

Triple Standard: Addressing the Missing Middle in the Texas Triangle

JAMES MICHAEL TATE

Texas A&M University

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There's an urban phenomenon happening in Texas. It's called the Texas Triangle. Dallas-Fort Worth defines the top while Austin-San Antonio and Houston create the base. These major urban areas are connected by Interstate-45, Interstate 10, and Interstate 35. These cities, and other smaller ones, are experiencing significant transformational growth. Much of this is happening in outlying metro areas; causing once distinct cities to grow into one another. In the coming decades, the Triangle could become one megacity.

To explore new futures of the Triangle, in 2019 I launched a multi-year design research investigation that explores alternatives to existing housing and land use models. The past six months was spent identifying different situations that exist in the periphery of major downtown areas. Outlining three prevailing spatial conditions is the primary focus of this paper. In January 2020, my design team started producing strategies that test density configuration, programmatic accommodation, and form generation relative to urban conditions of these places. Each of these investigations recognizes a missing middle scale of building and urban development. The current form of city-making will deplete resources in coming decades without producing a diverse mix of housing stock. Initial design work is mentioned in this paper, but remains schematic.

60,000 SQUARE MILES

The Texas Triangle is a megapolitan area on a trajectory to urbanize 60,000 square miles of land in the coming decades. While downtown areas of the Triangle's five most populated cities are being revitalized and becoming dense with high-rise office and multi-unit apartment buildings, development activities in Texas don't subscribe to making compact cities surrounded by preserved countryside. The majority of building activity in the Triangle is spread across the rural-urban periphery. My work aims to contribute to a conversation about a valuable missing part of the Triangle fabric.

Texans, native and new residents, tend to choose an agrarian urbanism over city-dwelling. Currently there are two prevailing housing options in Texas, multi-story apartment complexes and detached single-family houses. But, in all honesty, Texas

is overwhelmingly made up of houses in subdivision developments. Houston, Dallas, Fort Worth, San Antonio, and Austin are among the fifteen largest cities in the United States, and all metros are likely to continue experiencing significant growth in the coming decades. Current development patterns limit housing choice. By unit count, two to nine unit buildings comprise about a tenth of the available housing stock in Texas. We have a missing middle problem. If growth projections are accurate, alternatives and more options are needed. This is a real opportunity to advance the design of residential building types, accompanying buildings that provide community resources and amenities, and landscapes that don't reinforce predictable suburban land use strategies. With that in mind, I've identified three general types of urban condition where there's an opportunity to imagine new or recalibrate existing housing and urban design strategies. In each case I've identified a specific situation, but there are comparable sites that exist throughout the Triangle.

If it were a state, the Triangle would be bigger than Georgia; and slightly smaller than Florida. A massive territory, it's primarily a coastal prairie flanked by hill country to the West and pine forest to the East. Since 2010, counties in the Triangle have added 3 million people. 85% of the state's overall growth is concentrated in this megaregion over the past decade.¹

Five of the fifteen fastest-growing cities in the United States in 2015 are located in the Texas Triangle. All five can be described as longtime small-town settlements consumed by expanding metro areas. Georgetown and Pflugerville are located north of Austin along Interstate-35. New Braunfels sits half-way between Austin and San Antonio on Interstate-35. Frisco City sits north of Dallas, while Pearland is south of Houston. In that year, Texas added 162,000 housing units; more than any other state.²

Harris and Dallas counties, which include Houston and Dallas along with a fraction of their surrounding metropolitan areas have populations of 4.6 million and 2.6 million respectively. In 2018 the state's five most populous counties Harris (Houston Metro), Bexar (San Antonio Metro), Dallas (Dallas-Fort Worth Metro), Tarrant (Dallas-Fort Worth Metro), and Travis (Austin Metro) had growth rates between 10.6 - 19.7%.³ While each of the major cities within these counties is experiencing significant urban densification, the periphery of the Texas Triangle's urban

