Urban Densification at Twin Creeks Apartments: High-Density Living with Low-Density Luxuries

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Urban sprawl is characterized by the rapid growth of the extent of cities and towns. In the United States, urban sprawl is greatly influenced by housing density. In the past half-century, developers have favored constructing and consumers have preferred living in neighborhoods of detached, single-family homes. This is because low-density living provides more housing services, or additional benefits, than most high-density developments, such as apartments and townhomes. Residents of low-density living often have more privacy, outdoor space, interior natural light, and many other benefits over residents of higher-density developments. However, Twin Creeks Apartments, located in San Luis Obispo, California, is an example of how a high-density development can be comfortable for someone accustomed to living in a single-family home. The design team of Twin Creeks worked with the goal in mind to provide many of the same housing services commonly seen in low-density developments, creating a high-density living environment that appeals to people of all lifestyles. In the future, developers can incorporate strategies used by the project team of Twin Creeks to increase the comfort of their project's residents while simultaneously combating excessive urban sprawl and increasing urban densification.

Key Words: urban sprawl, high-density development, housing services, residential density, urban densification

Introduction

While some of the most wasted resources in the construction industry include common building materials such as wood, metals, and plastics, many individuals and construction professionals often overlook one of the most precious and limited resources that is overexploited by the construction industry: land. Since the middle of the 20th century, the population in the United States has exploded, and the demand for housing has closely followed. To resolve this, building developers across the country favored constructing sprawling neighborhoods of single or two-story homes ideal for couples and small families. The glaring issue with this solution is that it simply consumes way more land than what most people need to live comfortably. This is commonly referred to as urban sprawl. While it would not be practical to demolish these neighborhoods, displacing thousands of households,

developers in the future can move away from building sprawling neighborhoods in favor of high-density alternatives to conserve land while still providing a comfortable living environment for residents.

One such alternative is perfectly modeled by Twin Creeks Apartments, located in San Luis Obispo, California. Before the project was complete, the site at Twin Creeks was an unused, five-acre plot of land in suburban San Luis Obispo. The site is located close to retail outlets and not far from San Luis Obispo's central business district. The site's shape is unique because the property is restrained by busy roads to the north and south and creeks to the east and west. The hourglass-shaped site limited the types of projects that could have been built there. Where one developer may have chosen to construct a dozen single-family homes on the site, the owner and developer of Twin Creeks worked with his design and construction teams to use the site much more efficiently. The completed, five-acre site at Twin Creeks now includes nine structures that contain 94 residential units, indoor and outdoor amenities for residents, and 3,488 square feet of commercial space. The residential units include one-bedroom, two-bedrooms, and three-bedroom units, with three of the units dedicated to affordable housing. The project has extensive landscaping throughout the site, including the planting of 115 trees, pedestrian paths along the creeks, resident common-use areas, a children's play area, and an enclosed area for pets. The project team of Twin Creeks successfully produced a higher-density, multi-family housing option in the suburbs of San Luis Obispo while still providing the comforts and amenities of a low-density neighborhood, creating a comfortable living environment for consumers accustomed to living in single-family homes.

Literature Review

Urban sprawl is characterized by the rapid growth of the extent of cities and towns. The rate of urban sprawl is affected by population growth and residential density. Urban sprawl is controlled through urban expansion and urban densification. Urban expansion is the physical increase of a city's property limits, whereas urban densification is achieved by adding housing units to existing urban areas (Broitman & Koomen, 32). This paper focuses more on urban densification as a solution to conserve land on the perimeter of a city by providing additional housing in urban areas. Proper urban densification strategies can reduce the need to construct neighborhoods of single-family homes. According to Frans Dieleman, former professor in Urban and Rural Geography at the Utrecht University in the Netherlands, the factors that lead to urban sprawl are categorized in two ways: "(i) general causes relating to the general drift of change in developed societies, and (ii) government policy, spatial planning related" (Dieleman & Wegener, 316). Since the 1950s, the average household income has skyrocketed, giving more families the opportunity to afford a house of their own and the ability to rent or lease the property of their choosing. Also, the vast advances in personal mobility, both personal access to a car and the expansion of public road systems, allow individuals to live further from their place of work. Public officials are responsible for implementing zoning regulations, restricting the type of development that can be built on a property. Improper or mismanaged zoning directly influences the rate of urban sprawl. Oftentimes, land far away from the central business district of a city is zoned strictly for single-family homes. Unbuilt properties within urban areas of cities are often zoned incorrectly.

