Zoned out: how zoning commonly excludes the missing middle

by

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A REPORT

submitted in partial fulfillment of the requirements for the degree

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Approved by:

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Abstract

The lack of affordable housing in Kansas is exacerbated by restrictive zoning codes, high prices, suburban sprawl, and a housing market that prioritizes single-family developments over diverse, higher-density alternatives. With increasing demand for walkable, sustainable neighborhoods, innovative housing solutions are needed to address these challenges.

This study examines the feasibility of "missing middle" housing— duplexes, townhomes, cottage courts, and other multi-unit housing types—across three Kansas cities: Kansas City Kansas, Salina, and Cottonwood Falls. The research involved zoning code analysis, missing middle analysis, and spatial mapping to identify barriers and opportunities for increasing density and affordability. A projective design approach was also employed to propose modular, prefabricated housing models that create missing middle housing types.

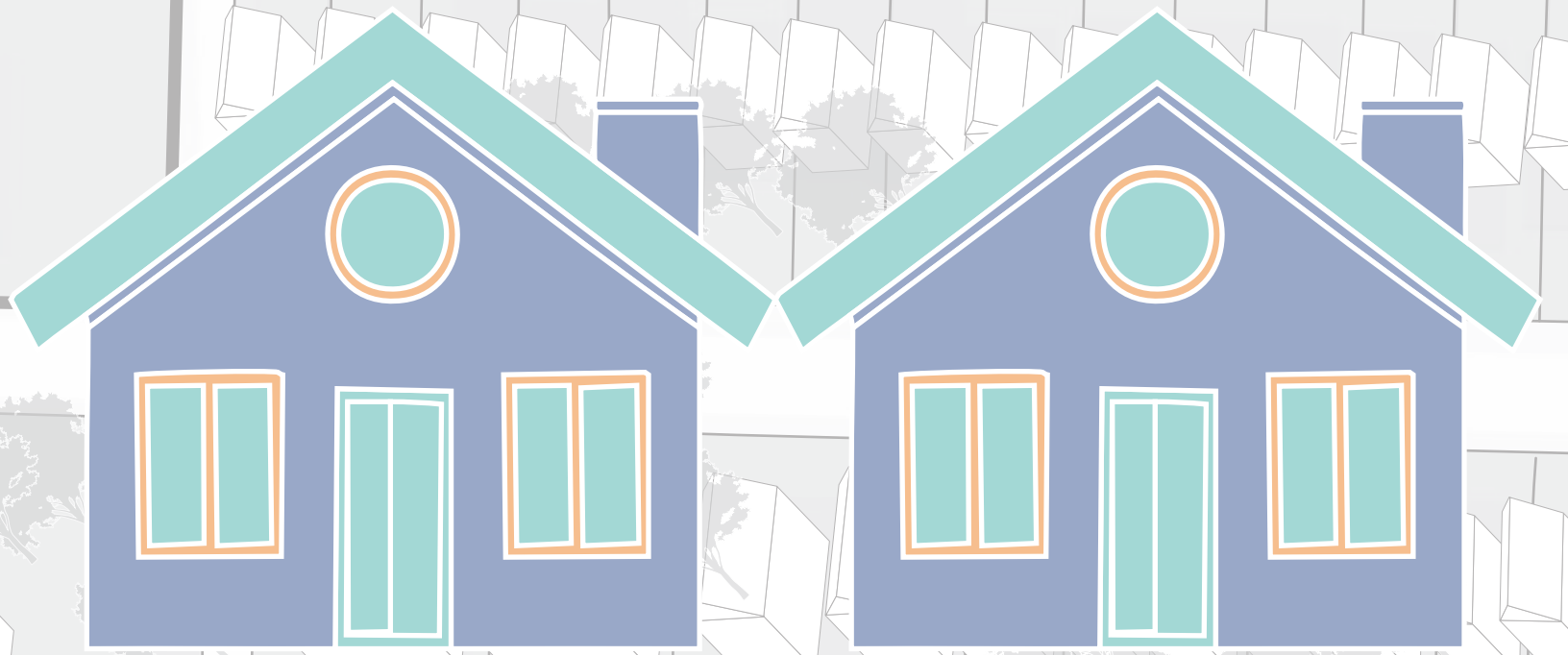
Findings reveal that many Kansas zoning codes do not actively accommodate missing middle housing, limiting its development despite demand. Additionally, suburban sprawl has increased infrastructure costs and environmental impacts while failing to provide affordable, community-oriented living spaces. The proposed design solutions demonstrate how innovative planning strategies can assist in bridging this gap, promoting affordability and walkability. While limitations in zoning accessibility and data availability remain, this research underscores the need for policy reform to create affordable housing solutions in Kansas.

ZONED OUT:

How Euclidean Zoning Commonly Excludes Missing Middle Housing Densities

Alison Snawerdt

2025



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Department of Landscape Architecture and Regional &
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Glossary

Bungalow- A catchall architectural housing type consisting of one or one-and-a-half-story houses (Abbott p. 21-22)

Bungalow Court- a group of cottages surrounded by a pedestrian-oriented greenspace (Chapin 2011; Duany, Speck, and Lyndon 2010; Koones 2019)

Density- the number of residential units in a given area (Burchell and Shad 1998)

Infill- new development that is placed on a previously vacant or underused lot in an existing development (Langdon 2023)

Missing Middle- a housing development style focused on middle density. Some types of missing middle housing include duplexes, townhomes, courtyard apartments, cottage courts, and more (Parolek 2020)

Pocket Neighborhood- a group of homes gathered around a central courtyard-like space, with emphasis on pedestrian connectivity and community (Chapin 2011)

Sprawl- a pattern of growth that has an abundance of development all separated from each other and has a heavy reliance on cars (Tachieva 2010, 1)

Suburb- an area near an economic center that has low, inefficient density

Vacant lot- land that is currently unused or utilized (Bowman and Pagano 2004)

01 INTRODUCTION

Figure 1 Downtown Cottonwood Falls (Snawerdt 2025)

Prologue

Affordable housing continues to be a pressing challenge in Kansas. Factors such as restrictive zoning codes, suburban sprawl, and a housing market that favors single-family developments over higher-density alternatives exacerbate this issue. Innovative housing solutions are essential to meet the growing demand for walkable and sustainable neighborhoods. The leading solution addressed in this study is how “missing middle” housing types, such as medium-density townhomes and duplexes, improve affordability through density. This study examines increasing density of housing developments in Kansas City Kansas, Salina, and Cottonwood Falls to promote sustainability and affordability. These three cities were selected due to their varying population sizes and varying acceptance of higher-density developments. Despite their differences, all three cities face one common problem: a shortage of affordable housing.

Large Cities 125,000+ People	Medium Cities 20,000 to 125,000 People	Small Cities Less than 20,000 People
5 Cities in Kansas*	17 Cities in Kansas*	723 Cities in Kansas
Representative City: Kansas City, Kansas Population: 156,000 Established 1872	Representative City: Salina Population: 47,000 Established 1858	Representative City: Cottonwood Falls Population: 850 Established 1859

All Need Affordable Housing

*For a list of all medium and large cities, see page 98.

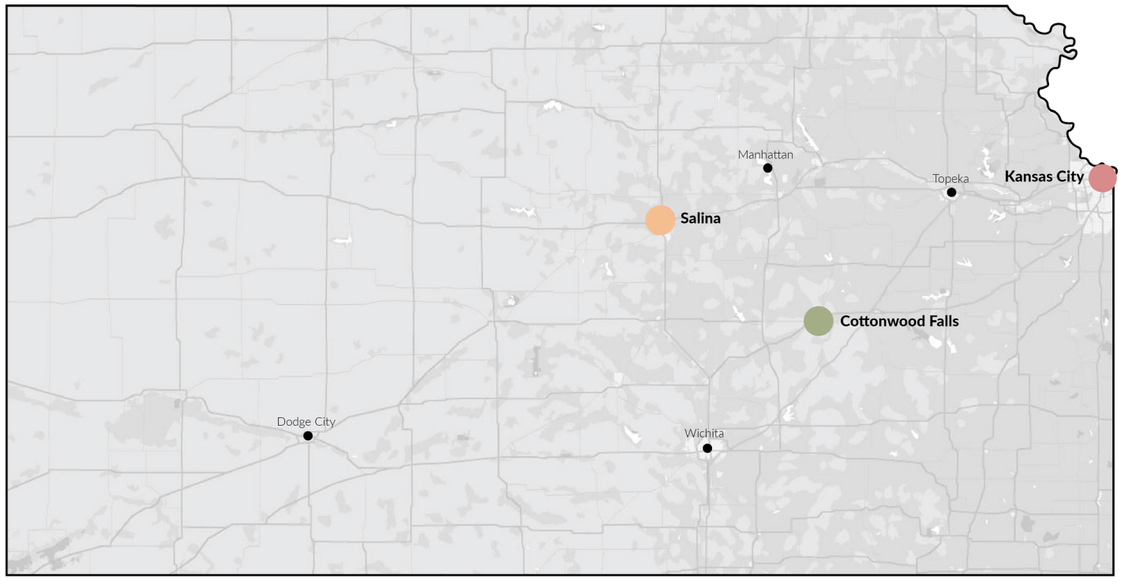


Figure 2 Selected Site Locations (Snawerdt 2025)

Research Question

How can missing middle housing densities partner with euclidian zoning to impact the supply of affordable housing developments?

Purpose

Kansas urgently needs to increase the amount of affordable housing, but current regulations often fail to address this issue. To create effective design solutions, it is essential to involve all design disciplines, leveraging their expertise. Additionally, residential design remains largely unchanged since the invention of the automobile, and often promotes isolation and separation instead of fostering community (Chiras 2003; Walters 2007). This project aims to initiate discussion centered on evidence-based design.

Figure 3 Danielson Grove Pocket Neighborhood in Kirkland, WA. Architect Ross Chapin Developer The Cottage Company.

Suburban Development History

Initial Appeal

People from the mid-1800s wanted to escape the city due to unpleasant urban conditions such as open sewage, disease, and fire (McAlester 2013; Beske and Dixon 2018). Suburban development helped meet this need. It provided a way to access the inner-city core yet escape via streetcar or railroad (Abbott 2023; Chiras 2003; Harris and Larkham 1999). The Garden City movement inspired suburban development, providing the benefits of the country closer to the city (Beske and Dixon 2018; Stern, Fishman, and Tilove 2013). This idea quickly spread. By the 1880s, hundreds of thousands commuted daily between New York and the adjacent suburbs (Stern, Fishman, and Tilove 2013, 47).

Increasing Development

Transportation and new technologies drove suburban development (McAlester 2013; Harris and Larkham 1999). Expanding railroad and streetcar lines increased the creation of late 1800s suburbs (Abbott 2023; Chiras 2003; McAlester 2013; Stern, Fishman, and Tilove 2013). This allowed a city to have ten times more territory for development than in 1800 (Abbott 2023, 12). For technology, the new development of light-wood construction made building affordable and fast (McAlester 2013, 63–64). At the same time, expanding gas and electric utilities and telephone services allowed for communication and ease of suburban living (Harris and Larkham 1999; McAlester 2013).

Car Centric Design

The car exponentially changed suburban design (Harris and Larkham 1999; McAlester 2013). The car allowed people to disperse, turning places to asphalt for parking (Gammage 2016). Cities became an ever-expanding grid of blocks due to the car (Gammage 2016, 76–77), which led to the paving of streets, larger lots, and buildings being farther from the street (McAlester 2013).

World War One and Two

World War One shifted developers' focus from housing to war efforts, and suburban development continued (Stern, Fishman, and Tilove 2013). Development was driven by the need to house factory employees (Stern, Fishman, and Tilove 2013). President Woodrow Wilson created the Emergency Fleet Corporation, a federal agency that built military and passenger vessels (Stern, Fishman, and Tilove 2013, 861). To house employees, roughly 9,000 homes were designed and developed in 27 towns (Stern, Fishman, and Tilove 2013, 863). By the end of World War Two, 2,100 communities had developed without mass transit and had exclusively relied on cars to travel (Stern, Fishman, and Tilove 2013).

Post World War Two

Most suburban development occurred after World War Two (McAlester 2013; Chiras 2003; Gammage 2016; Tachieva 2010). The development of the U.S. highway system aided in suburban expansion (Burchell and Shad 1998). The U.S. highway system facilitated sprawl and encouraged car-centric design (Burchell and Shad 1998; Chiras 2003; Gammage 2016; Hayden 2004; Kaplan and Austin 2004; Layton, Pruitt, and Cekola 2011; McAlester 2013).

Figure 4 Suburban housing near Union, Kentucky

Sprawl and Density

What is Sprawl?

Sprawl is low-density growth (Abbott 2023; Burchell and Shad 1998; Smart Growth Network 2005; Tachieva 2010), expanding without limits and lacking continuity (Burchell and Shad 1998). Most sprawl manifests as suburban residential development (Burchell and Shad 1998). Sprawl is difficult to measure. Most quantify sprawl through density, street connectivity, and land use (Abbott 2023, 7).

Drawbacks of Low Density

Low density causes local infrastructure not to be as affordable as possible (Burchell and Shad 1998; Speir and Stephenson 2002). Sprawl creates higher infrastructure costs (Burchell and Shad 1998; Speir and Stephenson 2002). Infrastructure such as roads, water, and sewers are sensitive to spatial arrangement and save money if compact and efficient (Speir and Stephenson 2002).

Additionally, sprawl consumes agricultural lands (Burchell and Shad 1998; Speir and Stephenson 2002) and has an imbalance of land use (Burchell and Shad 1998; Speir and Stephenson 2002; Tachieva 2010). It degrades air and water quality (Speir and Stephenson 2002), leading to poor physical health (Tachieva 2010).

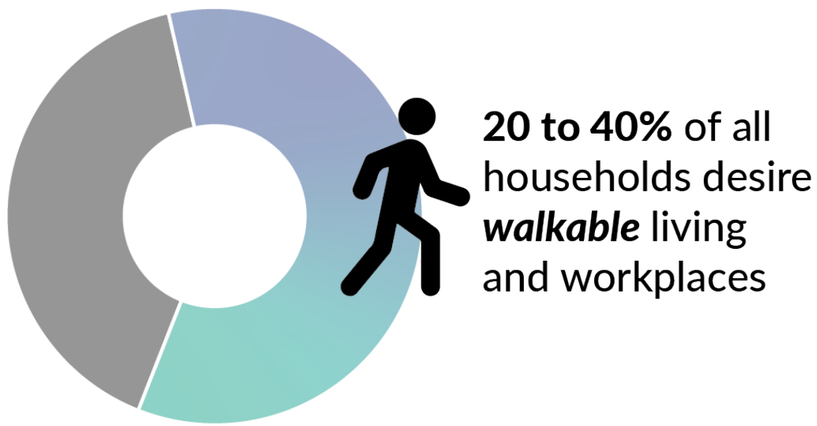
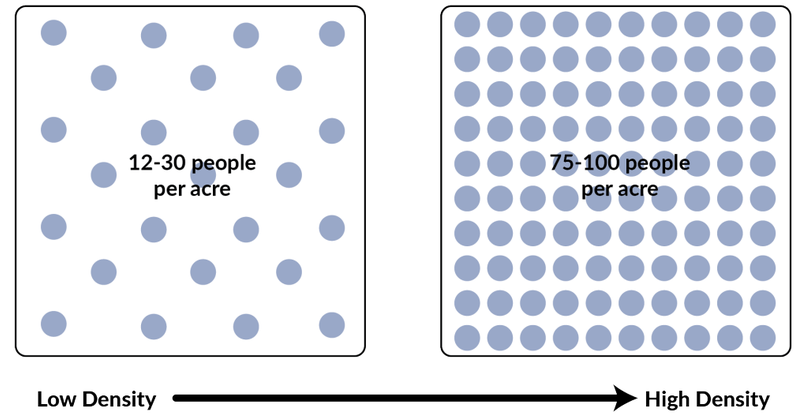


Figure 5 Walkability Desire (Layton, Pruitt, and Cekola 2011)

Figure 6 Density In America (Girling 2005, 103)



Alleviating Sprawl

Increasing density can alleviate the negative effects of sprawl (Bowman and Pagano 2004; Cho and Roberts 2007; Suchman 2002; Steinacker 2003; Tachieva 2010). Higher density improves sprawl through the following:

- decreases the rate of suburban growth (Bowman and Pagano 2004; Cho and Roberts 2007; Suchman 2002; Steinacker 2003; Tachieva 2010)
- creates more affordable housing by distributing costs (Langdon 2023; Steinacker 2003)
- improves cost-efficiency (Aurand 2010; Sim 2019; Smart Growth Network 2005)
- fosters community (Sim 2019)
- creates a shared identity (Sim 2019)
- reduces driving (Abbott 2023; Tachieva 2010)
- protects natural drainage corridors (Abbott 2023)

Higher density generates more money for the local government through a larger tax base (Bowman and Pagano 2004; Steinacker 2003). These taxes provide economic growth opportunities (Tachieva 2010). Because of economic opportunity, higher-density areas best meet lower-income needs (Aurand 2010).

Infill Housing Helps Increase Density

Infill housing creates higher density. When designing infill housing, match construction to the existing styles of the area and consider existing residents (Langdon 2023; Suchman 2002; Urban Design London 2017). Infill houses should be integrated into the neighborhood, have character, and be easy to navigate (Urban Design London 2017).

Vacant Lots

Types of Vacant Land

Vacant land can describe the following types of unused sites:

- Sites with physical constraints such as steep slopes, flood hazards, river banks (Bowman and Pagano 2004; Kim, Miller, and Nowak 2018)
- Postindustrial sites such as former power plants, landfills, or airports (Kim, Miller, and Nowak 2018)
- Previously developed land (Kim, Miller, and Nowak 2018)
- Undeveloped land (Bowman and Pagano 2004; Kim, Miller, and Nowak 2018)

A Chain Reaction

When vacancies occur, nearby lots are more likely to become vacant (Usui and Perez 2022). This chain reaction explains why 17% of the U.S. land is considered vacant (Newman et al. 2016). Abandonment affects adjacent property values, as vacant lots located in the middle of a block affect more properties than one on the edge of a block (Bowman and Pagano 2004, 128).

Effects of Vacant Lots

Vacant lots can cause the following among remaining residents of nearby lots:

- Increase stress (Bowman and Pagano 2004; Sivak, Pearson, and Hurlburt 2021)
- Contribute to poor mental health (Kim, Miller, and Nowak 2018; Sivak, Pearson, and Hurlburt 2021)
- Increase injuries (Sivak, Pearson, and Hurlburt 2021)
- Increase crime (Kim, Miller, and Nowak 2018; Kremer, Hamstead, and McPhearson 2013; Sivak, Pearson, and Hurlburt 2021; Smart Growth Network 2005)
- Lower real estate values (Kremer, Hamstead, and McPhearson 2013)

Restoration

In turn, restoring vacant lots improves the nearby area. Restoration enhances health and reduces crime and fear (Branas et al. 2018; Kvit et al. 2022). To encourage vacant land acquisition, cities can clear the title of the land, identify and contact the landowner, and deal with potential tax liens (Suchman 2002).

Figure 7 A house for sale in Cottonwood Falls, Kansas (Snawerdt 2024)

Missing Middle Housing

Definition

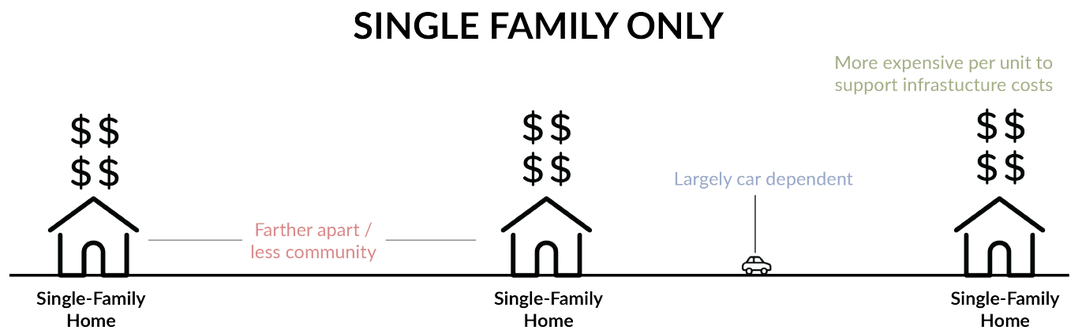
‘Missing middle’ housing density exists between low and high-density living. These include duplexes, courtyard apartments, bungalow courts, townhouses, multiplexes, and more (Parolek 2020). These buildings are on a single-family house scale, yet they typically have more than one unit in them (Parolek 2020). The emphasis of missing middle housing is primarily on density, rather than building form. These homes are in the middle range in terms of both scale and affordability (Parolek 2020). This meets a growing demand for walkable living and responds to shifting demographics (Parolek 2020).

Benefits

‘Missing middle’ housing is most common in walkable places, decreasing the need for parking. This causes the following:

- smaller lot sizes and land needed per unit
- increases the number of units per site
- reduces the need for garages
- people can live without a car (Parolek 2020)

Figure 8 Missing Middle Housing Types (Snawerdt 2025)



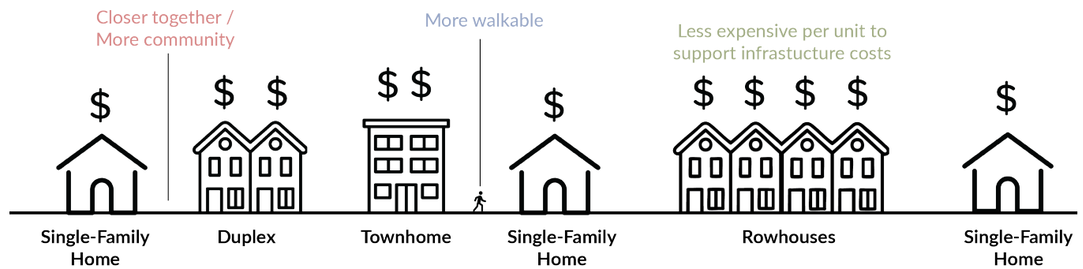


Figure 9 Missing middle housing densities benefit a community in a wide variety of ways (Snawerdt 2025)

Background

Missing middle housing densities are not a new concept. In the 1900s, Sears and other catalog companies sold house plans and kit houses that were missing middle housing types. Kit houses aided in saving money and allowed people to live in one unit and collect rent in the other unit to provide a steady income stream. Developing missing middle houses allowed lower-income families to build equity (Work Program Architects, GARC, and Dills Architecture 2021).

These missing middle houses started to be built significantly less starting in the mid-1940s, with the beginning of the “baby boom,” when more than seventy-three million babies were born between 1946 and 1964 (Parolek 2020). As cities could not meet the demand, single-family suburbs prospered (Parolek 2020, 33).

A Clear Connection

The location of missing middle housing densities are not random. It is commonly located near historical streetcar lines and bus routes. This is because higher density reduces the average walking distance to nearby transit.