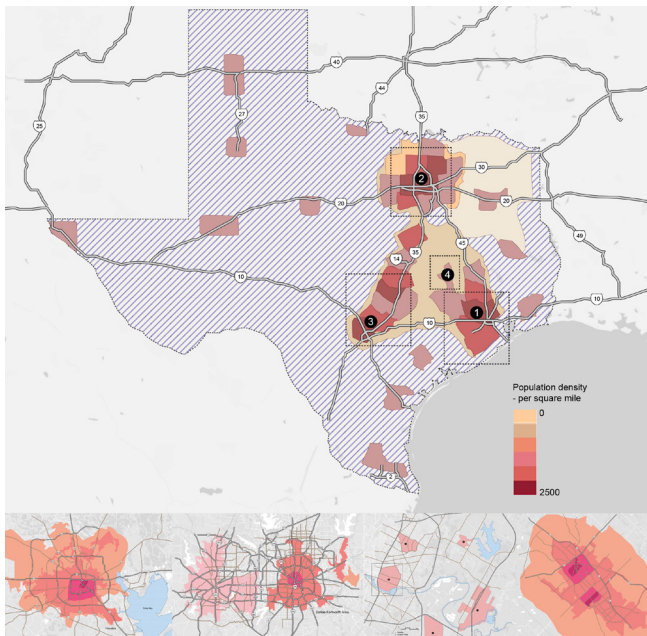


Figure 1. The Texas Triangle. Tate.

anchors, adjacent counties like Montgomery and Fort Bend continue to experience steady growth.⁴ These once rural frontiers are now characteristically domestic landscapes, largely populated with detached single-family houses in suburban neighborhood formats.

THE EVOLUTION OF RURAL TEXAS TO URBAN TEXAS

In 2019 it's estimated the population of Texas is 29.09 million, compared to 25.1 million in the 2010 Census. With the addition of 400,000 new people on average each year, Texas is among the fastest growing states in the country. Texas has the largest numeric population growth in the country, and ranks eighth in percentage growth. It is the second most populous state, behind California (39.5 million). However, given its vast land area of 268,597 square miles, Texas' population density barely exceeds 100 people per square mile. This appears to suggest a sparse landscape of isolated buildings when compared to many Northeastern states which exceed 500 people per square mile.⁵

While general statewide numbers reveal Texas is currently experiencing significant growth, to get the full picture, one needs to dive deeper into the state. From a historical standpoint, since the time of its independence in 1836, statehood in 1845, and throughout the remaining nineteenth century, Texas grew from roughly 25,000 frontier settlers to just over 3 million residents. In 1900, 83% of the Texas population resided in rural areas. Urban life during that time would have predominately existed in one of the 254 county seats, prototypical centralized courthouse towns distributed across the state. This urban model is similar to settlement patterns in other Southern states at the time, but very rural when compared to the 60% national average. Also, as noted earlier, California became predominately an urban

population in 1900. By 1920 more than half (51.2%) of the U.S. population resided in urban areas, but Texas (32.4%), like many other Southern states, remained a predominately rural population, reinforcing cultural myths that still influence many people's perception of the state as a home on the range.⁶

Texas experienced a significant shift in urban population increase between 1940 (45.4%) to 1950 (62.7%). The rural to urban settlement of Texas may have been slow to start, but it's worth noting that in 1900 the state ranked thirty-fifth in urban population percentage, while in 1950 it ranked fifteenth; and it continues to be at or near that position in subsequent decades up to the present. Between 1900-2000 Texas experienced a complete reversal of urban-rural population percentage. From the 1950s onward substantial growth happened each decade, largely attributed to new residents moving into Texas. In the 1970s, 80s, 90s, and 00s, the state established itself as a friendly economic hub. Leveraging its strategic geographic location, it welcomed a diverse range of businesses in the petrochemicals, financial, healthcare, transportation, and technology sectors. That job market fueled unbridled speculative real estate speculation that offered detached single-family houses on big lots at a reasonable price. By the year 2000, Texas' total population was 20.9 million; surpassing New York to become the second most populous state in the country. Texas more than doubled in fifty years, with 82.5% of the population living in urban areas. Today, more than 85% of Texans live in urban areas. That's the same urban-rural population percentage as the Northeastern – U.S. Region.^{7,8,9}