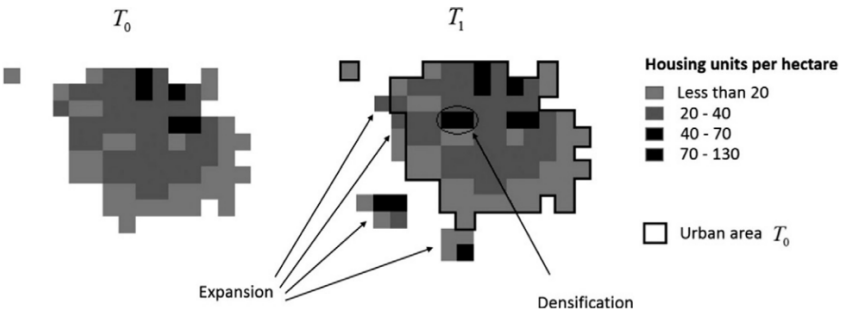

Figure 1: Comparison of urban expansion and urban densification.

Residential density is determined by "dividing the number of housing units on the site (excluding second units on single-family lots) by the net acreage of the site" (Hayward EPlan). Neighborhoods of single-family homes typically have a density of 1.0 to 8.0 dwelling units per net acre. The highest-density developments can have a density of thousands of dwelling units per net acre depending on the height of the building. However, in many districts, height restrictions limit the type of building that can be constructed. With 94 units on a five-acre site, Twin Creeks has a residential density of 18.8 units per acre.

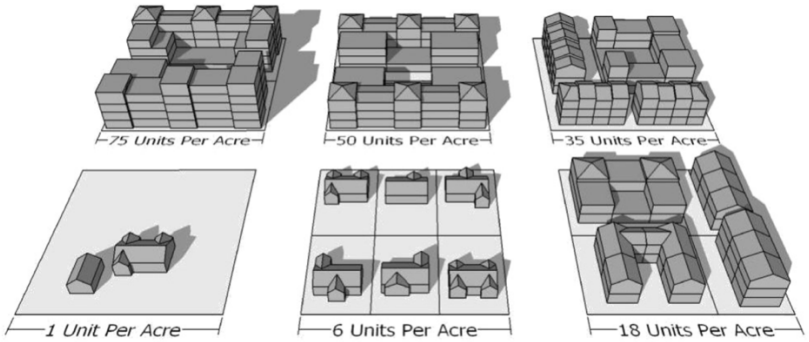

Figure 2: Visualization of residential density by acreage.

Although average household income increases year by year, housing prices in the last decade have turned thousands of families away from the prospect of owning their own home or renting the property of their choosing, often getting forced into uncomfortable living situations. Andrew Aurand, Vice President for Research at National Low Income Housing Coalition, suggests that "greater density, a greater variety of housing types and mixed land use can alleviate the upward pressure on housing prices" (Aurand, 1016). In higher-density residential development, the extents of properties are more confined, and each dwelling unit is smaller on average, both of which significantly reduce the amount of land consumed by the property. In the long run, renting a smaller apartment can be much more affordable and realistic for many individuals, couples, and small families compared to owning a house. Aurand also discusses the difference between housing stock and housing services. The housing stock is the physical number of dwelling units available whereas housing services are the benefits that come from the housing stock. He argues that more often than not, a single-family home will offer more housing services than an apartment or townhome. Affordable housing typically offers the least options for housing services. In the past half-century, Americans have gravitated towards homeownership because of the many housing services neighborhoods of low-density houses often

provide. Increased privacy, abundant interior natural light, off-street parking, and more outdoor space are some examples of housing services commonly seen among detached, single-family homes. As described later, Twin Creeks Apartments offers more housing services than the typical high-density development, making a place like Twin Creeks a comfortable alternative for someone accustomed to low-density living.

