8%	2,861,000	53.0%	100.0%
Outside Hyperdense CBDs		102,578,155	965	1	106,346			3,860,917	3.8%	
All Urban Areas		107,977,155	1,015	1	106,385			6,721,917	6.2%	

Source: Derived from American Community Survey & CTPP
Note: Hyperdense CBDs have 75,000+ jobs or a transit commute share of 30%+ (Minimum census tract employment density 50,000)