In 2018, the Texas Legislative Council (TLC) provided several definitions for what constitutes a rural county in the state. The simplest is a county with a population of less than 50,000 people. Of Texas' 254 counties, 193 currently have this rural designation. The remaining sixty-one are considered metropolitan counties. While urban counties exist across the state, six are located along the U.S. Mexico Border and thirty-five are concentrated in the megaregion referred to as the Texas Triangle.¹⁰ Of the rural counties, more than ninety have actually experienced population decline in the past decade.¹¹ These are predominately located in the western half of the state, not along the border or central. Several of the twenty-four designated rural counties within or adjacent to the Texas Triangle are likely become metropolitan counties in the coming decades as new infrastructural expansion projects encourage development to occur along these corridors into the extra-jurisdictional peripheral territories. It is in these areas, in range of the state's largest cities, that rural communities rooted in place for decades, are often unable to access the types of jobs and services that are available to new residents who arrive and gentrify these places in ways that are similar and different to the revitalization of urban centers.

SITUATION 1, TRANSITION ZONE, EAST AUSTIN

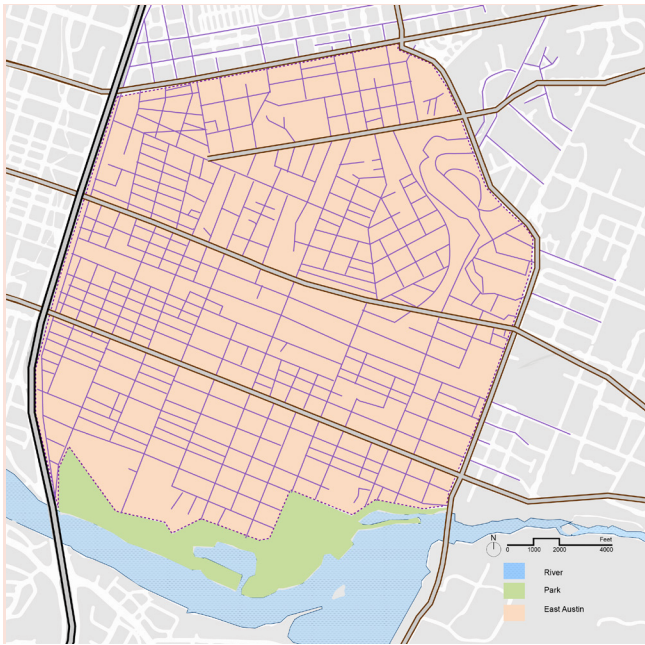


Figure 2. East Austin. Tate.

NEIGHBORHOOD, AUSTIN, TEXAS

Situation 1 focuses on neighborhoods that are adjacent to major downtowns. In the Texas Triangle these tend to historically be communities of color, but are increasingly attractive to professionals with high-earning jobs. In each of the major Triangle cities, these neighborhoods were underserved and negatively impacted by twentieth century policies and projects that incentivized suburban development. The proximity of these areas to downtown has increased their property value and investment potential. They have neighborhood character and increasing have resources and amenities within walking, biking, scootering, or mass transit distance. Developers in Texas have no obligation to create anything other than luxury and market-rate development in these places. However, there is some level of desire by new residents to preserve the authentic character and not displace long-term residents. For this situation I'm focusing on the East Austin neighborhood in Austin, Texas.

Austin is the state capital of Texas. It's known for its live music scene and outdoor activities. Austin is the currently the 11th largest city in the United States and is growing at a rapid pace. Highway congestion and cranes across the skyline are a visible sign of how this city is being transformed. According to the United States census report released in April 2019, Texas counties take the top four spots in numeric growth - with Austin-Round Rock metropolitan area at a population of 2.16 million. Austin area alone showed a growth rate of 26.3% since 2010. With a median home price of \$369,000, Austin is significantly higher than the \$195,000 average across Texas.¹²

Working wage families, and particularly families of color concentrated in East Austin, increasingly find it difficult to live in this city. Several new large-scale developments including Mueller and Saltillo are nearing full completion. Both of these were originally intended to support mixed income and mixed generational neighborhood design planning concepts. However, those plans were only partially implemented. On the horizon are developments such as Colony Park and a rumored "Green Mega City" project near the airport. With the new proposed master plan for Austin Bergstrom International Airport (ABIA), a lot of new market rate housing and commercial developments are sprouting up. Unfortunately, these do little to address the shortage of owner-occupied or rental housing units for the large number of residents who work in the hospitality industry, or generally exist outside of high-earning technology sector jobs.