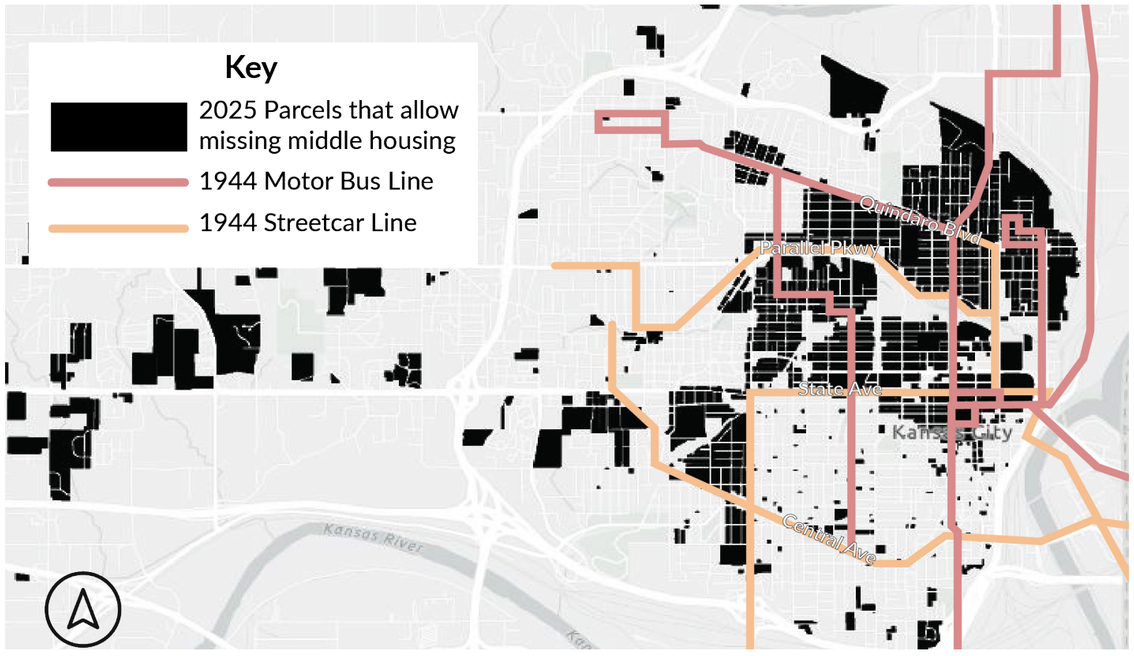


Figure 10 A Connection between historical transit and Missing Middle housing in Kansas City, Kansas (Snawerdt 2025)

Barriers to Accommodating the Missing Middle

Zoning

Local zoning codes often indirectly prohibit missing middle housing densities (Parolek 2020, 73). Only a small percentage of a city is zoned to accommodate the missing middle (Parolek 2020). Many codes do not allow multiple units on a small to medium-sized lot, have setbacks, minimum densities, or have minimum lot sizes that make development difficult (Parolek 2020, 73). Zoning maps of local cities tend to favor single-family homes, even in improper contexts (Parolek 2020).

Parking

Many zoning codes have parking requirements that restrict density. To increase density, consider requiring less parking on smaller units and more parking on larger units (Opticos Design 2021).

Not in My Backyard (NIMBY)

Existing residents may strongly push back against any housing form that is not single-family detached housing, known as NIMBYs (Parolek 2020, 53).

Placing Missing Middle Housing

When accommodating a city for missing middle housing, it is important to identify priority areas within a city that best accommodate this housing development. Consider the following:

- Place in a walkable context within a short distance of common amenities such as commercial buildings, parks, schools, and transit (Opticos Design 2021)
- Consider compatibility with the surrounding neighborhood, including architectural style and form (Opticos Design 2021)

Figure 11 As Infill in a Neighborhood (Snawerdt 2025)

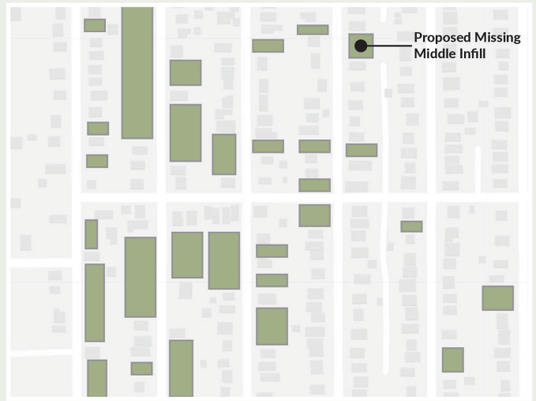


Figure 12 Near a Historic Main Street (Snawerdt 2025)

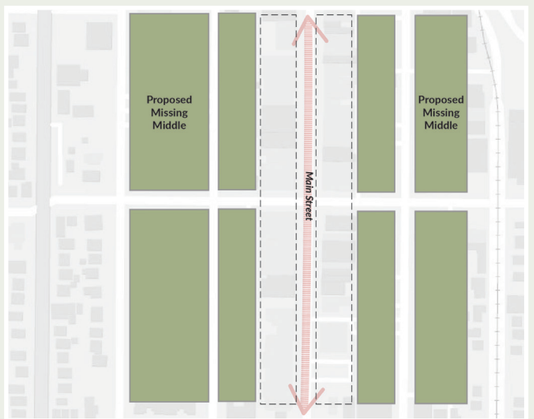


Figure 13 Around a Car-Centric Commercial Area (Snawerdt 2025)

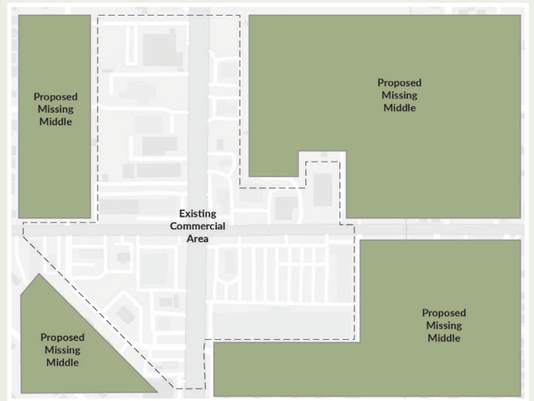


Figure 14 Around an Existing Shopping Center (Snawerdt 2025)

The above placement strategies are from *Zoning for Missing Middle Housing Guidebook* by Opticos Design.

Missing Middle Housing Increases Density

These cities' total densities are less than two dwelling units per acre. By incorporating missing middle housing densities, these densities will increase. Although cities such as Wichita, Lawrence, and Kansas City, Kansas are notably dense in some areas, expansive open land such as airports and farmland significantly decrease the overall density of the city.

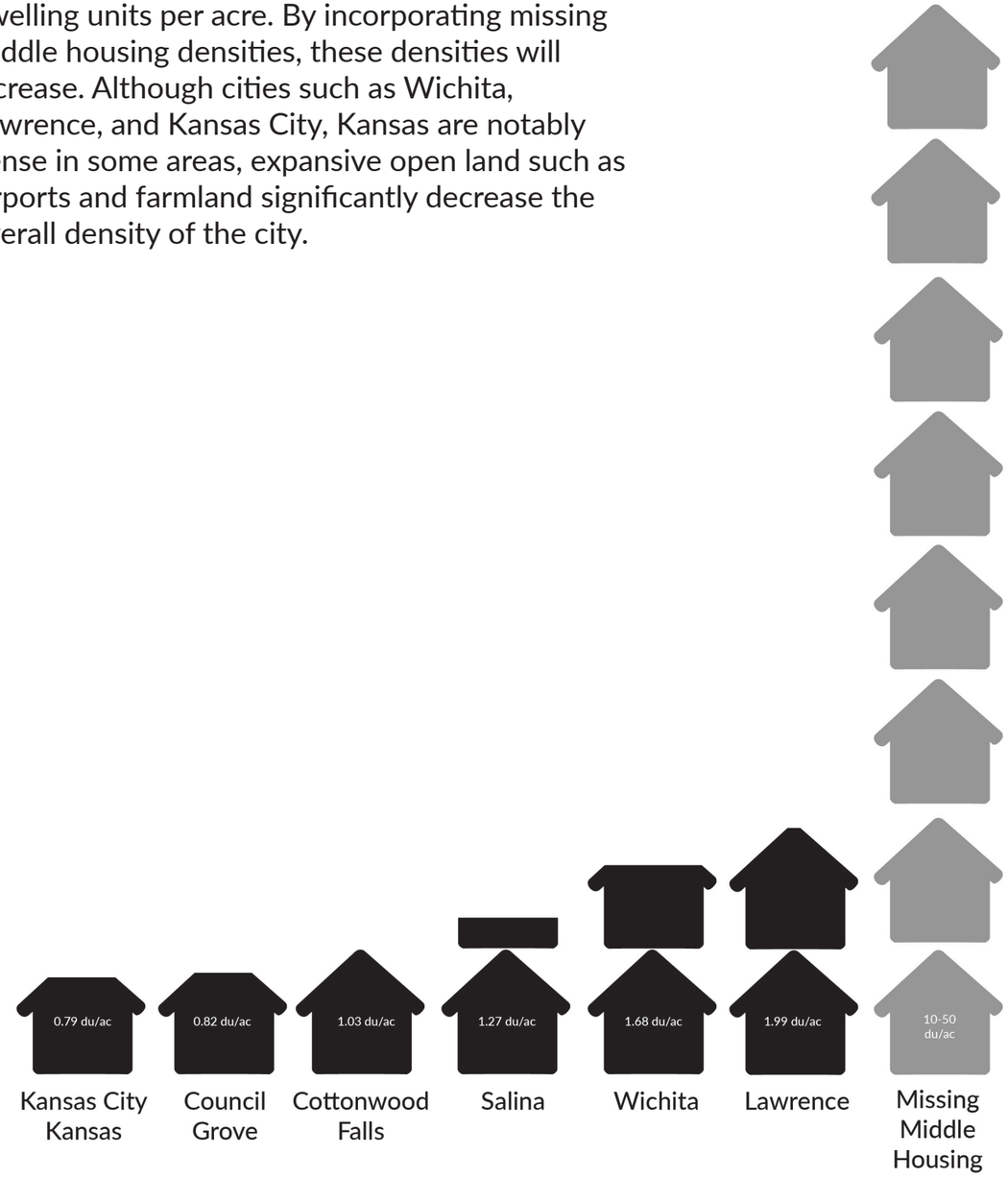


Figure 15 Missing Middle Housing can substantially increase the density in any town in Kansas, regardless of size. (2020 Decennial Census)

Pocket Neighborhoods

Background

Another way to create innovative housing is through the development of pocket neighborhoods. Inspired by Ebenezer Howard's Garden Cities and historical bungalow courts (Chapin 2011), Ross Chapin (Koones 2019) first coined the term 'Pocket Neighborhood', defining it as "a cohesive cluster of homes gathered around some kind of common ground within a larger surrounding neighborhood" (Chapin 2011, 8).

Definition

Pocket neighborhoods comprise roughly 4 to 16 households and emphasize community interaction (Chapin 2011, 9). Large-scale streets or blocks are not used as much as small-scale rooms and backyards, which is why smaller-scale developments are preferred (Chapin 2011). Pocket neighborhoods are focused more on small-scale spaces, as they foster neighborhood interaction and relationships (Chapin 2011; Francis 2002; Polyzoides, Sherwood, and Tice 1982). Small-scale spaces allow pocket neighborhoods to get maximum usage out of all spaces. These interactions help counter loneliness (Chiras 2003; Koones 2019).

Degrees of Privacy

Successful pocket neighborhoods incorporate a balance of public and private space (Chapin 2011, 81). This gradient can be created through elements such as the edge of a sidewalk, a gate, planters, and more (Chapin 2011, 81). Backyards that open up to a shared green space promote interaction and connection (Chapin 2011; Chiras 2003). Parking is commonly detached from the houses and streets are screened and narrow (Chapin 2011; Francis 2002).

Figure 16 Greenwood Avenue Cottages in Shoreline, WA.
Architect Ross Chapin Architects.
Developer The Cottage Company

Figure 17 Conover Commons Phase I Sketch in Redmond, WA. Architect Ross Chapin Architects. Developer The Cottage Company.

Figure 18 Salish Pond Cottages in Gresham, OR.
Architect Ross Chapin Architects. Developer Michael McKeel

Bungalow Courts

Bungalow courts originated in southern California from the 1910s to the 1930s (Abbott 2023; Chapin 2011). They comprise a cluster of cottages surrounded by a pedestrian-oriented green space (Chapin 2011; Duany, Speck, and Lyndon 2010; Koones 2019). Bungalow courts offer the convenience of apartment living, such as low rent and minimal maintenance, with the benefits of single-family homes, such as privacy, gardens, and porches (Chapin 2011, 45).

By 1933, there were 414 bungalow courts in Pasadena, California (Chapin 2011, 48). As the bungalow court movement expanded, each region added architectural adjustments, such as adding open porches in Denver, Colorado (Abbott 2023). Bungalow courts ceased development after the Great Depression (Chapin 2011).

Figure 19 A historical bungalow court

Townhome Infill Precedent

Developed by Smart Density, this rowhouse project in Toronto, Canada increases density in the existing area. This design met a growing demand for connected urban living and provides options for affordability in a former parking lot. These homes are family-sized and dense, yet provide privacy and a sense of community.

Figure 20 These 6 rowhouses replace surface parking (Smart Density)

Figure 21 The windows in this design ensure privacy, provide light, and create engagement from the street (Smart Density).

Figure 22 This density provides access to Toronto's nearby subway system at Dupont Station within a comfortable walking distance (Smart Density).

Live/Work Precedent

This live/work building designed by Loci Architecture and Design provides both commercial and residential amenities. With an emphasis on walkability, this building has a business on the lower level with a residential unit above. The residential unit has a balcony and overlooks a highly vegetated area.

Figure 23 This building has commercial use on the lower floor and residential on the upper two floors (Loci Architecture)

Figure 24 This design activates the street, encouraging pedestrians to enter to the commercial space (Loci Architecture)

02 METHODS

Figure 25 Danielson Grove Pocket Neighborhood in Kirkland, WA.
Architect Ross Chapin Developer The Cottage Company.

Zoning Codes Analysis

Background

Zoning codes often restrict or complicate the development of missing middle housing types and densities. Because of this, it is essential to examine how zoning codes either restrict or facilitate the construction of missing middle housing types. This analysis explores six city's priorities and regulatory standards while identifying opportunities for incorporating projective design solutions that align with these frameworks. These cities were chosen due to their growth potential, varying sizes, and because they are all located in Kansas.

Method

Terms such as "duplex," "apartments," "town home," "townhouse," "cottage court," and "live/work" were searched by the author within the zoning sections of each city's municipal code. A thorough review of individual zoning code entries revealed trends that highlight which types of missing middle housing developments are permitted, providing insights into how zoning can support or hinder these critical housing solutions. This is summarized in a table that highlights what zoning districts allow which developments.

Cities Zoned for Missing Middle Housing Densities

See Table 1 for further analysis

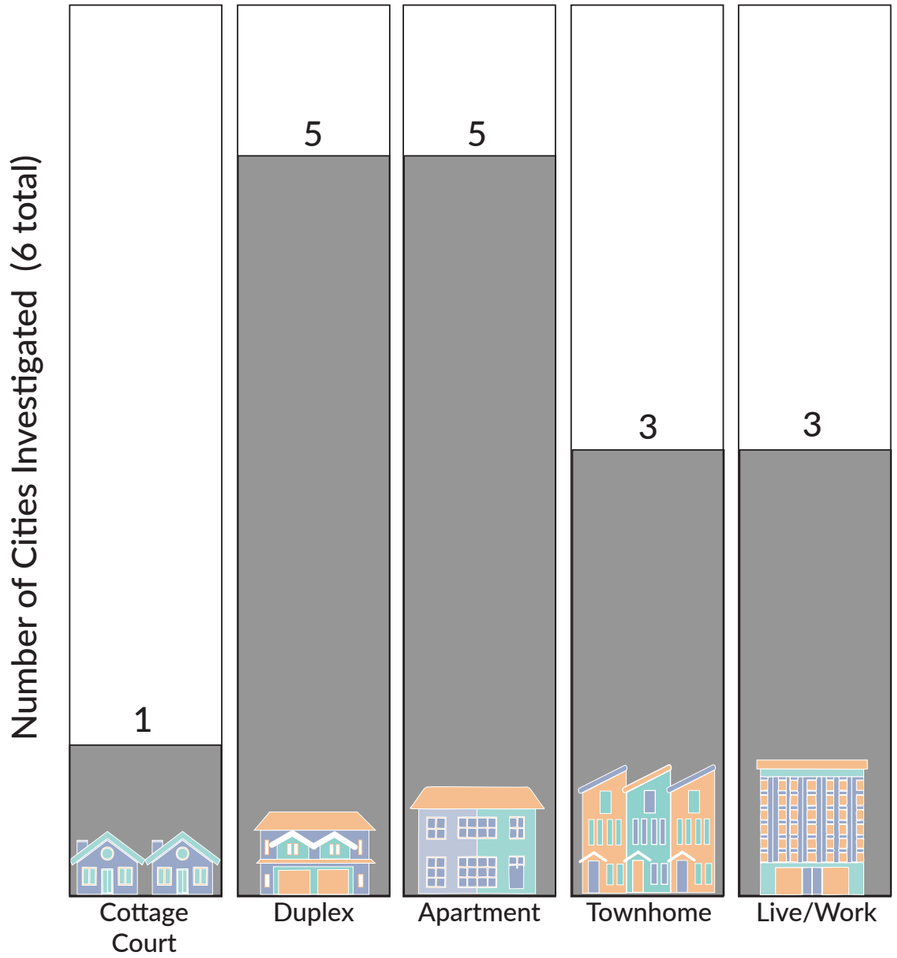


Figure 26 Zoning Code Analysis Bar Chart (Snawerdt 2025)

Missing Middle Analysis

This analysis emphasizes that missing middle housing densities offer the most affordability but face uneven permitting across Kansas. The study uses Table 1 to map zoning districts that allow for missing middle housing and overlays this information onto median household income data, revealing the economic groups more likely to live in missing middle housing.

This study focuses on Kansas City Kansas, Salina, Wichita, and Lawrence, as Cottonwood Falls and Council Grove do not have zoning data available on ArcGIS.

Additionally, data gathered relates the percentage of land used for missing middle housing, residential housing that is not missing middle, and non-residential land uses. The more accepting a city is with alternative housing developments, the higher the percentage of land allowing missing middle housing. One important note is that this study shows what is zoned for missing middle housing, not necessarily what is built as missing middle housing.

Figure 27 This building is located on the southwestern portion of the Kansas City, Kansas projective design site, advertising the Loose-Wiles Biscuit Company, formed in 1902. (Perdomo 2024)

Kansas City, Kansas

Of the cities studied, Kansas City, Kansas, is the least accepting of missing middle housing. Not only does the city only allow six percent of the area of the city to build missing middle housing, but the majority of the missing middle housing types are only allowed in lower-income areas. See Appendix C for calculations.

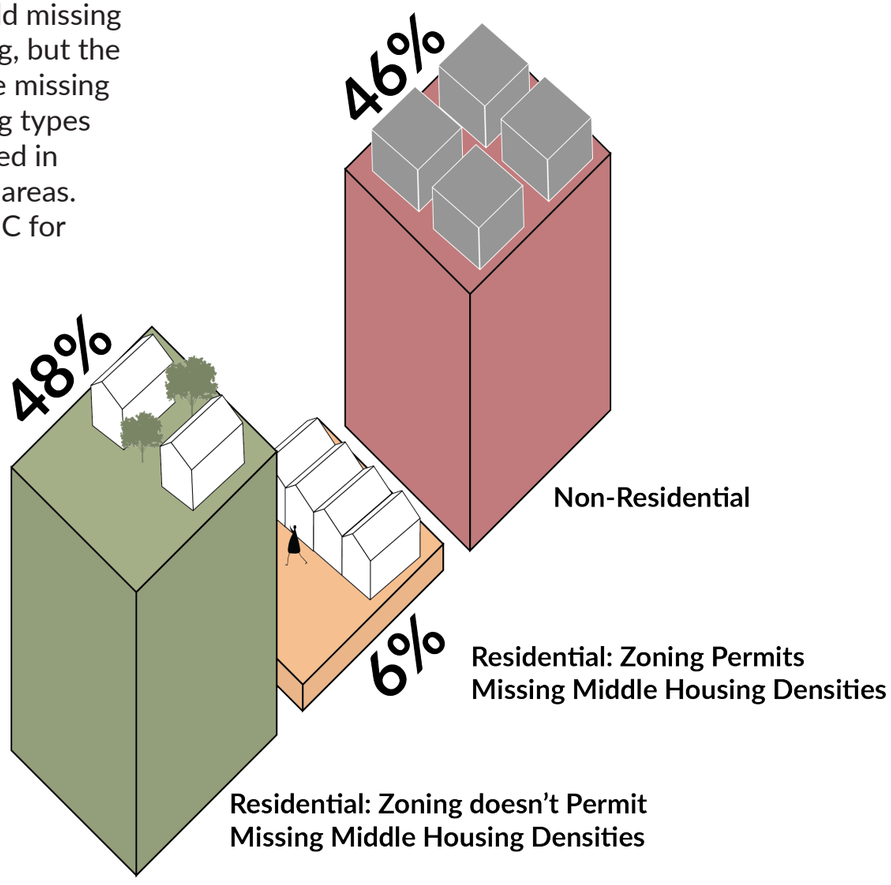


Figure 28 Kansas City, Kansas Land Usage (Snawerdt 2025)

The Median Income of Areas that allow Missing Middle Housing

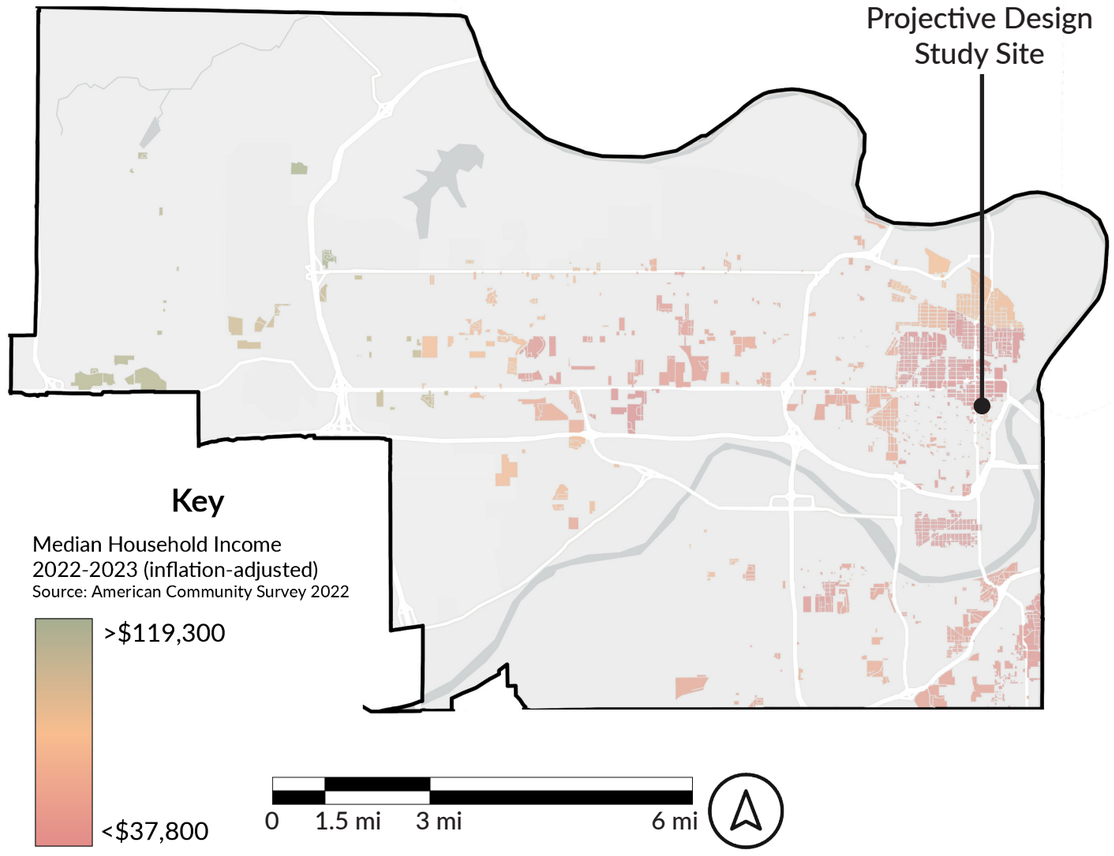


Figure 29 The Median Income of Areas that allow Missing Middle Housing in Kansas City, Kansas (Snawerdt 2025)

Salina

Salina is moderately accepting of missing middle housing compared to the cities studied. Although a little under half of the city is not zoned to allow residential development, the portions that allow missing middle housing vary in median household income, providing opportunities for all economic statuses to build medium-density housing. See Appendix C for calculations.