Methodology

To better understand the intentions and goals behind the design of Twin Creeks, the owner and architect of Arris Studio Architects, Thom Jess, and principal architect, Shawn Ridenhour, were interviewed. Arris Studio Architects is the primary architecture firm responsible for the design of Twin Creeks Apartments. Headquartered in San Luis Obispo, Arris Studio specializes in student housing projects, hospitality work, and multi-family apartments and townhomes. Their highest-density projects include The Academy Chorro and The Summit, which are made possible due to their podium construction, generous height restrictions, and their intentions for student housing. Podium construction allows residents to park their vehicles on the first floor, oftentimes with car lifts to further maximize the number of cars the lot can hold. On a site with a restrictive height limit, podium construction is not always available. At Twin Creeks, architects from Arris Studio were restricted to a 35-foot maximum building height. According to Arris Studio, Twin Creeks is classified as a walk-up, where residents park their vehicles outside in the parking lot and walk directly up to their unit. Their idea of a three-story walk-up sacrifices some of the project's maximum possible density to allow for more housing services for the residents. The goal of the interviews was to determine the strategies implemented at Twin Creeks to provide a higher-density living environment with features common in low-density developments and how those strategies can be incorporated into future developments to increase urban densification by reducing the demand for single-family houses.

Summarization

As with all their projects, Arris Studio's primary goal at Twin Creeks was to design a comfortable living environment for future residents. One way the architects from Arris Studio increased the comfort of Twin Creeks' residents is by prioritizing higher ceilings. In detached, single-family homes, the standard ceiling height for bedrooms typically ranges from eight to ten feet. Kitchens and living spaces often have even higher ceilings than bedrooms and bathrooms and can even be much higher in multi-story houses. In many higher-density developments, designers often use the minimum required ceiling heights to maximize the number of floors in the building. At Twin Creeks, the architects could not exceed 35 feet of building height, and they wanted to keep the buildings to three stories to avoid installing elevators. Therefore, the architects designed the ceiling heights at Twin Creeks to be higher than other high-density projects. The retail spaces on the first floor have a ceiling height of 10 feet 6 inches. All first, second, and third-story residences have ceiling heights of 9 feet 1 inch, which is much more comfortable for residents than the minimum of 8 feet. There are even select units with vaulted ceilings, providing an appealing design and additional space for residents.

Another common theme in low-density development is the abundance of natural light. It makes sense that larger dwellings spaced further apart from each other can have larger openings allowing more natural light to illuminate their interior spaces. In many high-density developments, residents complain about a lack of natural light entering their spaces due to having smaller windows and their proximity to neighbors. Architects try to design their spaces to take advantage of the path of the sun in

the sky. In the northern hemisphere, this means windows should be facing south to provide the most amount of natural light in the interior space. However, the site at Twin Creeks is much longer north to south than it is wide east to west, posing a challenge of providing enough south-facing windows. To resolve this issue, the architects from Arris Studio chose to sacrifice some of the project's maximum possible density by dividing their design into nine different buildings. One large building across the entire site would provide the largest number of units, and therefore the highest possible density, while also limiting the amount of natural light that can enter interior spaces. Spacing the buildings apart from each other allows more natural light to enter the units on the first floor. Dividing the design into modules also gives the architects from Arris Studio more flexibility on future projects. Similar modules to Twin Creeks can be rearranged and combined in an infinite number of ways on future developments with uniquely shaped sites. Another added benefit of spacing the buildings apart is that it provides more corner units. Corner units are often more desirable in complexes like Twin Creeks because they share fewer walls with neighboring units, increasing privacy and proving more space for windows.