Those who are purchasing single-family houses in this neighborhood are quickly adding accessory dwelling units to their backyard, while developers are creating new multi-story buildings along several major streets. These are typically 4 over 2 mid-rise mixed-use configurations. While adding important unit numbers and amenities that make living in the neighborhood desirable, these new buildings are significantly larger than the house-scale existing neighborhood character.

The abrupt scale shift from small detached units to large apartment blocks is the starting point of our design work. There is a recognition East Austin is quickly losing its eclectic heterogeneous identity. Its physical scale and character are being erased. We're focused on exploring and expanding middle scale typologies – duplexes, townhouses, and buildings that are slightly smaller than the typical four over twos. We're beginning to explore how to maintain the density and variety of apartment unit types afforded by the mid-rise perimeter block, but distribute its mass and outdoor spaces differently as a way to transition from the single-family unit neighborhood blocks to multi-unit blocks. Austin's proposed changes to land use could increase the opportunities to realize such projects and shape the future of this city.

SITUATION 2, EDGE, HOUSTON'S OUTER-OUTER LOOP

Situation 2 focuses on master-planned communities that fill in spaces between major urban centers, smaller towns, and other nodes. These auto-centric subdivisions are reliant on transportation infrastructure spines and other suburban box development formats. In their most efficient and value packed layout, these neighborhoods offer 50'x100' lots with detached single-family houses. More expensive models offer large estate lots, even five acres in some cases, and new urbanist style community amenities. For this situation I'm focusing on parts of the Houston Area that intersect the city's third ring road.

Houston is the fourth largest city in the United States. The surrounding counties that make up its metropolitan area have been growing rapidly for fifty years and are on a trajectory to

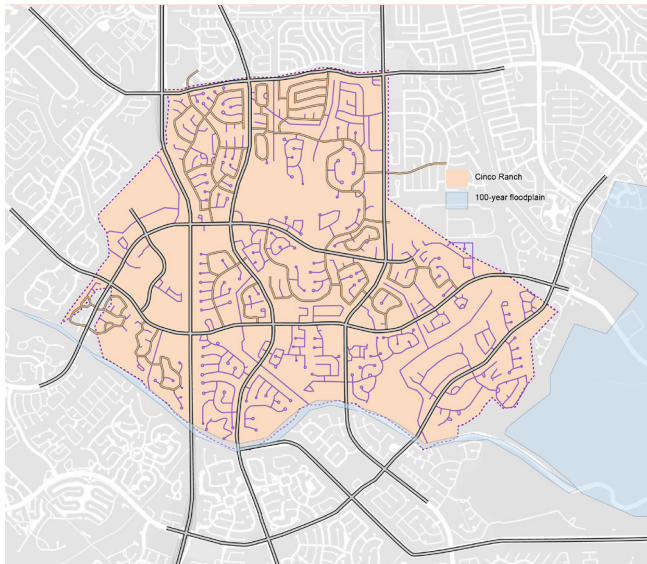


Figure 3. Cinco Ranch. Tate.

continue doing so. Houston has long served as a quintessential “sprawl” city that challenges, even defies traditional ideas of city with its lack of zoning. For decades, Houston’s historic center was an interstate highway cross-axis that encouraged people to evacuate downtown at the end of the workday to retreat in a suburban house on the coastal prairie. Over the years, as the city continuously grows outward, beltway highway ring-road loops, mark moments in Houston’s expansion. The third outer loop is currently under construction. Aptly named Texas 99 – Grand Parkway, when completed the 170-mile road will be the longest beltway in the United States. If unrolled, it would be almost the same distance between the segment of Interstate-45 that connects Houston to Dallas.