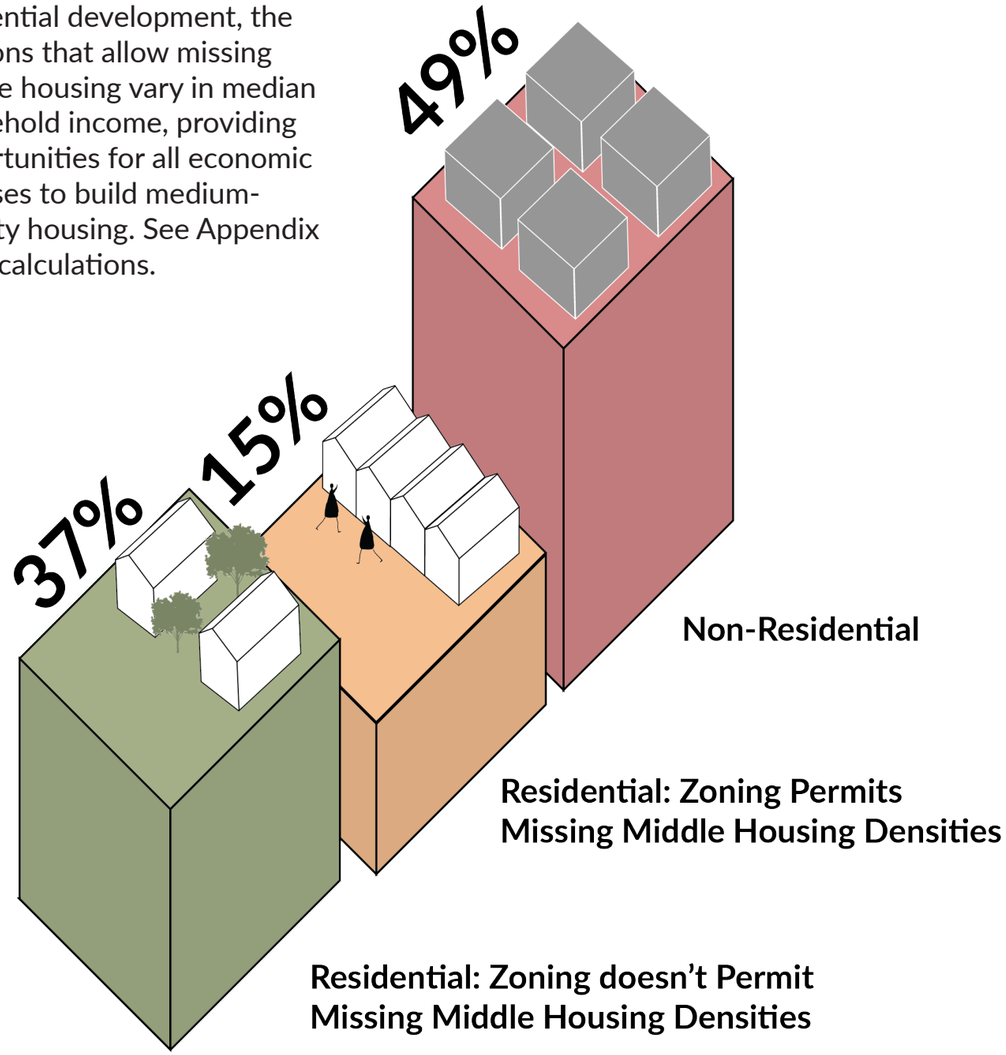


Figure 30 Salina Land Usage (Snawerdt 2025)

The Median Income of Areas that allow Missing Middle Housing

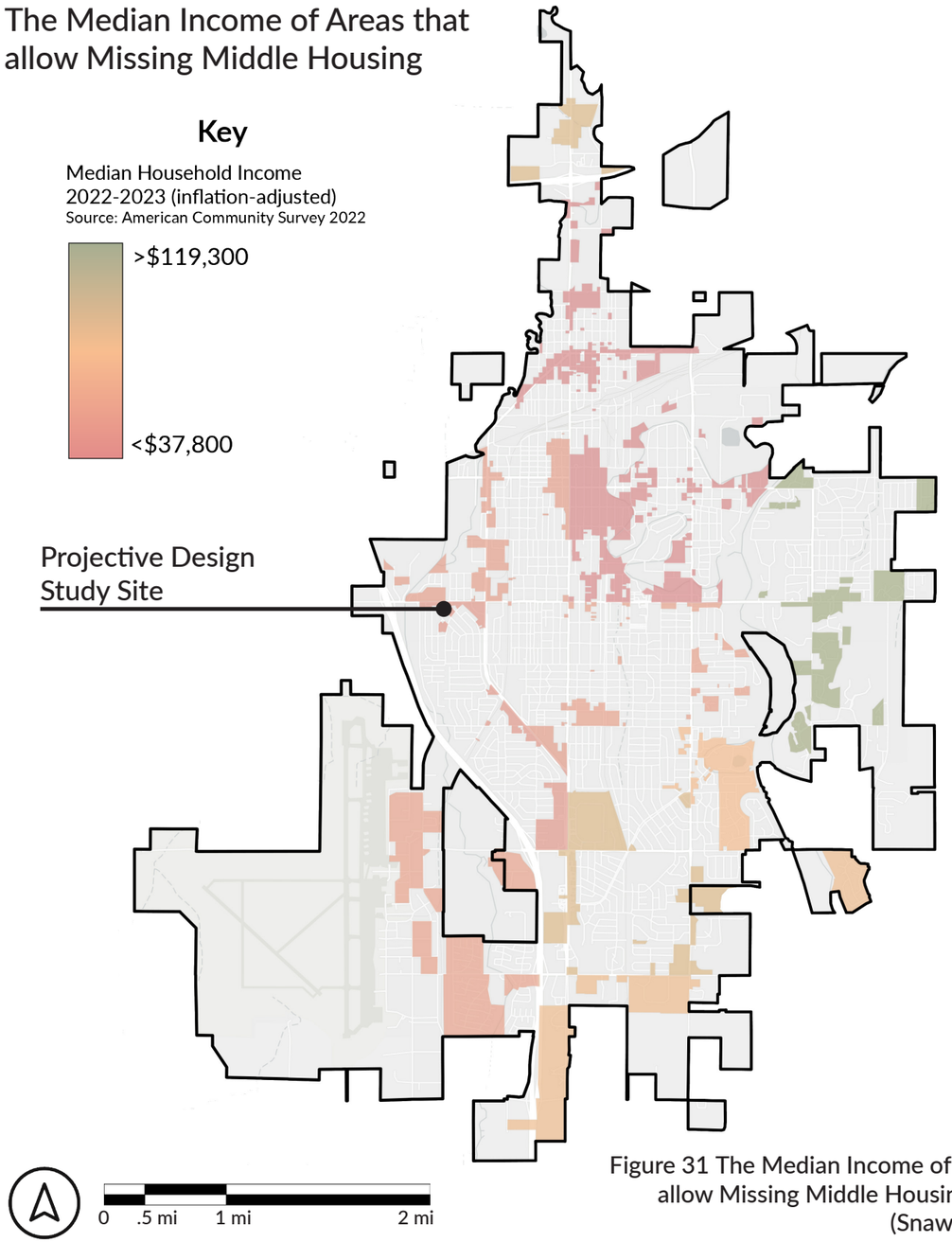


Figure 31 The Median Income of Areas that allow Missing Middle Housing in Salina (Snawerdt 2025)

Wichita

Wichita is the most accepting city of the four studied regarding missing middle housing. Almost all of the residential areas allow missing middle housing, and the majority of the city allows residential development, which significantly promotes walkability to nearby amenities. See Appendix C for calculations.

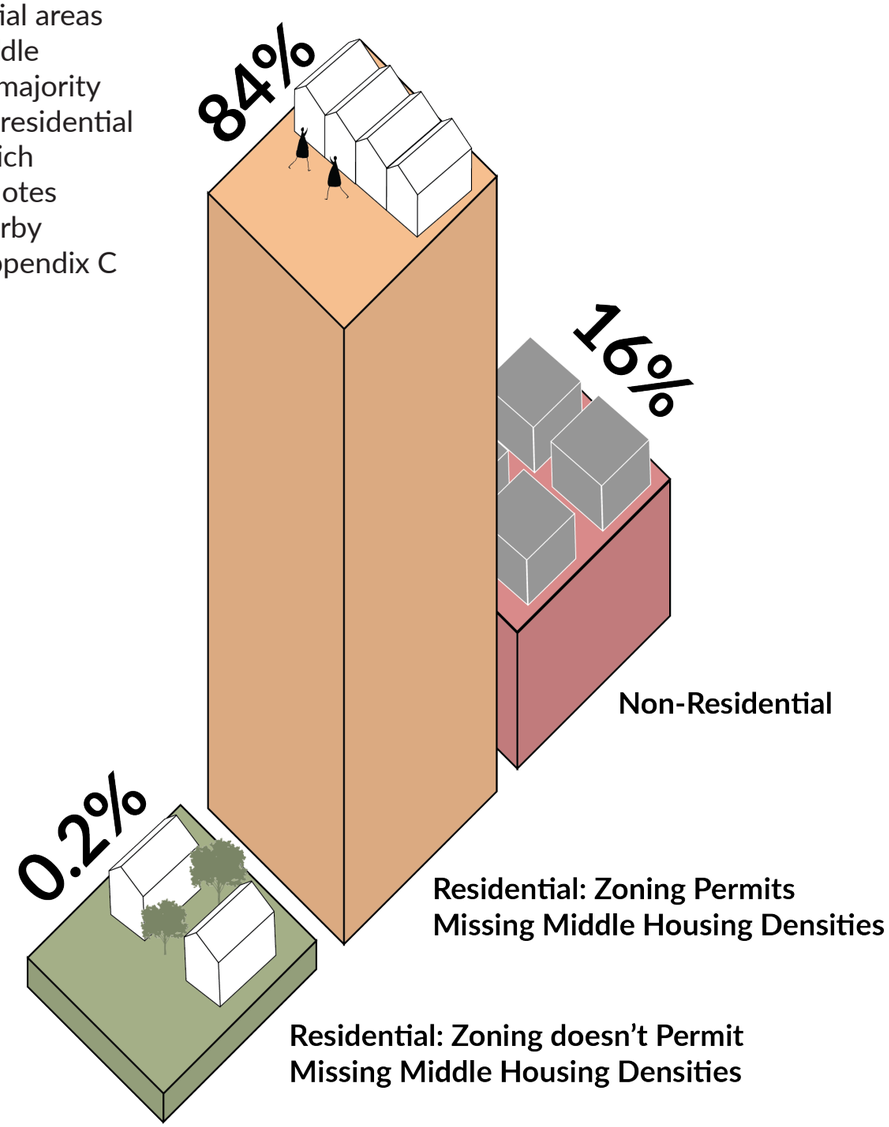


Figure 32 Wichita Land Usage (Snawerdt 2025)

The Median Income of Areas that allow Missing Middle Housing

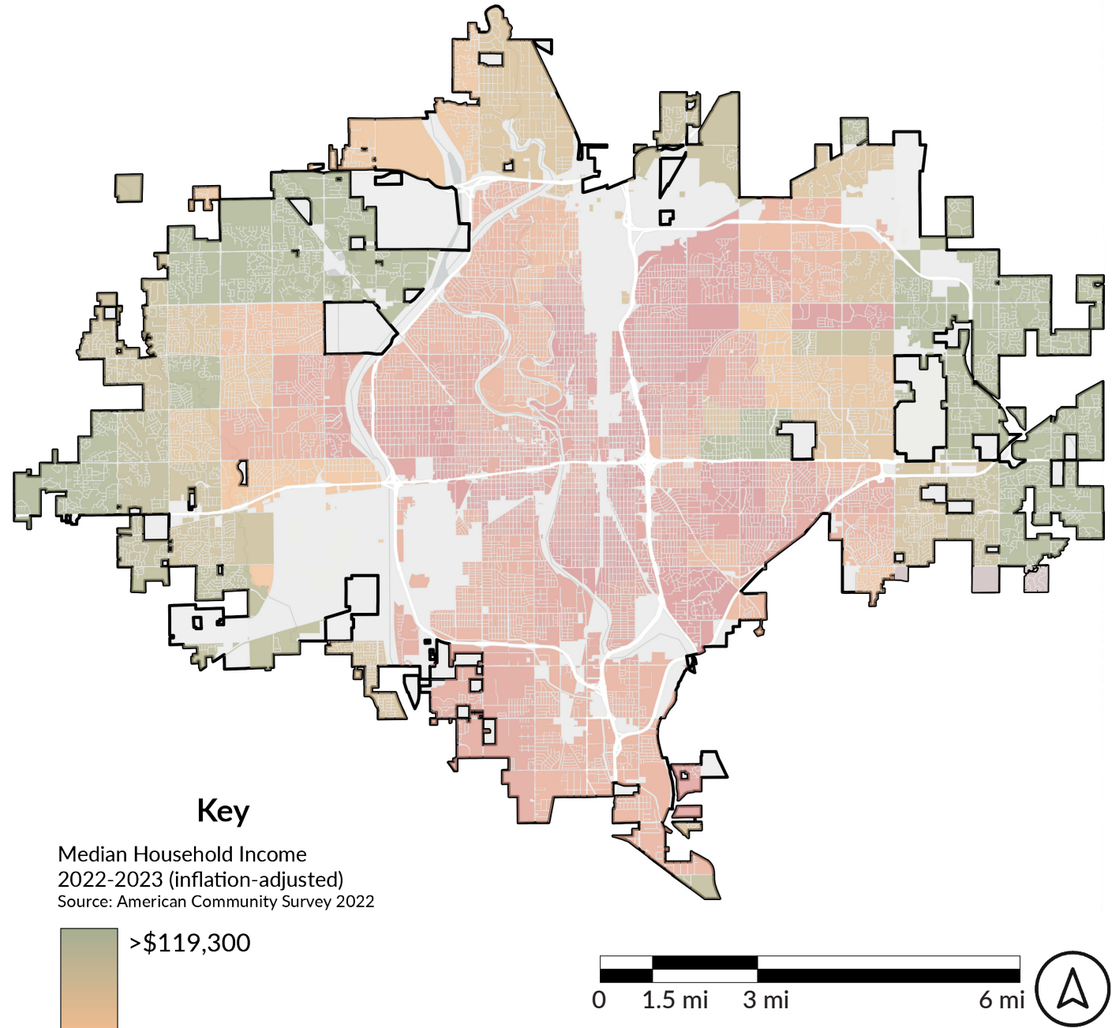


Figure 33 The Median Income of Areas that allow Missing Middle Housing in Wichita (Snawerdt 2025)

Lawrence

Lawrence is accepting of missing middle housing. All residential areas allow this type of development, which gives all citizens an equal opportunity to increase the density of their property. See Appendix C for calculations.

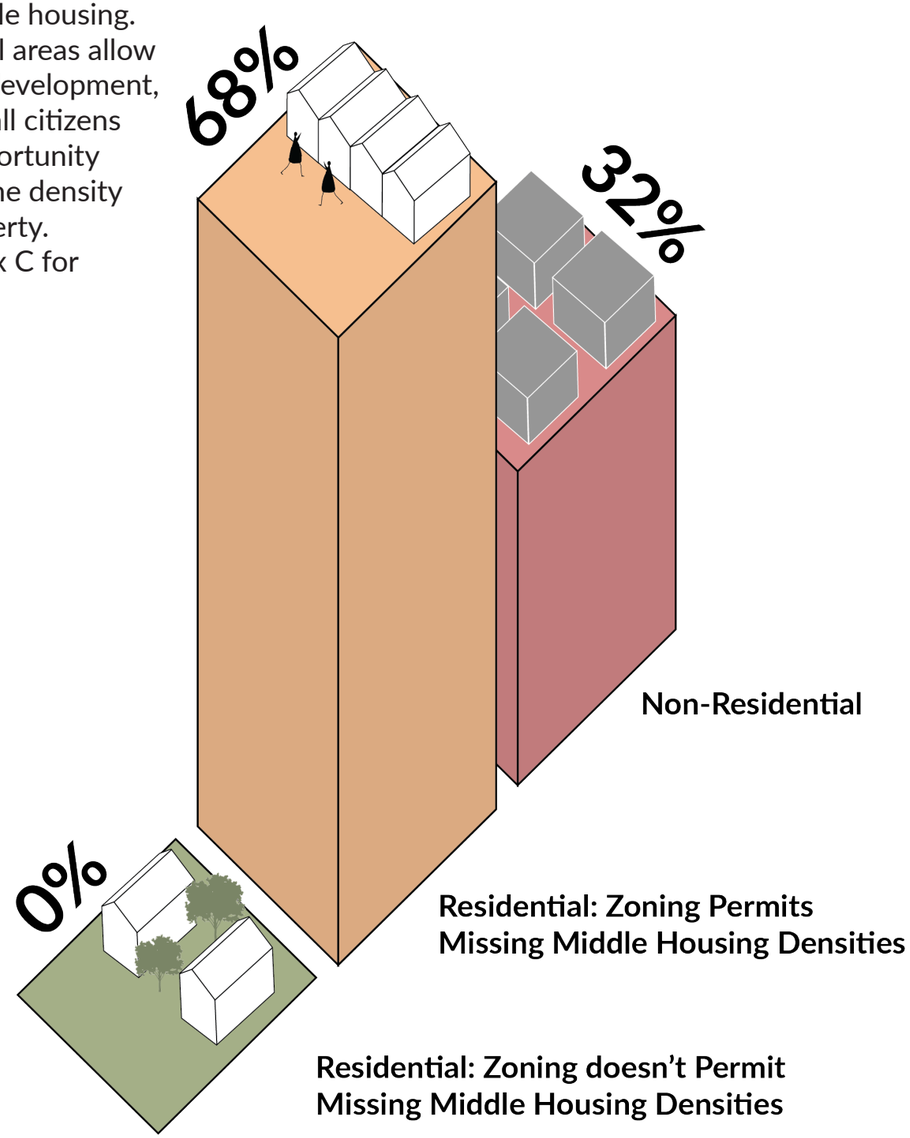


Figure 34 Lawrence Land Usage (Snawerdt 2025)

The Median Income of Areas that allow Missing Middle Housing

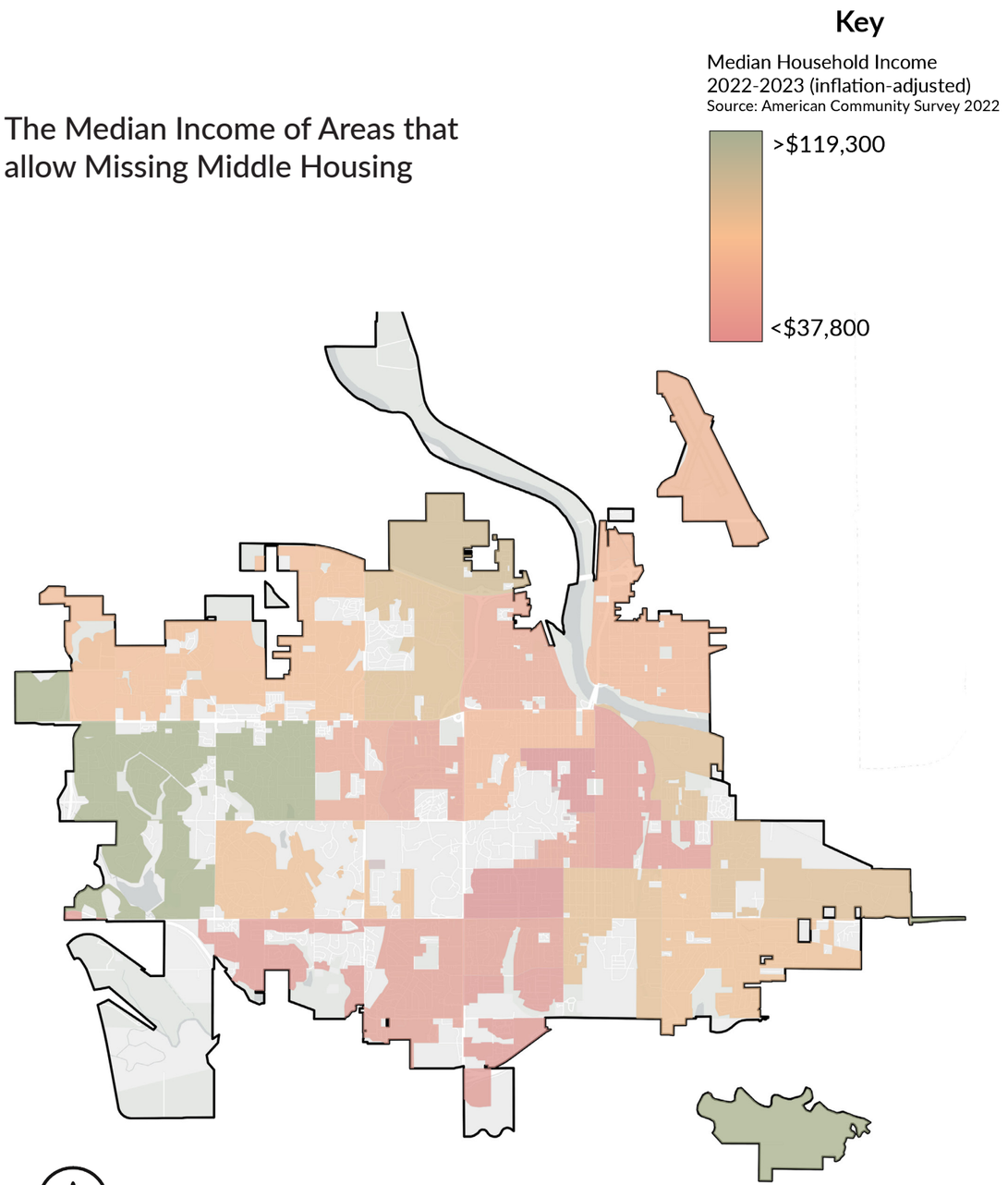


Figure 35 The Median Income of Areas that allow Missing Middle Housing in Lawrence (Snawerdt 2025)

04 PROJECTIVE DESIGN

Figure 36 Salina Projective Design (Snawerdt 2025)

Introduction

Although the cities of Kansas City Kansas, Salina, and Cottonwood Falls have varying degrees of density and population, all three cities do not widely accommodate missing middle housing in their zoning codes. This projective design seeks to demonstrate alternative housing options to increase density and affordability. This projective design was conducted in collaboration with fellow Kansas State landscape architecture students, Tyler Otto, Gabrielle Perdomo, Simon Worthley, and Cale Mueller.