Figure 3: Corner unit at Twin Creeks with vaulted ceiling and abundant natural light.

Off-street parking is another luxury provided in low-density development. Car-dependent communities, like sprawling neighborhoods of single-family homes, provide off-street parking via garages and driveways. In high-density development, parking is influenced by the type of units allowed on the site. In the city of San Luis Obispo, multi-family developments must provide a minimum of one parking space for every one-bedroom or studio unit, one and a half parking spaces for every two-bedroom unit, and two parking spaces for every three-bedroom unit (§ 22.18.050). The architects for Twin Creeks went above and beyond the minimum parking requirements. They provided one parking space for every bed, allowing every resident who wants a car to have their own parking space. The parking spots are also complimentary and assigned to each resident. There are even parking spaces for compact cars, motorcycles, and two electric vehicle charging stations. Also, the majority of parking spaces at Twin Creeks are covered with a canopy of solar panels, proving protection from rain as well as renewable energy for the site. While a personal garage is the best at

protecting a vehicle from the elements, a canopy to provide some protection from the rain and sun is a favorable alternative.

Although residents of Twin Creeks do not get private yards like in many low-density developments, they are provided patios, balconies, and walking paths next to the adjacent creeks. In a walkable and bicycle-friendly community like San Luis Obispo, residents need to be able to quickly access public spaces or exercise. In many low-density communities, it is common to see people walking their dogs and riding bikes. Twin Creeks is pet-friendly and has a bicycle storage room capable of storing the bicycles of every resident. The walking paths provide scenic views of the Acacia and Sydney Creeks and are shaded by large oak, sycamore, and eucalyptus trees. A pedestrian bridge at the south end of the property allows access through the community for residents. Twin Creeks is also within walking distance of several public parks and popular hiking trails. There is a children's play area and an enclosed area for pets. Bench seating and outdoor lighting are found throughout the Twin Creeks complex. There is even an outdoor barbeque grill with a pergola and an outdoor community dining area for residents to use.

Conclusion

In the United States, consumers have grown comfortable with low-density living. In the past half-century, increasing wealth, access to private transportation, and the improvement of road systems have driven many consumers to desire to own their own homes. As a result, developers construct sprawling neighborhoods of detached, single-family homes on the outskirts of cities, significantly influencing the rate of urban sprawl. Urban densification is one strategy for fighting urban sprawl and consists of adding housing units within urban areas instead of the perimeter of a city. However, because of their nature, many of these housing units provide fewer amenities and luxuries compared to most low-density developments and are not marketed for residents accustomed to living in single-family homes. Residents of neighborhoods at the edge of a city are provided with ample privacy, outdoor space, off-street parking, additional bedrooms and overall living space, and many other beneficial housing services. It makes sense why people gravitate towards wanting to own their own homes. However, projects like Twin Creeks show that higher-density developments can provide many of the same luxuries common in low-density living. For example, the modular design of the site allows for additional corner units which provide more natural light and privacy for residents who are concerned about sharing walls with neighbors. Complimentary parking and higher ceilings are comforts not commonly seen among many higher-density developments but are provided at Twin Creeks. In an active community like San Luis Obispo, the design team ensured to include a bicycle storage facility, a fully equipped fitness center, and over a quarter mile of walking paths through the site. Multiple styles of rental units are offered for people of all lifestyles. Three-bedroom units can be perfect for small families or three friends. Also, the modular design from Twin Creeks can be rearranged or expanded upon for future housing development projects to further increase urban densification. The housing services and amenities provided by Twin Creeks show that higher-density developments can be comfortable for consumers accustomed to living in single-family homes. In the future, vacant properties in urban areas can be converted into high-density housing like Twin Creeks to increase urban densification and reduce the desire to construct sprawling neighborhoods of houses on the city perimeter. A successful project like Twin Creeks hopes to show that residents of detached, single-family homes can be just as comfortable living in a higher-density environment.

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