The Grand Parkway, particularly its westside which intersects rapidly developing parts of Harris and Fort Bend counties is the extraterritorial jurisdictional landscape we’re situating our design work. Rampant real estate speculation and auto-centric development is transforming this virgin coastal prairie into a mat quilted carpet of enclave neighborhood communities such as Cinco Ranch. This development is located in Fort Bend county, which, since the 1970s has been an attractive place for people of all ethnic backgrounds. In 2011 it ranked as the fourth-most racially diverse county in the United States. Fort Bend historically was an African American majority population. Presently it has the highest percentage of Asian Americans in the Southern United States. The ethnic plurality of minority middle class households is an important dimension of this area.¹³

The construction of the third loop is attracting new headquarters for petrochemical and healthcare industries. As a result, this is attracting many young highly educated individuals to move into what is currently the edge of Houston, but could eventually simply be within the city. Houston has long had the

reputation of being a welcoming city to immigrant populations, and increasingly the ethnic diversity is making its way to the outlying metro areas.

In August 2017, Hurricane Harvey revealed the many flaws of turning coastal prairie land into detached, slab on grade, single family houses. Both low- and middle-income families were devastated by the storm. 6,800 houses were destroyed or damaged in Fort Bend County during this storm; 3,000 were located in Cinco Ranch.¹⁴ With climate change, the frequency of large storms is likely to continue. Resilient community design is very much needed. While marketed as pocket parks, greenbelts, golf courses, and private lake amenities to the residents of places like Cinco Ranch, in actuality these landscape elements are flood mitigation water management infrastructures. A significant amount of the county exists in the 100-year floodplain.

Our initial design work acknowledges that Highway 99 marks a current threshold between a megalopolis and rural open space. We recognize people choose to live in the periphery because they strongly desire single family home ownership. Currently, their options are limited to neighborhoods that have a typical lot size for the development. Housing product that looks similar to others and sells at a similar price point are typically grouped together. This does not produce a variety of house types or quality outdoor spaces. It doesn’t produce a spatial environment that fosters connections between people of different backgrounds. From a long-term resource and resiliency standpoint, challenges are likely to come to the surface and be exacerbated in coming decades if current strategies remain the only option. Much of our initial work considers recalibrating ideas about lot sizes, mixed distribution of detached house sizes, grouping of single-unit and house-scale multi-unit, and testing ideas about parking and outdoor spaces. In many ways, we’re revisiting ideas from the Garden City Movement, but trying to reimagine them for the 21st century.

SITUATION 3, ISLAND NODE, BRYAN-COLLEGE STATION

Situation 3 focuses on smaller cities and towns that are more than sixty miles from major Texas Triangle cities, but who are feeling the impact of what’s happening in the megaregion. Many of these places provide some type of natural or intellectual resource that fuels the state’s economy. Unlike Situations 1 and 2, these areas are typically not located along an existing interstate highway corridor. This is likely to change as proposed infrastructure projects are realized. They are within or outside of the Triangle boundaries. For this situation I’m focusing Bryan-College Station, home of Texas A&M University.

Many Texans will find it surprising to learn that Bryan-College Station, Texas, locally referred to as “Aggieland,” has an affordable housing problem. Situated in what is basically the centroid of the Texas Triangle, the metropolitan area of roughly 200,000 residents. While Bryan-College Station seems isolated from the major growth happening in the state, its position

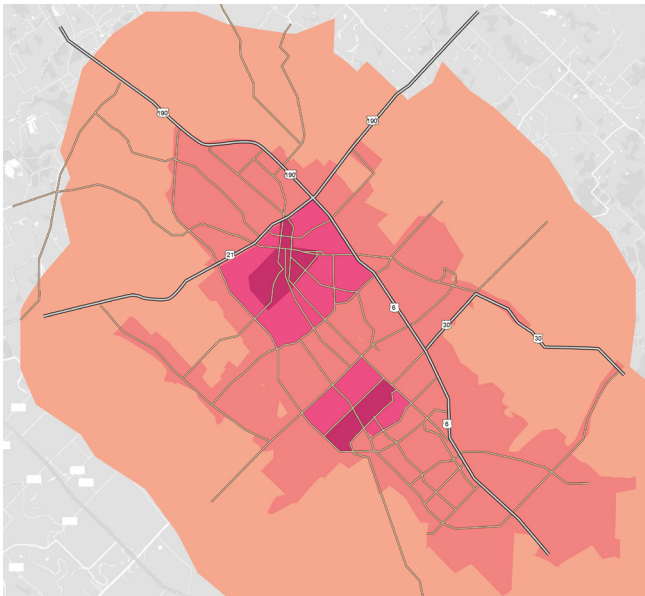


Figure 4. Bryan-College Station. Tate.