Aside from considering missing middle housing and zoning codes, this projective design emphasizes the following:

- Prefabrication
- Modularity
- Affordability
- Density
- Sustainability
- Local demographics

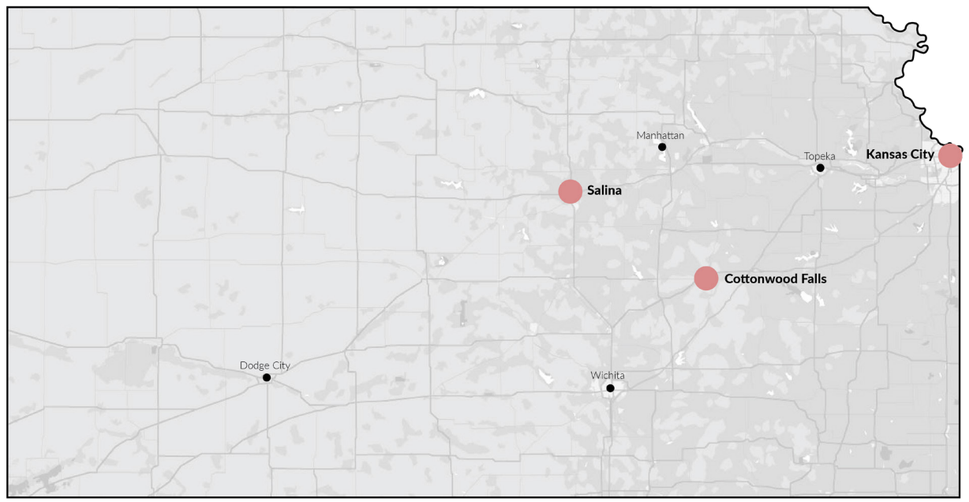


Figure 37 Locator Map for Salina, Cottonwood Falls, and Kansas City (Snawerdt 2024)

Figure 38 The Kansas City Site has a steep slope, which can be used to create distinct spaces and views (Perdomo 2025).

Kansas City, Kansas

Strawberry Hill in Kansas City, Kansas, is a historic neighborhood founded in the late 1800s by Eastern European immigrants, primarily from Poland, Croatia, and Serbia (Bryer 2016). The neighborhood features rows of well-preserved brick Victorian homes with architectural styles such as Italianate and Gothic Revival, reflecting its 19th-century roots (Bryer 2016).

At the heart of Strawberry Hill is the Strawberry Hill Museum, a former mansion that showcases artifacts from the neighborhood's immigrant past (Bryer 2016). Local taverns and eateries serve traditional Eastern European cuisine, preserving the community's cultural heritage. Over time, Strawberry Hill has evolved into a vibrant neighborhood where the rich history of hardworking immigrants lives on. Today, it blends historic charm with modern community spirit, offering a glimpse into Kansas City Kansas' past.

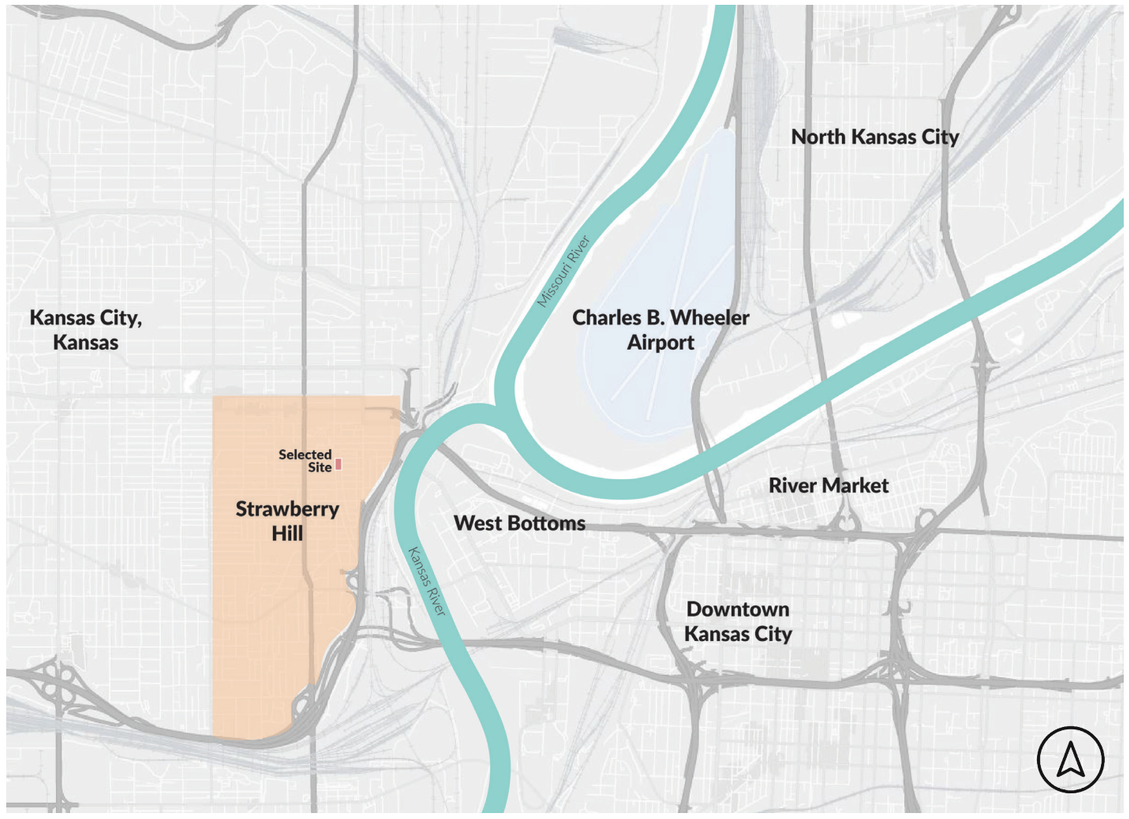


Figure 39 Context Map of the site in Kansas City, Kansas (Snawerdt 2025)

Existing Conditions

Figure 40 Strawberry Hill Existing Conditions (Snawerdt 2025)

Zoning

R-1 & R-2 (B): Single Family District

- Minimum rear yard of 25 feet
- Buildings must at least be 750 square feet
- Two off-street parking spaces per dwelling
- Maximum structure height: 35 feet

TND: Traditional Neighborhood Development

Regulations vary per transect, but this zone is to create developments that are:

- Mixed-Use
- Pedestrian Centered
- Connected between vehicular and pedestrian traffic
- Located close to the street to create “outdoor rooms”
- Utilizing on-street parking
- Prioritizing pedestrian and bicyclist safety

C-0: Non-Retail Business District

- Multifamily dwellings are allowed as long as they comply with RP-4 district guidelines
- Buildings can not exceed 12 stories

CP-2: Planned General Business District

- This district is intended to accommodate a broad range of retail, wholesale, and service establishments.

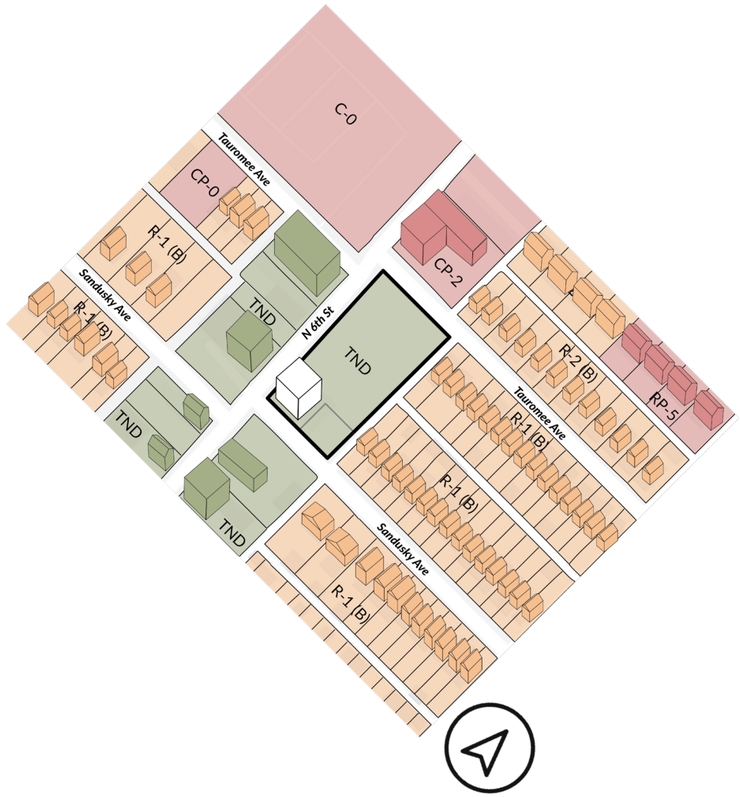
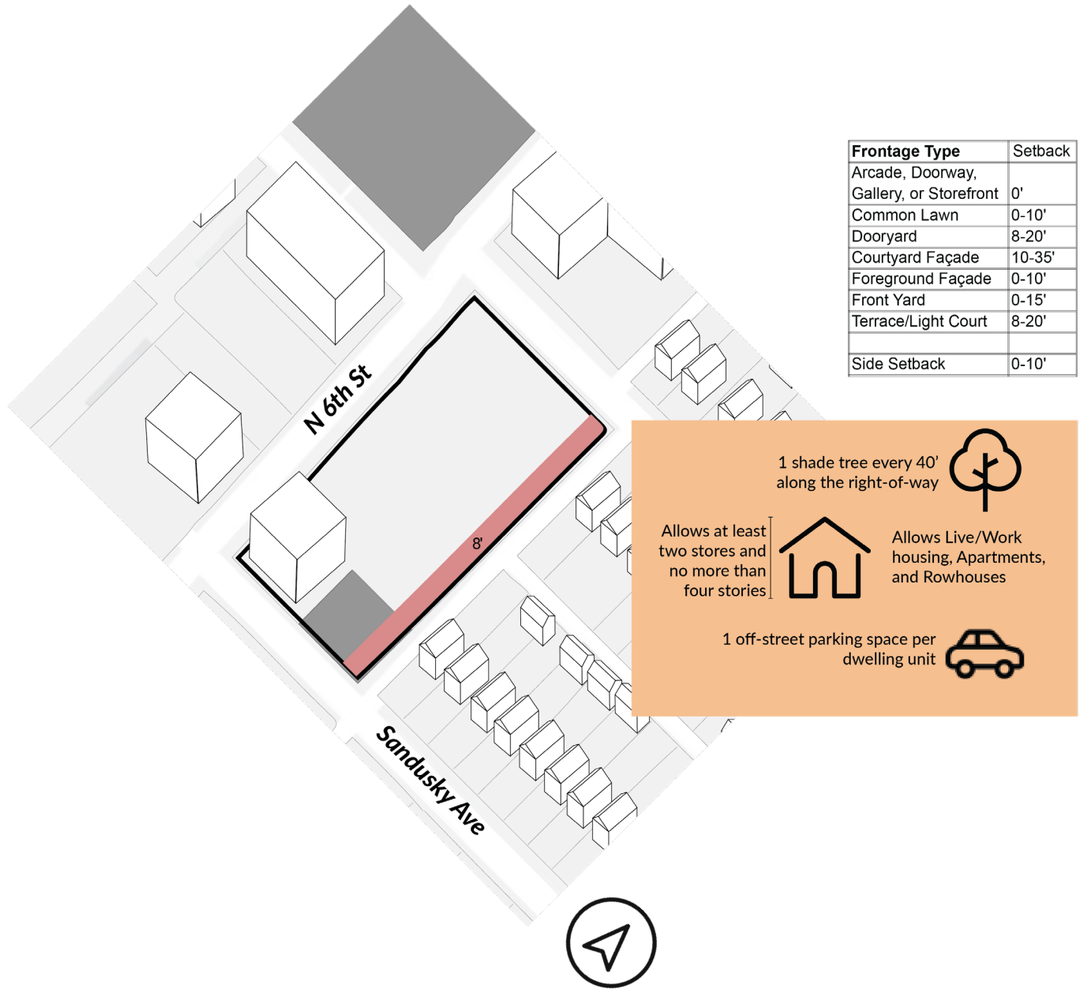


Figure 41 Kansas City Zoning Map (Snawerdt 2025)



Frontage Type	Setback
Arcade, Doorway, Gallery, or Storefront	0'
Common Lawn	0-10'
Dooryard	8-20'
Courtyard Façade	10-35'
Foreground Façade	0-10'
Front Yard	0-15'
Terrace/Light Court	8-20'
Side Setback	0-10'

Figure 42 Kansas City, Kansas Zoning Requirements (Snawerdt 2025)

Figure 43 Existing KCK Site Conditions
(Perdomo 2025)

Nearby Amenities

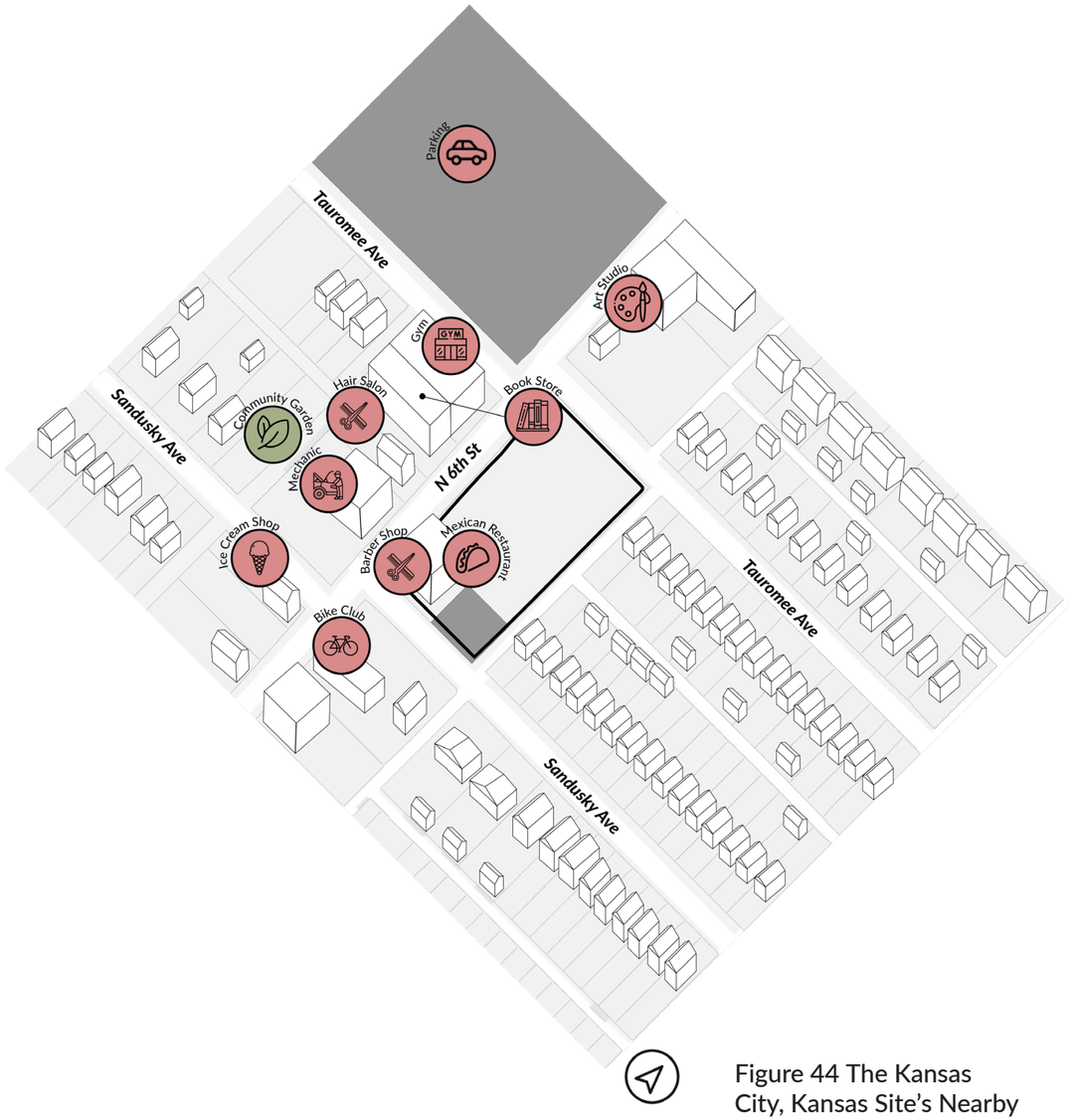


Figure 44 The Kansas City, Kansas Site's Nearby Amenities (Snawerdt 2025)

Ice Cream Shop

Figure 45 Ice Cream Shop (Perdomo 2025)

Art Studio

Figure 46 Art Studio (Perdomo 2025)

Bookstore

Figure 47 Flagship Bookstore (Perdomo 2025)

Figure 48 Flagship Bookstore Interior (Perdomo 2025)

Figure 49 Houses in Strawberry Hill tend to be dense, single-family developments (Perdomo 2024)

Kansas City, Kansas Design Concept 1

This design provides density, while still allowing residents to have semi-private greenspace. On the southeastern portion of the site, there is a community playground for residents to use and gather. No zoning changes are necessary to implement this design.

Missing Middle Type: Rowhouses

Density: 31.1 - 46.7 dwelling units per acre

Number of Units: 20-30

Parking Spaces per Unit: 1

Figure 50 KCK Concept 1 South View (Perdomo & Snawerdt 2025)

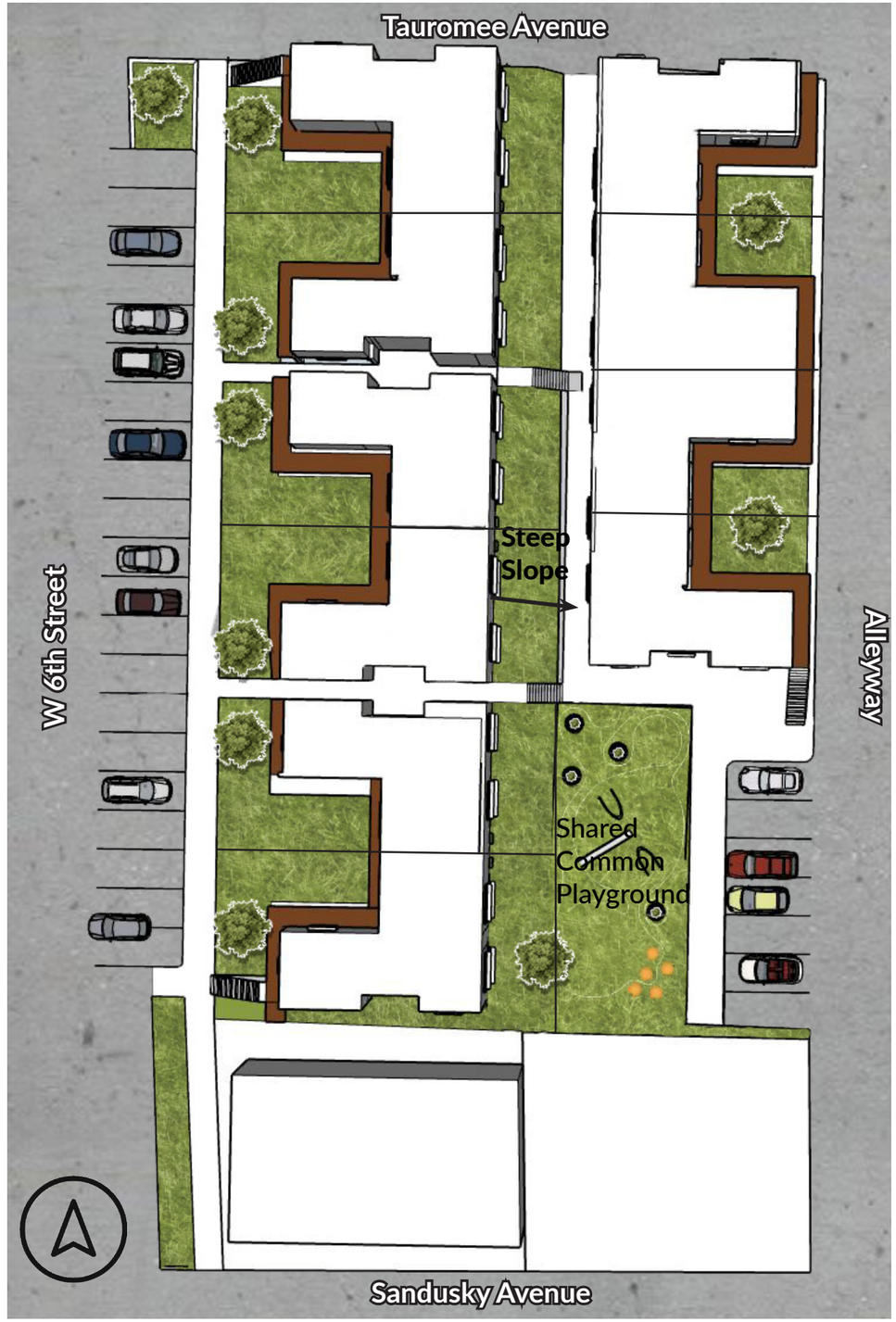


Figure 51 KCK Site Plan Concept 1 (Perdomo & Snawerdt 2025)

Figure 52 KCK Contept 1 Southwest View
(Perdomo & Snawerdt 2025)

Kansas City, Kansas Design Concept 2

This design provides much-needed density to the neighborhood. This promotes walkability and can help add some life to the area. This design features central greenspace, perfect for gatherings. No zoning changes are necessary to implement this design.

Missing Middle Type: Rowhouses

Density: 18.7 - 31.1 dwelling units per acre

Number of Units: 12-20

Parking Spaces per Unit: 1-2

Figure 53 KCK Concept 2 Southwest View (Perdomo & Snawerdt 2025)

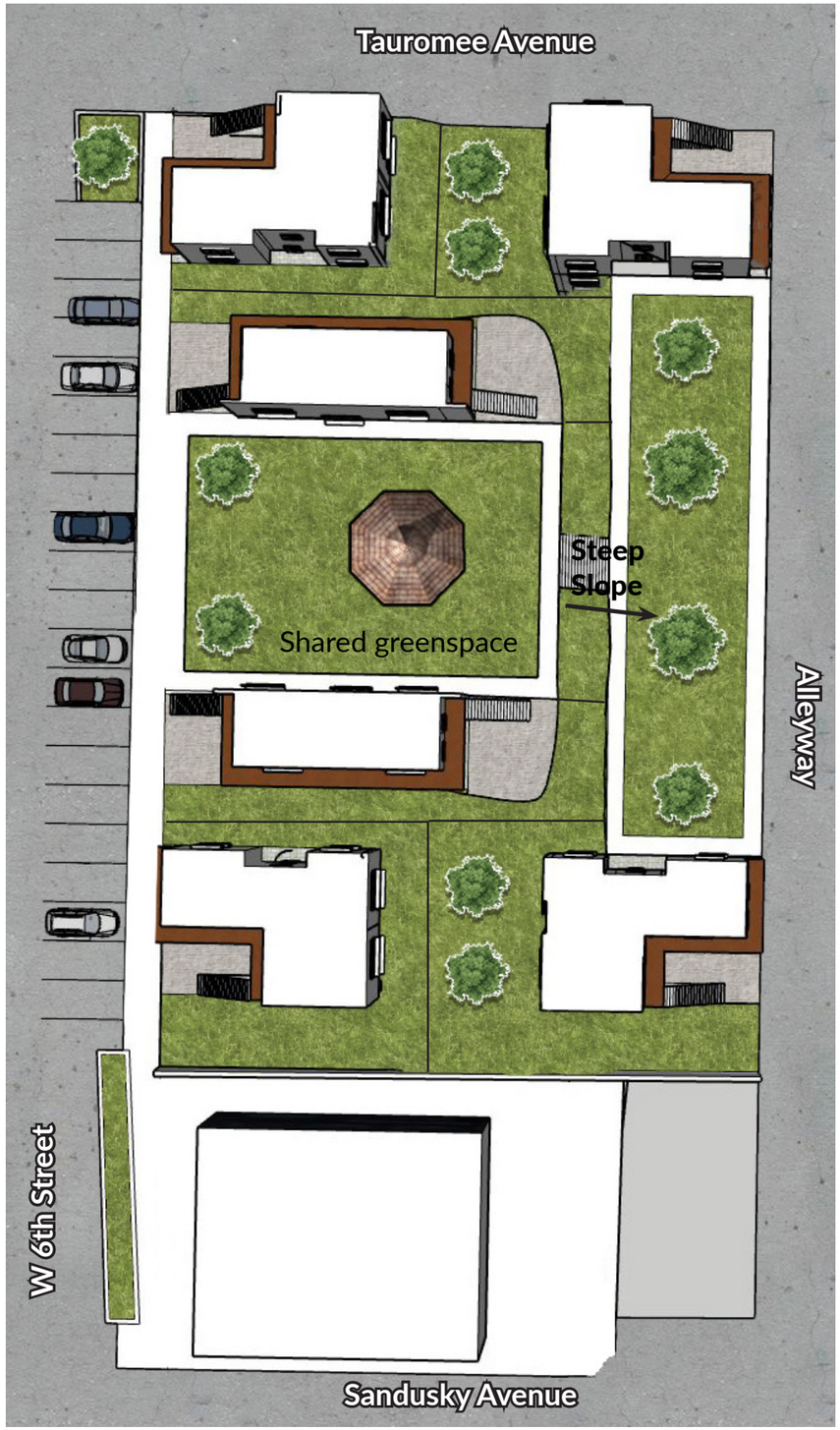


Figure 54 KCK Site Plan Concept 2 (Perdomo & Snawerdt 2025)

Figure 55 KCK Concept 2 Northwest View
(Perdomo & Snawerdt 2025)

Figure 56 KCK Concept 2 Western View (Perdomo & Snawerdt 2025)

Salina

Located in the southwest portion of Salina, these plots of land have been vacant for over fifty years. In 1969, an F3 tornado went through Salina (Pittenger 2023). Established in 1952, these parcels of land are surrounded by single-family, one-story homes. This area is characterized by tree-lined streets and well-maintained properties. There are several amenities nearby, including parks, churches, schools, and local businesses. This area combines the benefits of suburban living with the convenience of local amenities.

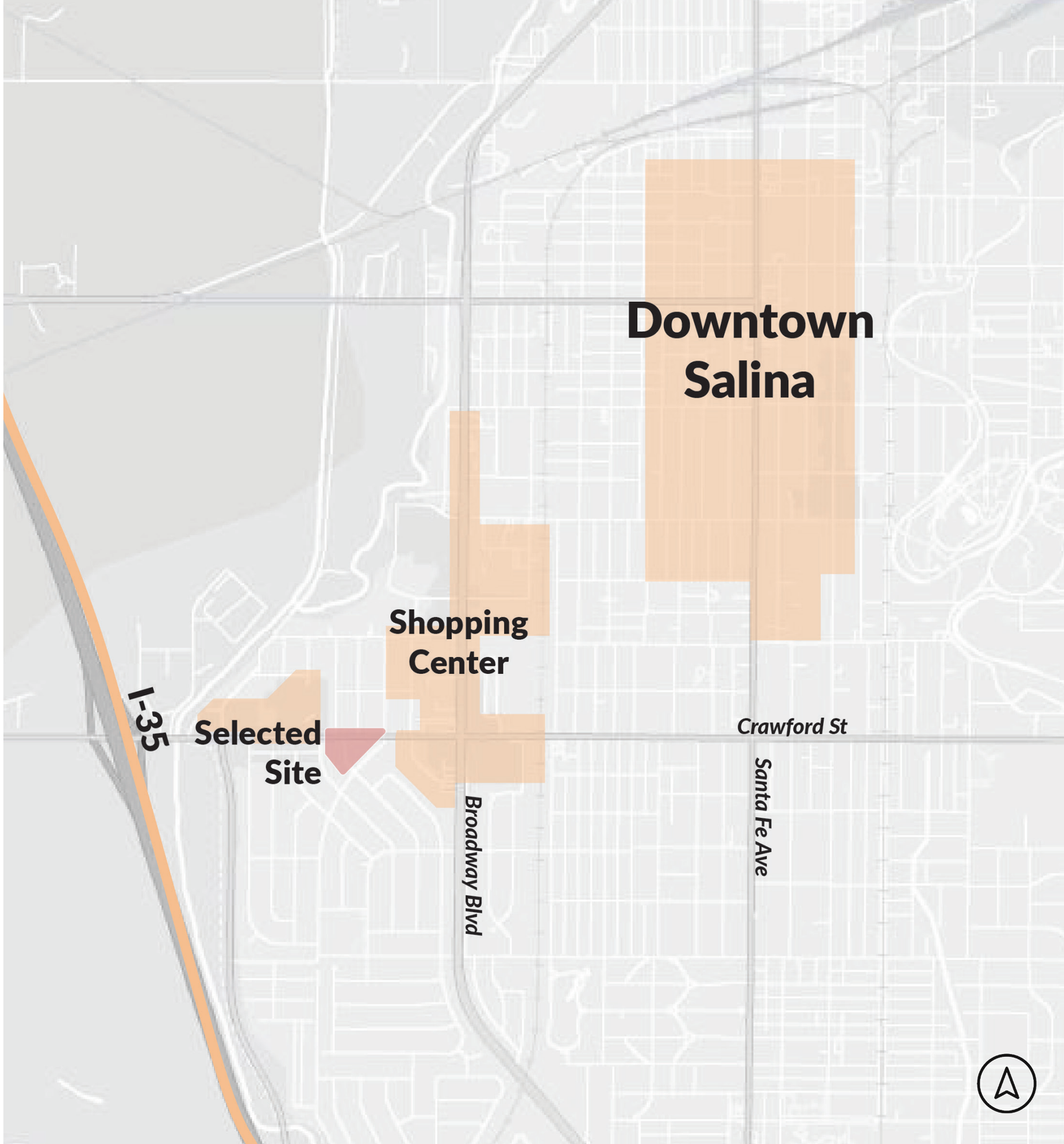


Figure 57 Salina Context Map (Snawerdt 2025)

Existing Conditions

Figure 58 Salina Existing Conditions (Snawerdt 2025)

Nearby Amenities

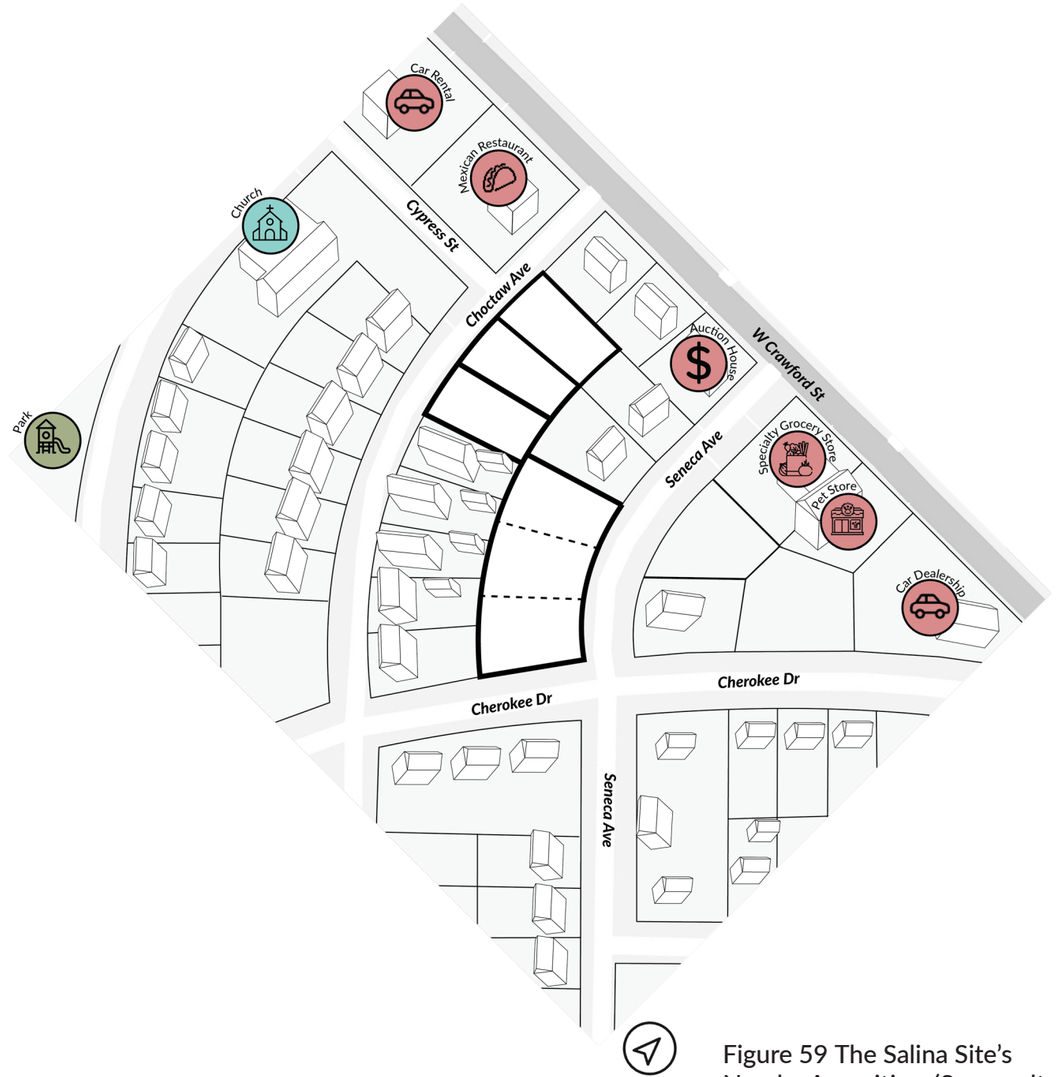


Figure 59 The Salina Site's Nearby Amenities (Snawerdt 2025)

Figure 60 Many vacant driveways are on the Salina site, showing previous development (Snawerdt 2025)

Figure 61 Existing Trees on Salina Site (Snawerdt 2025)

Figure 62 Existing Salina Site Conditions (Snawerdt 2025)

Figure 63 Ample Open Land for Salina Site (Snawerdt 2025)

Zoning

R-1: Single Family Residential

- Maximum lot coverage of 35%
- House has to be minimum of 55 feet from the road centerline
- Minimum rear yard of 25 feet
- Building must be at least 7.5 feet from each side of the property

R-3: Multiple Family Residential

- Maximum lot coverage of 40%
- Maximum structure height: 150 ft
- Front yard: 30 ft on all sides abutting a street.
- Side yard: 15 ft except there shall be an additional side yard setback of 1 ft for each 2 ft of height over 50 ft.
- Rear yard: 25 ft

C-5: Service Commercial District

- Multifamily dwellings are allowed as long as they comply with R-3 district guidelines and have 2 off-street parking spaces per unit
- Maximum structure height: 50 ft
- House has to be minimum of 55 feet from the road centerline or 25 feet from property line- whichever is greater
- 10 ft setback when abutting a residential area
- Maximum lot coverage of 50%

PC-2: Planned Development District

- 35% maximum lot coverage
- Must submit a preliminary development plan to the planning development district in order to develop

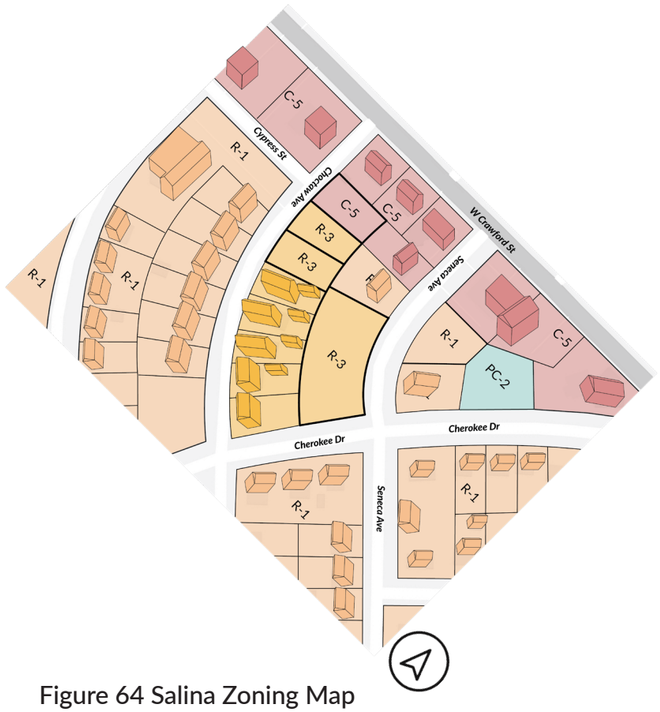


Figure 64 Salina Zoning Map (Snawerdt 2025)

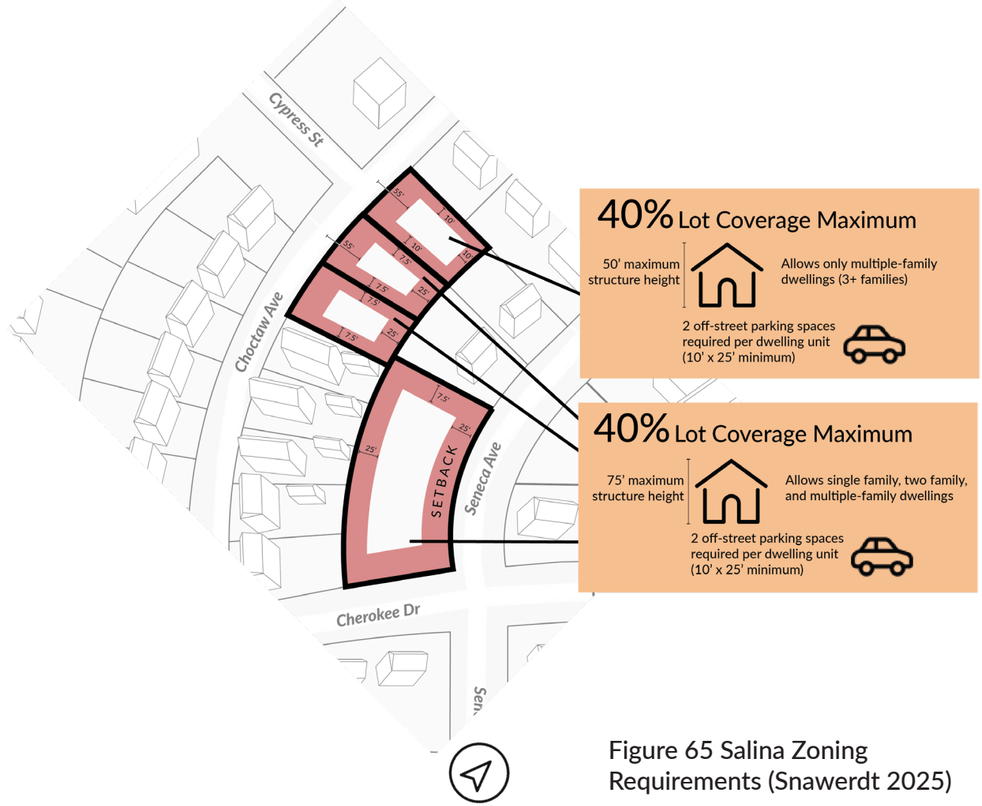
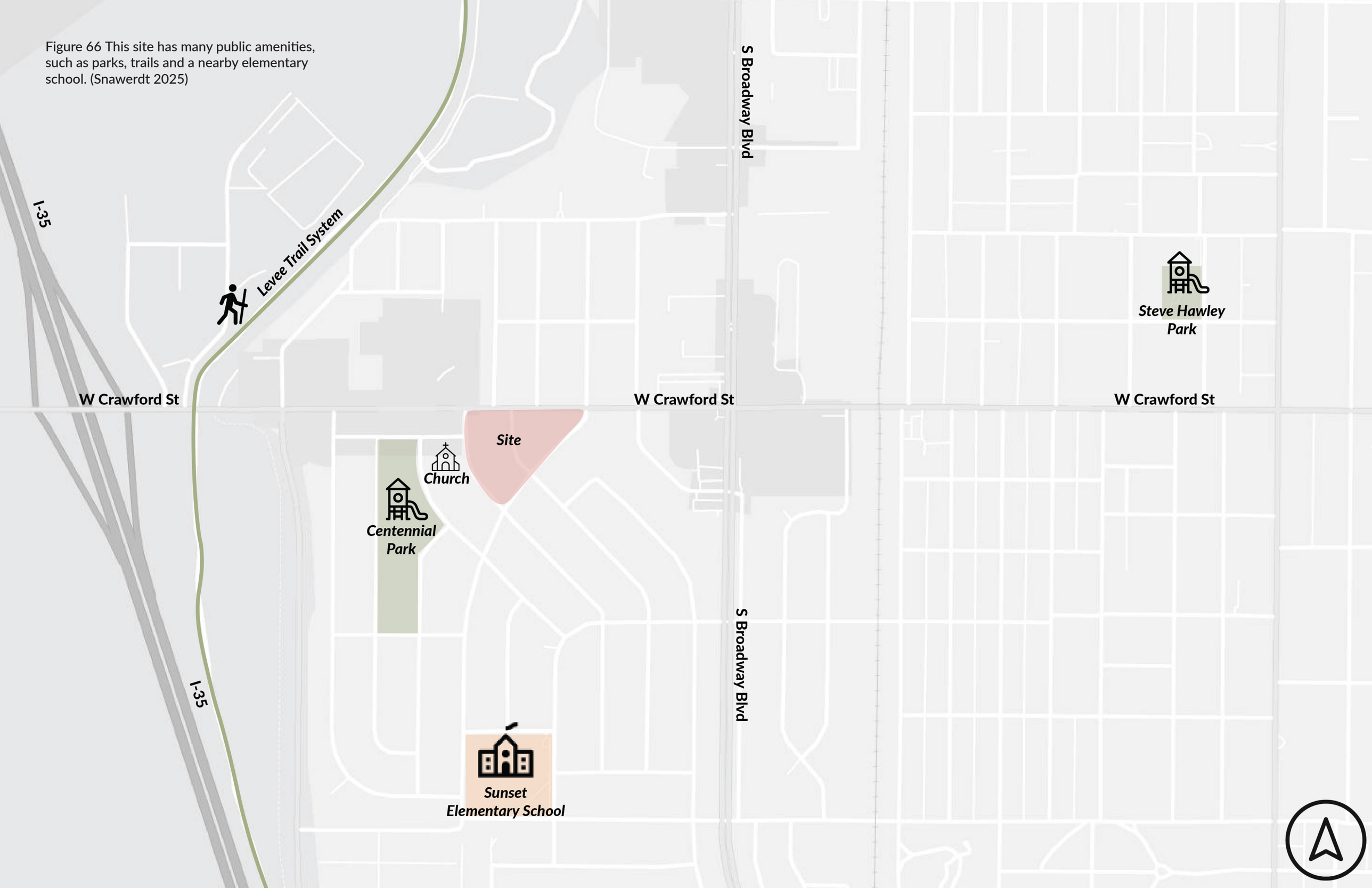


Figure 65 Salina Zoning Requirements (Snawerdt 2025)

Figure 66 This site has many public amenities, such as parks, trails and a nearby elementary school. (Snawerdt 2025)



Existing Housing Style

Nearby homes tend to be simple and single-family residential. Most homes have between 2-3 bedrooms and few garages.