roughly ninety minutes from Austin and Houston suggests it will play an important role in the future of this megaregion. Several proposed major infrastructure projects, including a high-speed rail, are on the table. Texas A&M is a land grant institution with tier 1 research status located in the predominately rural Brazos Valley. Compared to the five major metropolitan areas, it is characteristically an isolated college town. However, Texas A&M has a very large student population, exceeding 68,000. The transitory nature of that population, along with massive influxes of people for home football games, at times renders this place as heavily congested and at other times evacuated.

The area is growing at roughly 6% annually. As Houston continues to expand to the northwest, the peripheral grazing pastures of Bryan-College Station are being developed into detached single-family house subdivisions. Planning and implementation of these projects reflects maximum return on investment construction strategies.

New prosperity in the Texas Triangle is having a direct impact on the cost of living of this part of the Triangle. Many former students purchase second homes that exist in close proximity to campus. Many of these are only occupied during home football games; six weekends a year. Additionally, foregoing the traditional dorm-life undergraduate experience, it's increasingly common that parents will purchase a house for their children to live in while students at A&M, and sell it for a profit upon graduation to another family with an incoming student.

Both of these situations have drastically impacted the number of available affordable housing units located near campus.

As a sizable institution, Texas A&M System has nearly 3,000 third-party contractors in Bryan-College Station who provide essential food, custodial, and operational services. With the creation of a new campus that creatively links academic research to private industry activities, an additional 2,000 contractors will be hired in the coming years. The Rellis Campus will also add high-earning jobs for researchers and industry. It is this lower-earning population who are really feeling the growing pains of Bryan-College Station. This specific community is the focus of REACH, which seeks to develop a Cooperative Learning Village that will provide housing and support services to these individuals and their families. The program will integrate engaged outreach service residency programs for A&M's school of Public Health, School of Business, and several other colleges.

Our work with this group focuses on design strategies for the Affordable Residential Learning Village (ARLV). The ARLV model plans to accommodate diverse populations that are typically underserved and most affected due to gentrification and the social isolation caused by typical suburban residential development patterns in Bryan-College Station. Within the village, the ARLV will house: mixed income (students, university staff, contract workers, young professionals); mixed household/age (students, couples, multigenerational extended families, empty nesters, and senior citizens); mixed tenure (owners, renters, commercial) populations.

ARLV is housing plus support services. Resources necessary for a working-wage household to achieve personal sustainability will be provided using High Impact Service Opportunities to University students. This will be achieved through improving one's earning capacity, and enhancing nutrition, health and wellness, and financial literacy while working towards home ownership. Along with a learning center, a community garden and rental units, the ARLV will also have single family and semi-detached owner-occupied units that create a truly mixed income and mixed purpose village.

ARLVs will provide homes for contract workers accommodating fluid family structures, typically multigenerational with multiple dependents, while reducing transportation cost burdens and increasing access to community resources that lead to breaking the cycle of poverty for future generations.

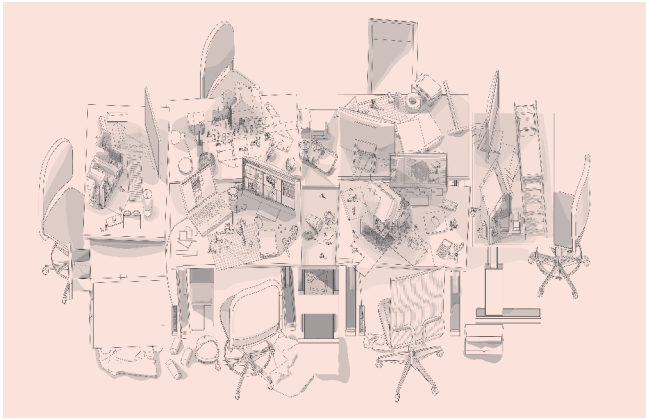


Figure 5. Drawing Attention. Tate.