Figure 67 Salina House 1 (Snawerdt 2025)

Figure 68 Salina House 2 (Snawerdt 2025)

Figure 69 Salina House 3 (Snawerdt 2025)

Figure 70 Salina House 4 (Snawerdt 2025)

Salina Design: Cottage Court Option

This design emphasizes central community space and pedestrian connectivity. Assuming the three lots in the northwestern portion would be combined, in order to implement this design, the following zoning changes would have to be implemented:

- Remove off-street parking requirements
- Reduce setback requirements

Missing Middle Type: Cottage Court

Density: 8.46 dwelling units per acre

Number of Units: 10

Parking Spaces per Unit: 2.8

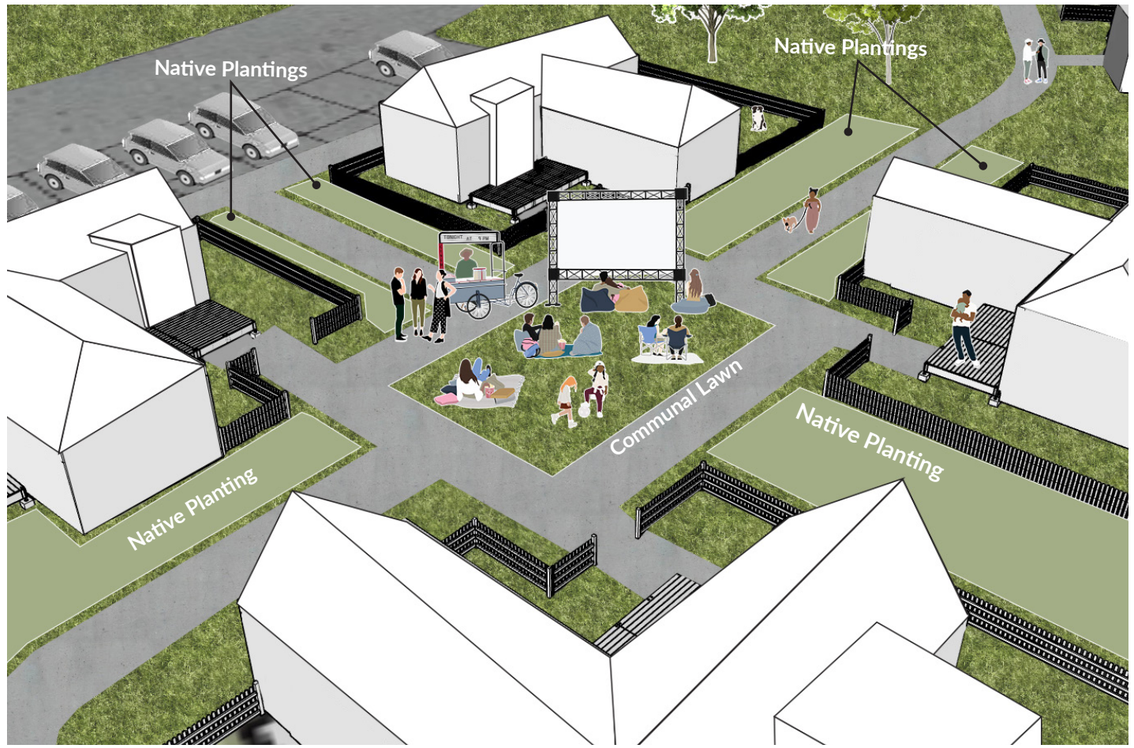


Figure 71 Salina Courtyard Example (Snawerdt 2025)

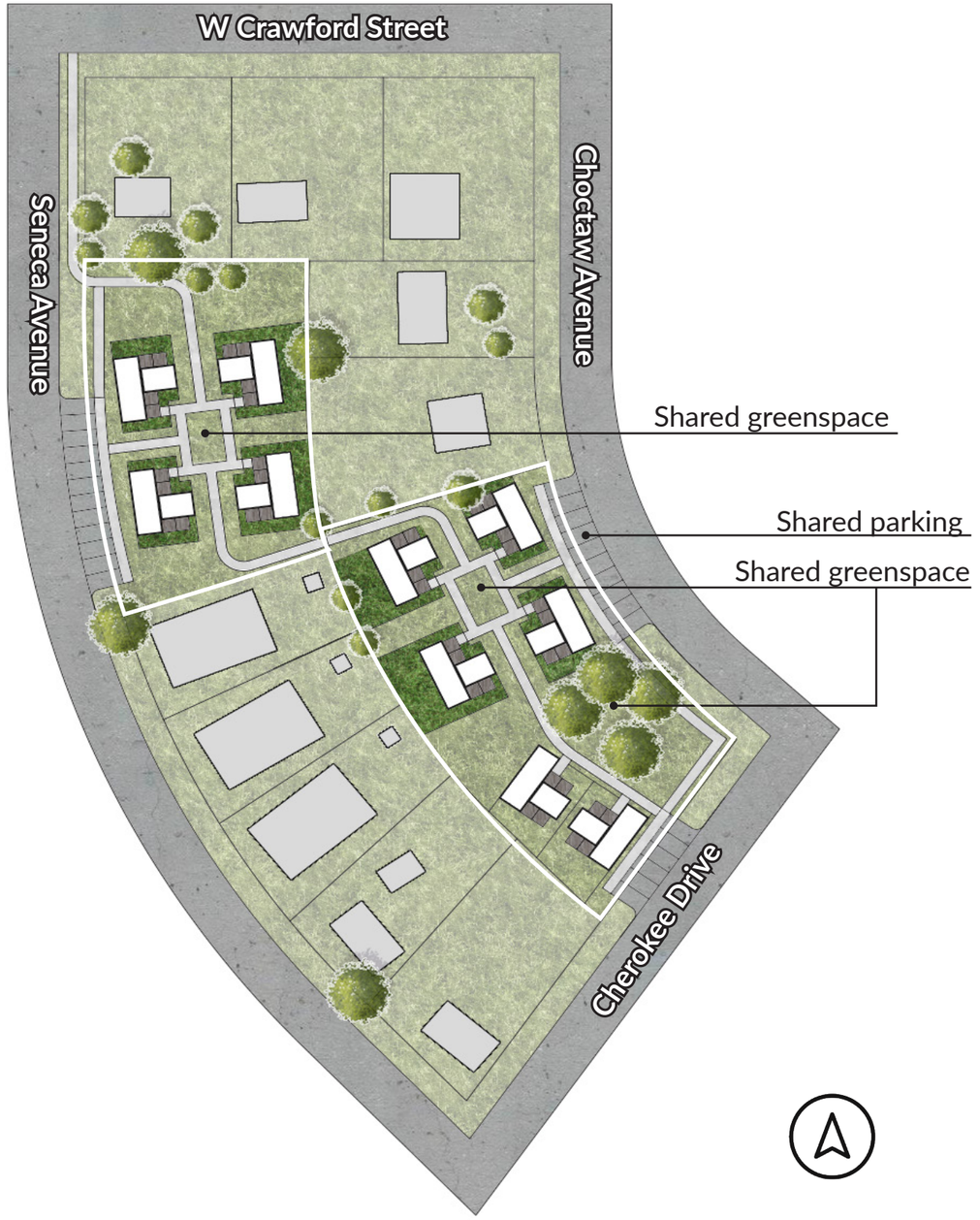


Figure 72 Salina Courtyard Site Plan (Snawerdt 2025)

Salina Design: Abstracted Option

This design emphasizes density, while still keeping ample areas open for community green space. Assuming the three lots in the northwestern portion would be combined, in order to implement this design, the following zoning changes would have to be implemented:

- Remove off-street parking requirements
- Reduce all setback requirements

Missing Middle Type: Cottage Court

Density: 8.46 dwelling units per acre

Number of Units: 11

Parking Spaces per Unit: 2.5

Figure 73 Salina Abstracted Site Plan (Snawerdt 2025)

Figure 74 Salina Abstracted Option Meadow (Snawerdt 2025)

Figure 75 Salina Abstracted Option Open Greenspace (Snawerdt 2025)

Although both options emphasize community gathering spaces, plenty of individual space is provided. This is best delineated using fences that are three feet tall, ensuring a clear distinction of private space.

Figure 76 Salina Abstracted Option Backyard (Snawerdt 2025)

Cottonwood Falls

Located in the heart of the Flint Hills, Cottonwood Falls is a historic small town. Established in 1859, the town is centered around the iconic Chase County Courthouse, the oldest operating courthouse in Kansas ("Chase County Courthouse" n.d.). The downtown area features well-preserved limestone buildings, locally owned shops, and inviting cafés. Tree-lined streets and historic homes contribute to its charming, small-town atmosphere. Nearby, the Tallgrass Prairie National Preserve offers vast open landscapes, hiking trails, and glimpses of roaming bison ("Preserve Backcountry Hiking Trails" n.d.). Cottonwood Falls combines the tranquility of rural living with a strong sense of history and connection to nature.

At the selected site, this location is ideal for development. Previously, there was a house on the site but was removed sometime between 2006 to 2008. The site is flat and ideal for development.

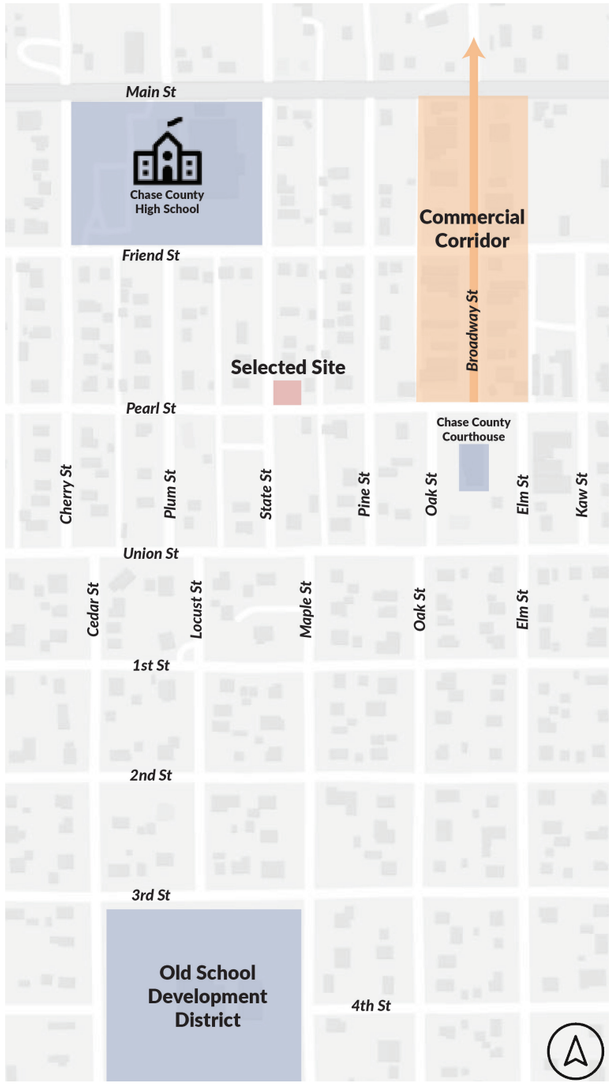


Figure 77 Cottonwood Falls Context Map (Snawerdt 2025)

Existing Conditions

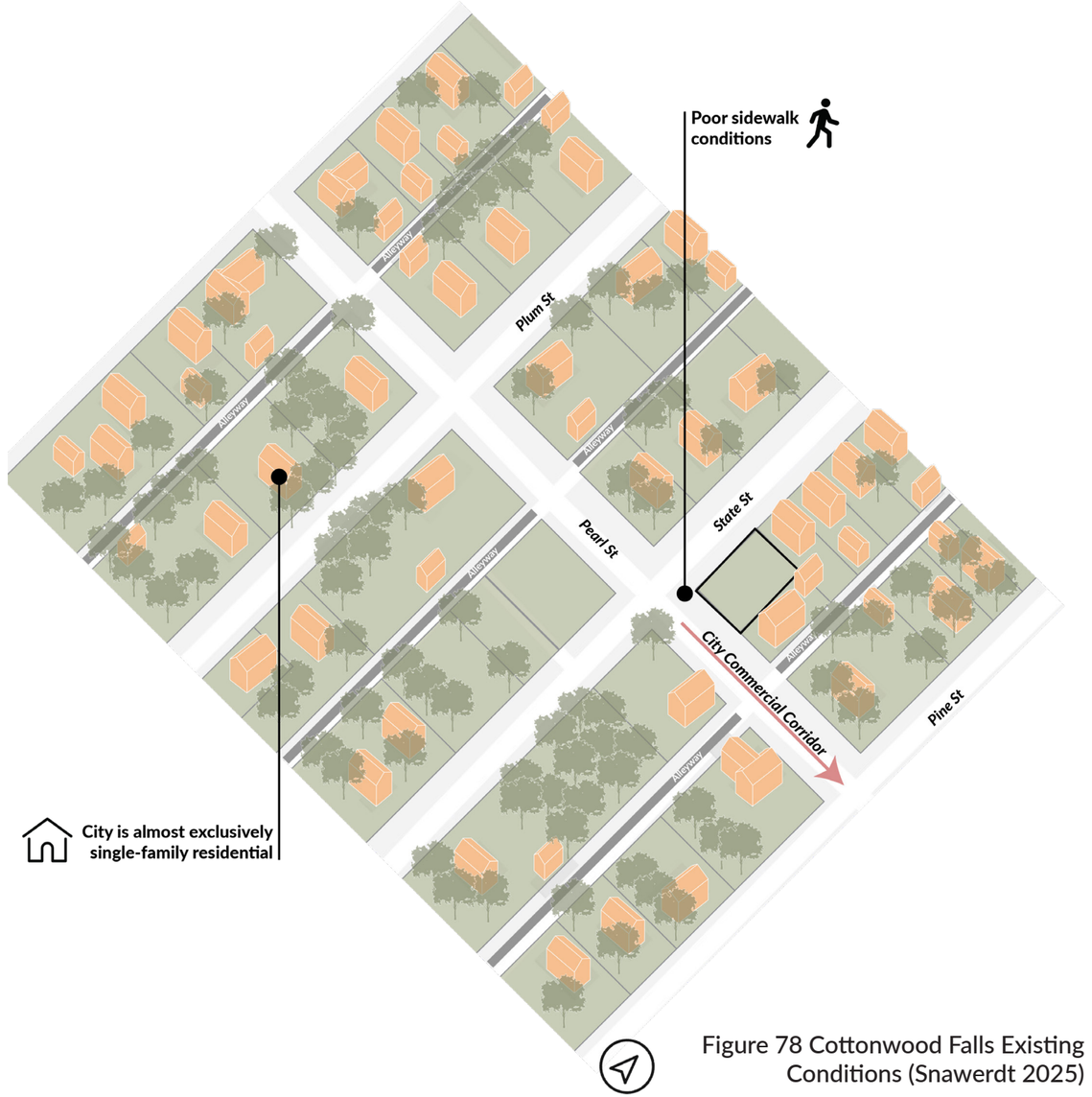


Figure 78 Cottonwood Falls Existing Conditions (Snawerdt 2025)

Figure 79 Existing Site Conditions In Cottonwood Falls (Snawerdt 025)

Zoning

R-1: Single Family Residential

- Single Family Detached Homes
- Maximum lot coverage of 25%
- Minimum Front Yard: 30 Ft
- Minimum Rear Yard: 30 Ft
- Minimum Side Yard: 10 Ft or 50% of Building Height
- Maximum Building Height: 35 Ft

Figure 80 Cottonwood Falls Zoning Map (Snawerdt 2025)

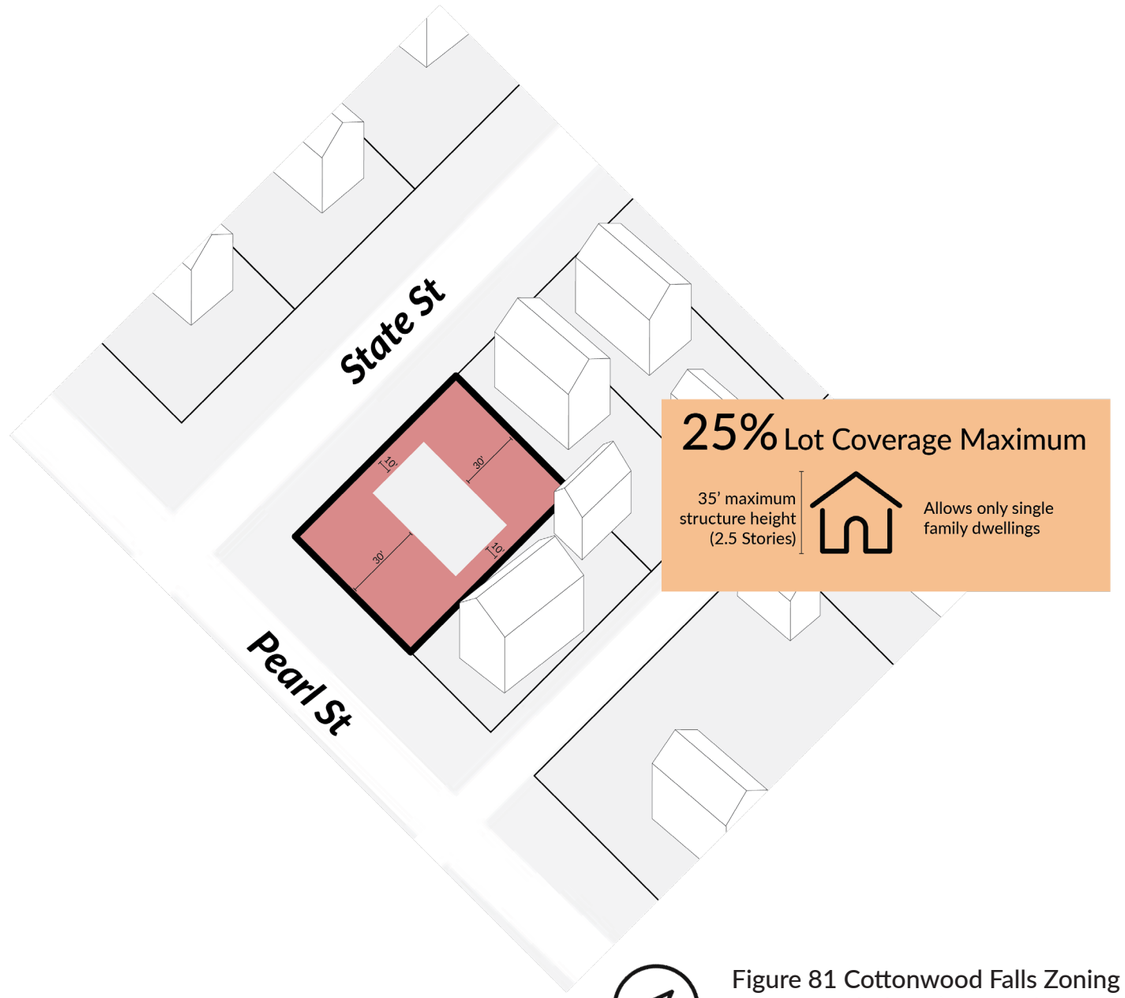


Figure 81 Cottonwood Falls Zoning Regulations (Snawerdt 2025)

Existing Housing Style

Nearby homes tend to be simple and single-family residential.

Figure 82 Cottonwood Falls House 1 (Snawerdt 2025)

Figure 83 Cottonwood Falls House 2 (Snawerdt 2025)

Figure 84 Cottonwood Falls House 3 (Snawerdt 2025)

Figure 85 Cottonwood Falls House 4 (Snawerdt 2025)

Cottonwood Falls Design 1

This design provides the benefits of single-family living while providing affordability through density. Additionally, the drive lanes near the homes provide private parking, which allows for ease of access, and provides protection from the sun via a shade structure. In order to make this design possible, these lots would be subdivided as well as remove parking restrictions and setback requirements.

Missing Middle Type: Cottage Court

Density: 16.67 dwelling units per acre

Number of Units: 2

Parking Spaces per Unit: 2

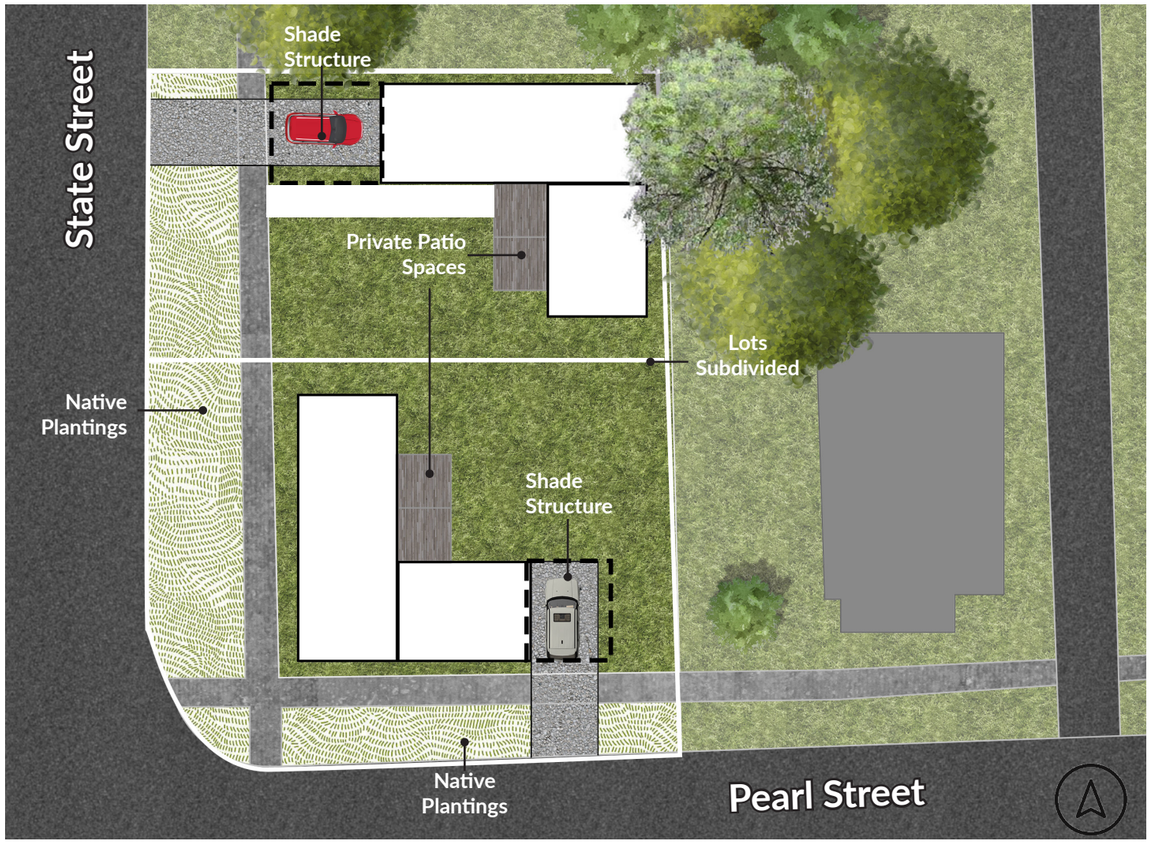


Figure 86 Cottonwood Falls Design 1 Site Plan (Snawerdt 2025)

Figure 88 Cottonwood Falls Design 1 Rendering 1 (Snawerdt 2025)

Figure 87 Cottonwood Falls Design 1 Rendering 2 (Snawerdt 2025)

Cottonwood Falls Design 2

This design focuses on community space, rather than vehicular access. In order to make this design possible, the lots would be subdivided, as well as remove parking restrictions and setback requirements.