ARLVs will also enhance the experience had by students through alleviating financial constraints on housing, formally applying education through integrating students with the forgotten members of their communities. This enables soft skills development for all involved.

Formerly permanent residents of college towns, driven out by gentrification, will be served by the ARLV through providing access to affordable housing within fixed incomes, enabling the downsizing for seniors and increasing household income earning potential.

NEXT STEPS

The Texas Triangle is a diverse physical and cultural landscape. The projects we're working on focus on people and places experiencing the pressures of a population and economic boom, where demand is straining affordability and resource consumption habits are unsustainable. We're positioning the Triangle megaregion as a territorial city, recognizing that each local geographic community has specific needs and social identities. Quality fair-market and supportive housing options are currently not an integral part of how the Triangle is developing. Each of the design investigations beginning to be worked on give significant attention to that problem. With a contextual understanding of the reality of these places, designers can and should work with these communities to promote new models of housing that are not complicit with market driven master plan enclaves which socially isolate, promote exclusionary tactics, and do little to promote settlement patterns that will preserve resources for future generations. Our work considers the integration of architecture, infrastructure, and landscape. Promoting social and domestic

settings for groups and individuals', this design research aims to spark the public imagination and raise their expectation about how inclusive housing and community development practices can help address pressing issues related to the future of Texas.

With the addition of 10M residents in the coming decades, we need and deserve an updated model within the Texas Triangle. Ultimately, our research and design goal is to shift the cultural perception that the American Dream is achieved through home-ownership of a detached single-family house that reinforces its strong property lines. We're working toward proposing new quality housing and public-oriented resources that can positively impact communities across the Triangle. We aim to create a definition of "home" within the Texas Triangle that's accessible, resilient, and attractive.

ENDNOTES

1. William Fulton, "Dallas Is Whipping Houston in Population Growth, Census Numbers Reveal," <https://kinder.rice.edu/urbanedge/2019/04/19/new-census-numbers-reveal-slowing-patterns-houston-harris-county-growth>.
2. "Five of the Nation's Eleven Fastest-Growing Cities Are in Texas, Census Bureau Reports," Accessed September 2019, <https://www.census.gov/newsroom/press-releases/2016/cb16-81.html>.
3. "Population of Counties in Texas (2019)," Accessed September 2019, <http://worldpopulationreview.com/us-counties/tx/>.
4. Fulton, "Dallas Is Whipping Houston."
5. "Texas Population," Accessed September 2019, <http://worldpopulationreview.com/states/texas/>.
6. Christopher S. Davies, "Life at the Edge: Urban and Industrial Evolution of Texas, Frontier Wilderness: Frontier Space, 1836–1986," *Southwestern Historical Quarterly* 89, no. 4 (1986): 443–554, <http://www.jstor.org.srv-proxy1.library.tamu.edu/stable/30239932>.
7. "Texas Population 1900–2018," Accessed September 2019, <https://www.macrotrends.net/states/texas/population>.
8. "Texas: 2010—Population and Housing Unit Counts." Accessed September 2019, <https://www.census.gov/prod/cen2010/cph-2-45.pdf>.
9. "United States Summary: 2010—Population and Housing Unit Counts," Accessed September 2019, <https://www.census.gov/prod/cen2010/cph-2-1.pdf>.
10. "Definitions of 'Rural' in Texas Statutes and the Texas Administrative Code as of April 2018," Accessed September 2019, https://tlc.texas.gov/docs/policy/Def_Rural_Statutes.pdf.
11. Fulton, "Dallas Is Whipping Houston."
12. "Austin Is the Country's Fastest-Growing Major Metro," <https://austin.curbed.com/2019/4/23/18512686/austin-growth-rate-fastest-largest-cities-metro-census>.
13. "Fort Bend County, Texas," Accessed October 2019, https://en.wikipedia.org/wiki/Fort_Bend_County,_Texas.
14. "Fort Bend County Reports Harvey Destroyed or Damaged 6,800 Homes," <https://www.houstonpublicmedia.org/articles/news/2018/03/14/273286/fort-bend-county-reports-harvey-destroyed-or-damaged-6800-homes/>.