Missing Middle Type: Cottage Court

Density: 16.67 dwelling units per acre

Number of Units: 2

Parking Spaces per Unit: 2.5

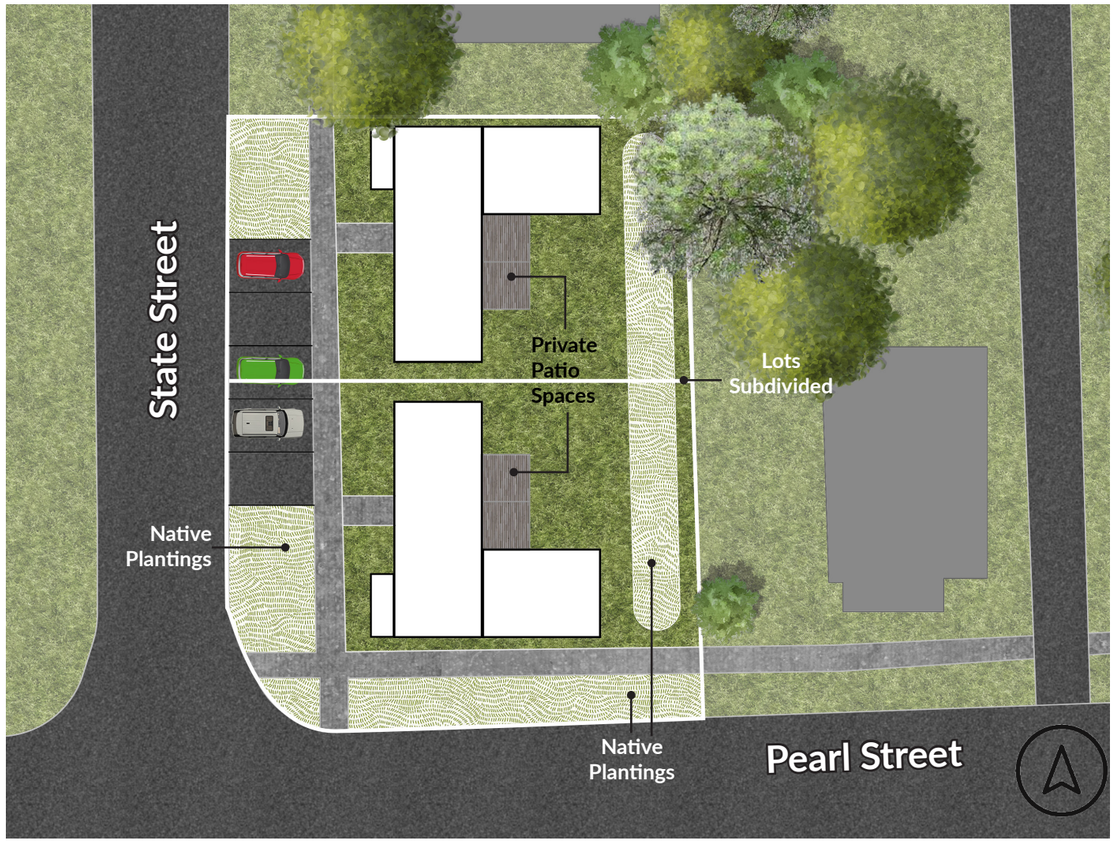


Figure 89 Cottonwood Falls Design 2 Site Plan (Snawerdt 2025)

Figure 91 Cottonwood Falls Design 2 Backyard Rendering (Snawerdt 2025)

Figure 90 Cottonwood Falls Design 2 Front Yard Rendering (Snawerdt 2025)

03 ANALYSIS

Figure 92 Pocket Neighborhood Greenwood Avenue Cottages in Shoreline, WA. Architect Ross Chapin Architects. Developer The Cottage Company

Zoning Codes Analysis

	Duplex	Apartments	Townhome	Cottage Court	Live/Work	Other
Salina						not explicitly mentioned
Kansas City, Kansas	R2, R3, R2(B), TND	TND, R4, R5, R6, C0	R3, R4, C0, TND	TND (Referred to as a "Common Lawn")	TND, C-D	TND: Rowhouse
Cottonwood Falls	B2, B1, R3, R2, SO	B3, B2, B1, R3				B3, B2, B1, R3: Rowhouse
Lawrence	RSO, RM,RM12, RM12D, RM15, RM24, RM32, RMO, CM1, MU	RMO, CN2, CD, CC, CS, MU	RS10, RS7, RS5, RS3, RSO, RM12, RM12D, RM15, RM24, RM32, RMO, CM1, MU, GPI		RSO, CM1, CM2, MU, CD, CC, CS, IL	
Wichita	MF29, TF3, MF18, B, NO, GO, NR, GC, CBD	SF10, MF29, TF3, MF18, B, NO, GO, RR, SF20, SF5, NR, MH, GC, CBD, LC	B, MF18, MF29, TF3, NO, GO, NR, LC, U			
Council Grove	Residence district	Residence district			Buisness district, industrial district	

Table 1 Zoning Codes Analysis (Snawerdt 2025)

Salina's zoning code does not specifically mention many different missing middle types in their districts, including duplex, townhouses, apartments, live/work, and cottage courts. In order to understand their code in regard to missing middle housing, the definitions section is necessary. Apartments are defined in the zoning code but not specifically mentioned. Duplexes are only mentioned in relation to where storage structures cannot be placed. This implies that duplexes are allowed in parts of Salina, but it is not stated where they are allowed. However, after discussion with Salina's city planner, the current zoning code was adopted in 1966, which may be the reason why key language relating to missing middle is not in the zoning code.

Kansas City, Kansas's zoning code is very standard, except their Traditional Neighborhood Design district. This district mentions their intent and classifies areas into different T-zones, which creates a wide range of development in one district. It is accompanied by graphics describing the code, which allows for easy readability.

Cottonwood Falls' zoning code is difficult to access, as it is not provided online. In order to access them, one must go in person to view the paper copies, which creates significant access issues. When accessed, their zoning code is a scanned paper copy that looks like it has been written by a typewriter. However, there are supporting charts to provide clarity.

Lawrence's zoning code is the most extensive, spanning over 500 pages. This code is accompanied by charts stating what types of buildings are allowed in which area. This made analyzing the code simple and clear, eliminating potential confusion.

Wichita has sufficient detail in their zoning code to understand what is allowed in each district. They also have accompanying charts which increases readability.

Vague, short descriptions make **Council Grove**'s zoning code difficult to understand. The city only has three districts: residence, business, and industrial. Each district has significantly less description than any other city studied and little to no charts or diagrams are provided for clarity.

Overall Findings

After analyzing each city's zoning codes, it is apparent that these cities are not actively mentioning or permitting cottage courts and live/work housing. However, duplexes, apartments, and townhouses are widely accepted in most of the cities studied.

Limitations

The primary limitation of this method is its inability to track the prevalence of various missing middle housing structures. While these structures may be referenced in the city code, their inclusion does not guarantee that they are being constructed or that a significant number of parcels within the city are designated for such development.

Missing Middle Analysis

Overall Findings

Surprisingly, the majority of the cities did not highlight that the majority of multifamily housing is permitted in areas having the city's lowest median income, with the exception of Kansas City, Kansas. Zoning areas that permit missing middle housing in Kansas City, Kansas, on average, have six percent less combined household income than those who live in zoning areas that do not permit missing middle housing. The data did not highlight this income gap because Wichita and Lawrence allow missing middle housing in essentially all areas that permit residential housing, except for a couple of small parcels in Wichita.

All numbers are from the US Census	Population	Percent of population having a college degree	Average House Price	Walk Score	Average Median Income	Majority Political Affiliation
Kansas City, Kansas	157,000	20.2	$ 164,471	34	$ 61,000	Democrat
Wichita, Kansas	400,000	30.9	$ 176,000	35	$ 61,000	Republican
Salina, Kansas	47,000	28.7	$ 214,000	39	$ 57,000	Republican
Lawrence, Kansas	95,000	55	$ 319,000	41	$ 61,000	Democrat

Table 1 Potential Factors (Snawerdt 2025)

After extensive research, it is unclear why these trends emerged. However, various factors were eliminated such as:

- Planning department presence
- Political stance
- Median income
- Population size
- Housing prices
- Walkability

The following factors have potential to be the cause of these trends:

- Community resistance
- Higher educational attainment
- Lack of advocacy
- Developer push-back
- Higher real estate activity
- Average building age

Kansas City, Kansas

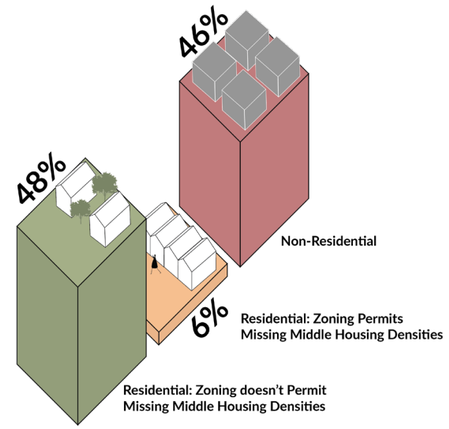


Figure 93 Kansas City Missing Middle Analysis (Snawerdt 2025)

Salina

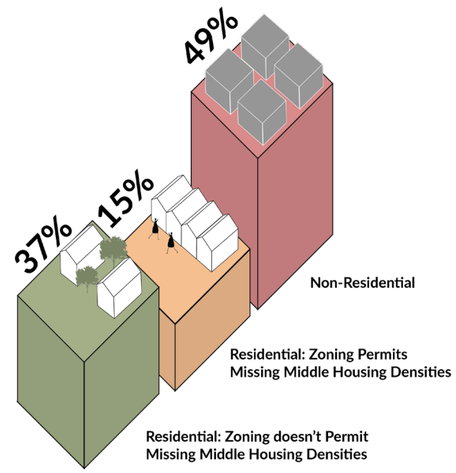


Figure 94 Salina Missing Middle Analysis (Snawerdt 2025)

Wichita

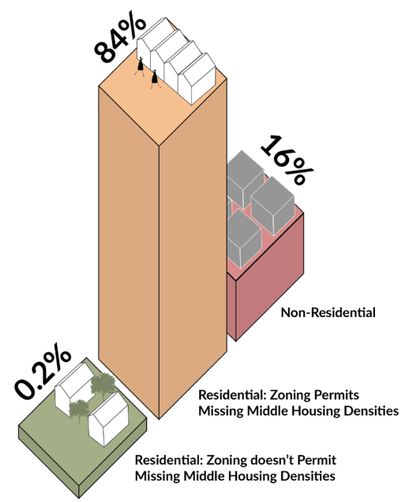


Figure 95 Wichita Missing Middle Analysis (Snawerdt 2025)

Lawrence

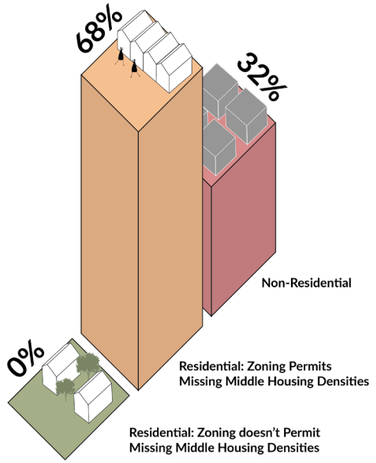


Figure 96 Lawrence Missing Middle Analysis (Snawerdt 2025)

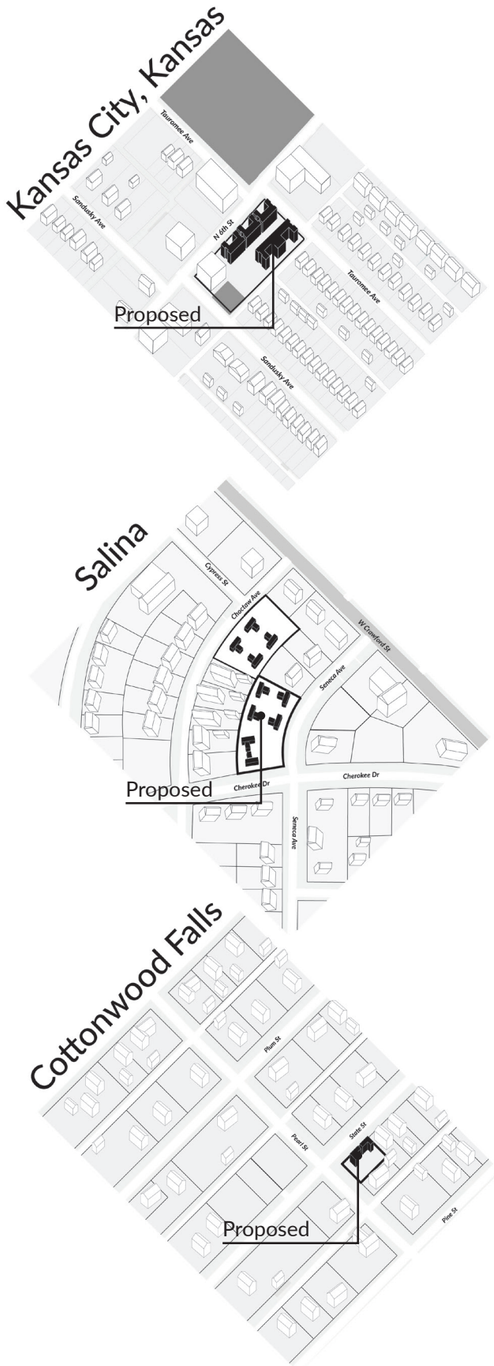
Missing Middle Analysis Limitations

This study did not analyze what missing middle housing is built, but rather what zoning codes permit. This limitation significantly affects the study, as data mapping missing middle housing density locations is sparse. To gather this information, one must examine every parcel in the city, which is impractical due to time constraints. Another limitation arises because smaller cities such as Council Grove and Cottonwood Falls lack ArcGIS zoning maps, making the analysis too time-consuming relative to its benefits.

Projective Design Analysis

These proposed designs demonstrate that higher-density development can be achieved without sacrificing privacy, sustainability, or neighborhood character. Each design exceeds the city's average density in dwelling units per acre yet remains consistent with the architectural style of the surrounding area. This proves that creating affordable housing is not only possible but can be done without disregarding community housing preferences.

Unfortunately, restrictive zoning regulations in Salina and Cottonwood Falls currently prevent the implementation of these moderate-density solutions, discouraging higher-density development. Yet, restoring vacant lots with these designs would bring significant economic benefits to the area, as revitalization has been shown to increase surrounding property values (Kremer, Hamstead, and McPhearson 2013). In addition, higher-density development contributes to increased tax revenue, enabling local governments to provide better amenities and services (Bowman and Pagano 2004; Steinacker 2003). Strategically increasing density in these areas can also help mitigate urban sprawl, protect natural drainage corridors (Abbott 2023), and foster stronger community connections (Sim 2019).



Existing Block Density: 8.8 units/acre

Proposed Block Density: 13.4 units/acre

Existing Block Density: 3 units/acre

Proposed Block Density: 6 units/acre

Existing Block Density: 5.3 units/acre

Proposed Block Density: 6.8 units/acre

Figure 97 All three designs increase density in the area (Snawerdt 2025)

Study Metrics Comparing Traditional and Projective Design for Missing Middle Housing

Some zoning variances may be necessary for proposed housing layouts

Feature	Kansas City, KS		Salina		Cottonwood Falls	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
House						
House Type	Single Family	Missing Middle	Single Family	Missing Middle	Single Family	Missing Middle
House footprint size (sf)	1100	900	960	900	880	900
House Size (sf)	1100	900	960	900	880	900
Lot						
Approximate Lot Dimensions (ft)	250 x 125		270 x 700		88 x 60	
Block density (units/ac)	8.8	13.4	3	6	5.3	6.8
*Max. Lot Coverage	N/A	32%	40%	17.2%	25%	34.4%
*Setback - Front (ft)	0-15	15	25	15	10	5
*Setback - Side (ft)	0-10	5	7.5	10	30	5
*Setback – Back (ft)	8	0	25	10	10	5
Average Yard Size – Front (Public) (sf)	N/A	150	N/A	450	N/A	300
Average Yard Size – Side (sf)	N/A	0	N/A	40	N/A	100
Average Yard Size – Back (Private) (sf)	N/A	100	N/A	750	N/A	500
Parking						
Spaces/unit	1	1	2	2.8	N/A	2.5
Carport	N	N	N	N	N	Y
Drive/On-lot	N	N	Y	N	N	Y
On-street bay	Y	Y	N	Y	N	Y
On-street parallel	N	N	Y	N	Y	Y
Cluster Amenities						
Public Common Space	N	Y	N	Y	N	Y
Amenities (public garden, play equip., etc.)	N	Y	N	Y	N	N

*Zoning code variance necessary

Table 2 Projective Design Study Metrics (Snawerdt 2025)

Projective Design Limitations

While this projective design portrays the potential for higher-density, sustainable, and community-oriented development, inherent limitations and biases remain.

Financial Analysis: While economic benefits are backed by literature, actual implementation would require careful cost modeling, developer interest, and funding that is beyond the scope of this report.

Community Acceptance: Second, the projective design assumes community acceptance based on architectural compatibility and density goals. However, public opinion and social influence acceptance is often unpredictable, which requires community engagement and design feedback that was not conducted in this report.

Property Ownership: Additionally, site-specific factors such as property ownership would be considered. These real-world considerations could present significant challenges during implementation.

Designed for Present Needs: Lastly, these projective designs are tailored to suit the needs of today. Shifts in economic conditions, climate, demographics, and local priorities could alter the relevance, feasibility, or affordability of the proposed interventions as needs change over time.

Due to its size, Cottonwood Falls has the most limitations. The city's zoning ordinances are only accessible via paper documents, which discourages development initiatives outside of town. The existing infrastructure also may not be adequately equipped to support an increase in density, which can be costly and logistically complex.

Despite these limitations, projective design provides a vision of possibilities rather than a concrete plan for further implementation. This projective design serves as a valuable resource to provoke discussion, inspire future research, and demonstrate the potential of affordable middle density development that considers local contexts throughout Kansas.

05 CONCLUSION

Figure 98 Historical aerial of Salina, Kansas

Significance

Kansas needs affordable housing, and current regulations generally are not accommodating this need. Because current regulations do not meet this need, all design disciplines need to be involved to create the best design solutions possible relating to their expertise. In addition, residential design has not significantly changed since the invention of the car, and this design facilitates isolation and separation, rather than community (Chiras 2003; Walters 2007). This project aims to be a launching point for discussion with evidence based design.

Figure 99 Green Avenue Cottages in Shoreline, WA. Architect Ross Chapin Architects. Developer The Cottage Company

Limitations

The limitations of this study include but is not limited to time and access to data. With more time, a more thorough study throughout all of Kansas' zoning codes would be conducted to further emphasize the takeaway that zoning codes seldom accommodate or consider the missing middle. This study is from the perspective of a student, rather than a professional that engages with zoning codes on a daily basis. This creates a more limited understanding of the points of resistance from stakeholders and members of the surrounding community. Additionally, there was a limited amount of data that was able to be accessed due to existing research available.

Figure 100 Nearby Housing in Kansas City, Kansas (Perdomo 2025)

Future Research

Future research could potentially include, but is not limited to, implementation of the projective design and analyzing its effectiveness on the community to drive change. Identifying specific changes in the zoning code throughout other cities in Kansas would be beneficial to create change beyond the scope of this project.

Figure 101 Spring Valley
(Ross Chapin Architects)

06 REFERENCES

Figure 102 Conover Commons Pocket Neighborhood in Redmond, WA. Architect Ross Chapin Architects. Developer The Cottage Company

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Figure 2. Snawerdt, Alison. 2025. Selected Site Locations. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator.

Figure 3. Ross Chapin Architects and Developer The Cottage Company. Danielson Grove. Kirkland, WA. Photo.

Figure 4. Suburban housing near Union, Kentucky. Public Domain. https://commons.wikimedia.org/wiki/File:Cincinnati-suburbs-tract-housing.jpg

Figure 5. Snawerdt, Alison. 2024. Walkability Desire. Adapted from (Layton, Pruitt, and Cekola 2011). Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 6. Snawerdt, Alison. 2024. Density In America. Adapted from (Girling 2005, 103). Graphic in Adobe Illustrator.

Figure 7. Snawerdt, Alison. 2024. A house for sale in Cottonwood Falls, Kansas. Photo.

Figure 8. Snawerdt, Alison. 2025. Missing Middle Housing Types. Adapted from (Parolek 2020). Graphic in Adobe Illustrator.

Figure 9. Snawerdt, Alison. 2025. Missing Middle Benefits a Community in a Wide Variety of Ways. Graphic in Adobe Illustrator.

Figure 10. Snawerdt, Alison. 2025. A Connection between historical transit and Missing Middle housing in Kansas City, Kansas. Historical Transit Lines sourced from Kansas City Public Service Co's 1944 Transit Map courtesy of "Missouri Valley Special Collections, Kansas City Public Library, Kansas City, Missouri." Icons from Flaticon.com. Missing Middle Housing zoning locations sourced from WyCo's GIS Database and WyCo Zoning data.

Figure 11. Snawerdt, Alison. 2025. As Infill in a Neighborhood. Adapted from (Opticos Design 2021). Graphic in Adobe Illustrator.

Figure 12. Snawerdt, Alison. 2025. Near a Historic Main Street. Adapted from (Opticos Design 2021). Graphic in Adobe Illustrator.

Figure 13. Snawerdt, Alison. 2025. Around a Car-Centric Commercial Area. Adapted from (Opticos Design 2021). Graphic in Adobe Illustrator.

Figure 14. Snawerdt, Alison. 2025. Around an Existing Shopping Center. Adapted from (Opticos Design 2021). Graphic in Adobe Illustrator.

Figure 15. Missing Middle Housing can substantially increase the density in any town in Kansas, regardless of size. Dwelling units and area sourced from the 2020 Decennial Census. Graphic in Adobe Illustrator. Icon from Flaticon.com.

Figure 16. Ross Chapin Architects and Developer The Cottage Company. Greenwood Avenue Cottages. Shoreline, WA. Photo.

Figure 17. Ross Chapin Architects and Developer The Cottage Company. Conover Commons Phase I Sketch. Redmond, WA.

Figure 18. Ross Chapin Architects and Developer Michael McKeel. Salish Pond Cottages. Gresham, OR. Photo.

Figure 19. A historical bungalow court. Public Domain. https://picryl.com/media/green-gables-bungalow-court-cavendish-prince-edward-island-bf6607

Figure 20. Smart Density. 6 Rowhouses Replace Surface Parking. Rendering.

Figure 21. Smart Density. The windows in this design ensure privacy, provide light, and create engagement from the street. Rendering.

Figure 22. Smart Density. This density provides access to Toronto's nearby subway system at Dupont Station within a comfortable walking distance. Rendering.

Figure 23. Loci Architecture. This building has commercial use on the lower floor and residential on the upper two floors. Rendering.

Figure 24. Loci Architecture. This design activates the street, encouraging pedestrians to enter the commercial space. Rendering.

Figure 25. Ross Chapin Architects and Developer The Cottage Company. Danielson Grove. Kirkland, WA. Photo.

Figure 26. Snawerdt, Alison 2025. Zoning Code Analysis Bar Chart. Graphic in Adobe Illustrator.

Figure 27. Perdomo, Gabrielle. 2024. This building is located on the southwestern portion of the Kansas City, Kansas projective design site, advertising the Loose-Wiles Biscuit Company, formed in 1902. Description derived from (Fox 2021).

Figure 28. Snawerdt, Alison. 2025. Kansas City, Kansas Land Usage. Data from (Unified Government of WyCo/KCK 2025) and (WyCo GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 29. Snawerdt, Alison. 2025. The Median Income of Areas that allow Missing Middle Housing in Kansas City, Kansas. Adapted from (Wyco GIS Database) and (U.S. Census Bureau 2023). Graphic in Adobe Photoshop.

Figure 30. Snawerdt, Alison. 2025. Salina Land Usage. Data from (City of Salina 2025) and (Salina GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 31. Snawerdt, Alison. 2025. The Median Income of Areas that allow Missing Middle Housing in Salina. Adapted from (Salina GIS Database) and (U.S. Census Bureau 2023). Graphic in Adobe Photoshop.

Figure 32. Snawerdt, Alison. 2025. Wichita Land Usage. Data from (City of Wichita 2025) and (Wichita GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 33. Snawerdt, Alison. 2025. The Median Income of Areas that allow Missing Middle Housing in Wichita. Adapted from (Wichita GIS Database 2025) and (U.S. Census Bureau 2023). Graphic in Adobe Photoshop.

Figure 34. Snawerdt, Alison. 2025. Lawrence Land Usage. Data from (City of Lawrence 2025) and (Lawrence GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 35. Snawerdt, Alison. 2025. The Median Income of Areas that allow Missing Middle Housing in Lawrence. Adapted from (Lawrence GIS Database 2025) and (U.S. Census Bureau 2023). Graphic in Adobe Photoshop.

Figure 36. Snawerdt, Alison. 2024. Salina Projective Design. Graphic in Adobe Photoshop.

Figure 37. Snawerdt, Alison. 2024. Locator Map for Salina, Cottonwood Falls, and Kansas City. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator.

Figure 38. Perdomo, Gabrielle. 2025. The Kansas City Site has a steep slope, which can be used to create distinct spaces and views. Photo.

Figure 39. Snawerdt, Alison. 2025. Context Map of the site in Kansas City, Kansas. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator.

Figure 40. Snawerdt, Alison. 2025. Strawberry Hill Existing Conditions. Graphic in Adobe Illustrator.

Figure 41. Snawerdt, Alison. 2025. Kansas City Zoning Map. Adapted from (Wyco GIS Database 2025). Graphic in Adobe Illustrator.

Figure 42. Snawerdt, Alison. 2025. Kansas City, Kansas Zoning Requirements. Adapted from (Unified Government of WyCo/KCK 2025). Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 43. Perdomo, Gabrielle. 2025. Existing KCK Site Conditions. Photo.

Figure 44. Snawerdt, Alison. 2025. The Kansas City, Kansas Site's Nearby Amenities. Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 45. Perdomo, Gabrielle. 2025. Ice Cream Shop. Photo.

Figure 46. Perdomo, Gabrielle. 2025. Flagship Bookstore. Photo.

Figure 47. Perdomo, Gabrielle. 2025. Art Studio. Photo.

Figure 48. Perdomo, Gabrielle. 2025. Flagship Bookstore Interior. Photo.

Figure 49. Perdomo, Gabrielle. 2024. Houses in Strawberry Hill tend to be dense, single-family developments. Photo.

Figure 50. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Concept 1 South View. Graphic in Adobe Photoshop.

Figure 51. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Site Plan Concept 1. Graphic in Adobe Photoshop.

Figure 52. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Concept 1 Southwest View. Graphic in Adobe Photoshop.

Figure 53. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Concept 2 Southwest View. Graphic in Adobe Photoshop.

Figure 54. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Site Plan Concept 2. Graphic in Adobe Photoshop.

Figure 55. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Concept 2 Northwest View. Graphic in Adobe Photoshop.

Figure 56. Perdomo, Gabrielle and Snawerdt, Alison. 2025. KCK Concept 2 Western View. Graphic in Adobe Photoshop.

Figure 57. Snawerdt, Alison. 2025. Salina Context Map. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator.

Figure 58. Snawerdt, Alison. 2025. Salina Existing Conditions. Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 59. Snawerdt, Alison. 2025. The Salina Site's Nearby Amenities. Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 60. Snawerdt, Alison. 2025. Salina Site Conditions with Driveway. Photo.

Figure 61. Snawerdt, Alison. 2025. Existing Salina Site Conditions. Photo.

Figure 62. Snawerdt, Alison. 2025. Existing Trees on Salina Site. Photo.

Figure 63. Snawerdt, Alison. 2025. Ample Open Land for Salina Site. Photo.

Figure 64. Snawerdt, Alison. 2025. Salina Zoning Map. Adapted from (Salina GIS Database). Graphic in Adobe Illustrator.

Figure 65. Snawerdt, Alison. 2025. Salina Zoning Requirements. Adapted from (City of Salina 2025). Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 66. Snawerdt, Alison. 2025. This site has many public amenities, such as parks, trails and a nearby elementary school. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 67. Snawerdt, Alison. 2025. Salina House 1. Photo.

Figure 68. Snawerdt, Alison. 2025. Salina House 2. Photo.

Figure 69. Snawerdt, Alison. 2025. Salina House 3. Photo.

Figure 70. Snawerdt, Alison. 2025. Salina House 4. Photo.

Figure 71. Snawerdt, Alison. 2025. Salina Courtyard Example. Graphic in Adobe Photoshop.

Figure 72. Snawerdt, Alison. 2025. Salina Courtyard Site Plan. Graphic in Adobe Photoshop.

Figure 73. Snawerdt, Alison. 2025. Salina Abstracted Site Plan. Graphic in Adobe Photoshop.

Figure 74. Snawerdt, Alison. 2025. Salina Abstracted Option Meadow. Graphic in Adobe Photoshop.

Figure 75. Snawerdt, Alison. 2025. Salina Abstracted Option Open Greenspace. Graphic in Adobe Photoshop.

Figure 76. Snawerdt, Alison. 2025. Salina Abstracted Option Backyard. Graphic in Adobe Photoshop.

Figure 77. Snawerdt, Alison. 2025. Cottonwood Falls Context Map. Adapted from (Snazzy Maps 2025). Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 78. Snawerdt, Alison. 2025. Cottonwood Falls Existing Conditions. Graphic in Adobe Illustrator. Icons from Flaticon.com.

Figure 79. Snawerdt, Alison. 2025. Existing Site Conditions in Cottonwood Falls. Photo.

Figure 80. Snawerdt, Alison. 2025. Cottonwood Falls Zoning Map. Graphic in Adobe Illustrator.

Figure 81. Snawerdt, Alison. 2025. Cottonwood Falls Zoning Regulations. Adapted from Cottonwood Falls Zoning Data. Icons from Flaticon.com.

Figure 82. Snawerdt, Alison. 2025. Cottonwood Falls House 1. Photo.

Figure 83. Snawerdt, Alison. 2025. Cottonwood Falls House 2. Photo.

Figure 84. Snawerdt, Alison. 2025. Cottonwood Falls House 3. Photo.

Figure 85. Snawerdt, Alison. 2025. Cottonwood Falls House 4. Photo.

Figure 86. Snawerdt, Alison. 2025. Cottonwood Falls Design 1 Site Plan. Graphic in Adobe Photoshop.

Figure 87. Snawerdt, Alison. 2025. Cottonwood Falls Design 1 Rendering 1. Graphic in Adobe Photoshop.

Figure 88. Snawerdt, Alison. 2025. Cottonwood Falls Design 1 Rendering 2. Graphic in Adobe Photoshop.

Figure 89. Snawerdt, Alison. 2025. Cottonwood Falls Design 2 Site Plan. Graphic in Adobe Photoshop.

Figure 90. Snawerdt, Alison. 2025. Cottonwood Falls Design 2 Front Yard Rendering. Graphic in Adobe Photoshop.

Figure 91. Snawerdt, Alison. 2025. Cottonwood Falls Design 2 Backyard Rendering. Graphic in Adobe Photoshop.

Figure 92. Ross Chapin Architects and Developer The Cottage Company. Greenwood Avenue Cottages. Shoreline, WA. Photo.

Figure 93. Snawerdt, Alison. 2025. Kansas City Missing Middle Analysis. Data from (Unified Government of WyCo/KCK 2025) and (WyCo GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 94. Snawerdt, Alison. 2025. Wichita Missing Middle Analysis. Data from (City of Wichita 2025) and (Wichita GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 95. Snawerdt, Alison. 2025. Salina Missing Middle Analysis. Data from (City of Salina 2025) and (Salina GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 96. Snawerdt, Alison. 2025. Lawrence Missing Middle Analysis. Data from (City of Lawrence 2025) and (Lawrence GIS Database 2025). Calculations in ESRI ArcGIS Pro. Graphic in Adobe Illustrator.

Figure 97. Snawerdt, Alison. 2025. All three designs increase density in the area. Graphic in Adobe Illustrator.

Figure 98. Historical aerial of Salina, Kansas. Public Domain. https://commons.wikimedia.org/wiki/File:Kansas_-_Salina_-_NARA_-_23940255.jpg

Figure 99. Green Avenue Cottages in Shoreline, WA. Architect Ross Chapin Architects. Developer The Cottage Company

Figure 100. Perdomo, Gabrielle. 2025. Nearby Housing in Kansas City, Kansas. Photo.

Figure 101. Ross Chapin Architects and Developer The Cottage Company. Spring Valley. Photo.

Figure 102. Ross Chapin Architects and Developer The Cottage Company. Conover Commons Pocket Neighborhood. Redmond, WA. Photo.

Figure 103. Snawerdt, Alison. 2025. View from Historical Downtown in Salina. Photo.

07 APPENDICES

Figure 103 View from Historical Downtown in Salina (Snawerdt 2025)

Appendix A:List of Cities

See page 3.

Large Cities

- Kansas City
- Wichita
- Overland Park
- Olathe
- Topeka

Medium Cities

- Salina
- Lawrence
- Shawnee
- Lenexa
- Manhattan
- Hutchinson
- Leavenworth
- Leawood
- Dodge City
- Garden City
- Derby
- Gardner
- Emporia
- Prairie Village
- Junction City
- Hays
- Pittsburg

Appendix B: Density Calculations

See page 17

City	Dwelling Units	Area (acres)	Density	Square Miles
Kansas City, Kansas	63,446	79872	0.79	124.8
Council Grove	1,050	1280	0.82	2
Cottonwood Falls	395	384	1.03	0.6
Salina	20,885	16448	1.27	25.7
Wichita	174,295	103488	1.68	161.7
Lawrence	43,421	21824	1.99	34.1

Table 3 Density (Snawerdt 2025)

Appendix C: Missing Middle Analysis Calculations

Missing Middle Area (Sq ft)	Non Missing Middle (Sq ft)	Non Residential (Sq ft)	Total Area
185,416,135	1,387,266,030	1,344,072,364	2,916,754,528
6%	48%	46%	

Table 4 Kansas City Calculations (Snawerdt 2025)

Missing Middle Area (Sq ft)	Non Missing Middle (Sq ft)	Non Residential (Sq ft)	Total Area
104,069,070.54	258,849,592.03	345,295,302.11	708,213,964.68
15%	36.55%	49%	

Table 5 Salina Calculations (Snawerdt 2025)

Missing Middle Area (Sq ft)	Non Residential (Sq ft)	Total Area
650,990,142.70	312,082,573.98	963,072,716.69
68%	32%	

Table 6 Lawrence Calculations (Snawerdt 2025)

Missing Middle Area (Sq ft)	Non Missing Middle (Sq ft)	Non Residential (Sq ft)	Total Area
3,194,633,937.00	6,195,599.00	601,549,481.00	3,802,379,017.00
84%	0.16%	16%	

Table 7 Wichita Calculations (Snawerdt 2025)

Table 9 Salina Zoning Areas (Snawerdt 2025)

Zone	Area (Sq Ft)
A-1	161,585,902.73
C-1	3,139,325.40
C-2	1,532,368.80
C-3	12,801,844.39
C-4	4,716,576.35
C-5	23,585,352.92
C-6	4,158,891.22
C-7	6,655,022.97
H-M	1,346,993.28
I-1	7,663,926.47
I-2	68,141,908.00
I-3	45,799,216.18
M-H	6,923,446.37
P-EF	10,383,787.85
P-EX	55,298.06
P-PF	410,142.11
PC-1	430,804.18
PC-2	692,855.87
PC-3	6,287,552.64
PC-5	15,788,756.24
PC-6	24,871.52
PC-7	4,191,188.44
PDD	45,073,224.11
R	49,138,216.42
R-1	135,826,260.72
R-2	45,976,532.21
R-2.5	1,341,531.30
R-3	14,560,434.23
R-S	20,985,136.32
U	8,996,597.40

Key

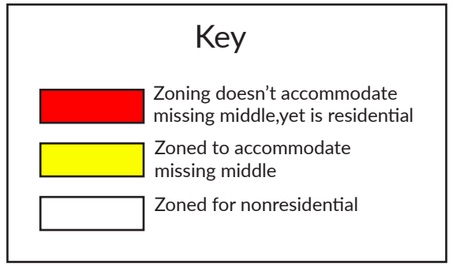
- Zoning doesn't accommodate missing middle,yet is residential
- Zoned to accommodate missing middle
- Zoned for nonresidential

Table 8 Kansas City Zoning Areas (Snawerdt 2025)

Zone Name	Area (Sq ft)
Agricultural	736,896.09
Agricultural District	260,480.08
Agriculture	398,402.96
Agriculture District	834,010,761.90
Apartment District	156,478.49
Central Business District	3,705,231.29
Commercial District	11,324,381.12
General Business District	96,025.92
General Industrial District	32,481,100.90
Heavy Industrial District	304,597,566.58
Large Lot Single Family District	11,682,799.89
Limited Business District	15,306,693.66
Local Business District	454,208.63
Nonretail Business District	1,711,691.38
Planned Apartment District	72,759,879.58
Planned Business Park	652,545.35
Planned Business Park District	2,197,881.05
Planned Commercial District	5,889,958.22
Planned Garden Apartment District	7,149,805.88
Planned General Business District	43,249,066.82
Planned General Industrial District	9,324,540.86
Planned Heavy Industrial District	44,317,351.81
Planned High-rise Apartment District	2,264,720.22
Planned Light Industrial and Industrial Park District	16,153,363.07
Planned Limited Business District	22,621,138.75
Planned Mobile Home Park District	9,233,926.61
Planned Non-Retail Business District	95,026.78
Planned Nonretail Business District	11,354,233.27
Planned Single Family District	23,488,652.98
Planned Suburban Residential District	1,035,370.97
Planned Townhouse District	9,658,660.65
Planned Two Family District	4,539,658.03
Rural Residence District	50,620,694.84
Single Family District	1,279,701,656.09
Suburban Residential District	11,502,928.33
Townhouse District	61,906.70
Traditional Neighborhood Design	177,019.14
Traditional Neighborhood Design District	211,298.19
Traditional Neighborhood Development	23,023.46
Two Family District	71,547,501.97

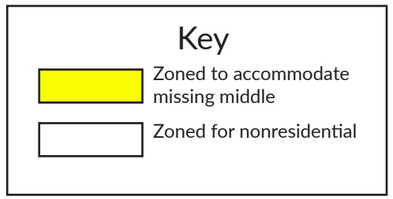
Zone	Area (sq ft)
AFB	115,890,492
B	94,543,576
CBD	20,868,291
GC	99,016,825
GI	90,842,476
GO	56,186,542
IP	16,175,265
IP-A	4,194,115
LC	241,444,070
LI	487,231,468
MF-18	41,048,248
MF-29	72,988,837
MH	49,147,786
NO	1,465,711
NR	3,247,236
OW	3,106,157
PUD	67,009,980
RR	42,117,604
SF-5	2,055,024,809
SF-10	3,508,190
SF-20	6,195,599
TF-3	228,525,314
U	2,600,426

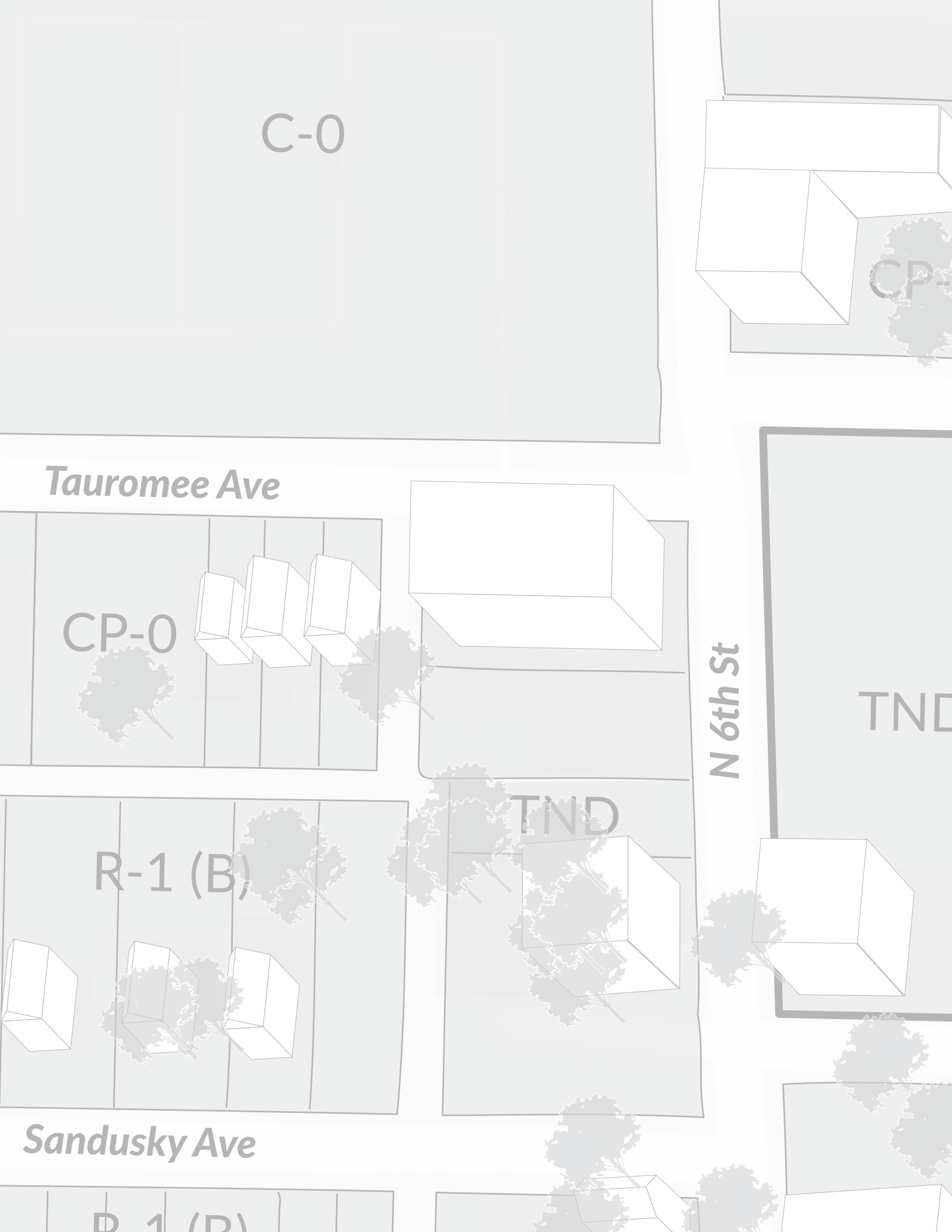
Table 10 Wichita Zoning Areas (Snawerdt 2025)



Zone Name	Area (Sq Ft)
CC200	1,944,612.27
CC600	14,219,406.35
CC600-PD	164,735.93
CD	296,796.72
CD-PD	808,470.37
CD-UC	3,349,433.28
CN1	62,065.22
CN2	5,942,454.24
CN2-UC	29,158.59
CO	2,115,688.54
CR	2,090,137.74
CR-FP	252,606.83
CS	29,121,503.68
CS-UC	938,796.33
GPI	42,015,198.39
GPI-FP	23,386,588.45
GPI-UC	815,317.52
H	1,077,088.99
IBP	8,442,878.38
IG	88,446,302.87
IG-FP	533,447.03
IG-UC	268,458.67
IL	5,304,500.70
IL-UC	81,570.78
IM	2,553,345.25
MU	36,749.52
MU-PD-UC	155,533.68
MU-UC	129,900.36
OS	134,867,555.57
OS-FP	3,714,198.27
OS-UC	14,833.16
PCD	16,879,161.29
PCD-UC	49,539.22
PID	3,890,315.26
PRD	25,715,314.59
PUD	36,845,044.55
RIVER	7,385,078.92
RM12	33,702,955.00
RM12-FP	201,958.58
RM12-PD	4,832,730.92
RM12-UC	87,482.47
RM12D	17,288,604.16
RM12D-PD-UC	32,404.03
RM12D-UC	1,442,275.07
RM15	7,299,424.80
RM15-FP	1,094,199.86
RM15-PD	240,024.15
RM24	14,120,640.43
RM24-PD	2,343,120.86
RM32	6,701,711.55
RM32-PD	64,762.56
RM32-PD-UC	50,271.58
RM32-UC	4,769,626.75
RMG	1,833,249.96
RMG-UC	383,582.41
RMO	3,549,069.67
RMO-UC	639,200.14
RS3	100,799.53
RS5	45,460,315.89
RS5-FP	104,493.87
RS5-PD	795,536.62
RS7	207,471,746.01
RS7-PD	393,980.93
RS10	56,113,916.74
RS20	10,155,583.95
RS40	6,713,047.44
RSO	5,847,404.86
RSO-UC	8,317.57
T5	236,446.78
U	13,471,911.70
U-KU	39,227,459.81
U-KU-UC	7,960.41
UR	10,640,705.70
UR-FP	1,702,006.42

Table 11 Lawrence Zoning Areas (Snawerdt 2025)




C-0
CP-
Tauromee Ave
CP-0
N 6th St
TND
TND
R-1 (B)
Sandusky Ave