

Waukee 2040 Land Use and Transportation Scenario

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1. Introduction

The Waukee 2040 Scenario Planning exercise aims to assess and compare two future growth scenarios for the City of Waukee, Iowa. This study explores the potential impacts of the existing Imagine Waukee 2040 plan and an alternative compact, mixed-use development scenario. By utilizing UrbanFootprint for data analysis and modeling, the study provides insights into land use, transportation, and sustainability outcomes, supporting informed decision-making for the city's future development.

1.1. History of Waukee

Waukee, Iowa, was established in 1869 by General Lewis Addison Grant, who laid out the town on land he owned (Mikelson, 2014). The city was incorporated on December 23, 1878, and has a rich history of coal mining (Mikelson, 2014). In recent years, Waukee has experienced significant population growth. According to the 2020 U.S. Census, the population was 23,940, reflecting a 74% increase since 2010, when the population was 13,790. This rapid expansion is attributed to factors such as infrastructure and amenities investments and the quality of education provided by the Waukee Community School District. As of 2020, there were 9,831 housing units in Waukee, accommodating the growing number of residents.

1.2. Current Conditions

According to the demographics provided by Waukee City Hall, as of July 2023, the population estimate of Waukee is 31,645. This is a 32% increase for the population from the 2020 census report of 24,089. Waukee is one of the fastest growing cities in the Des Moines Metro and also in the state of Iowa. Waukee officials calculate that the population could even reach 50,000 by 2040.

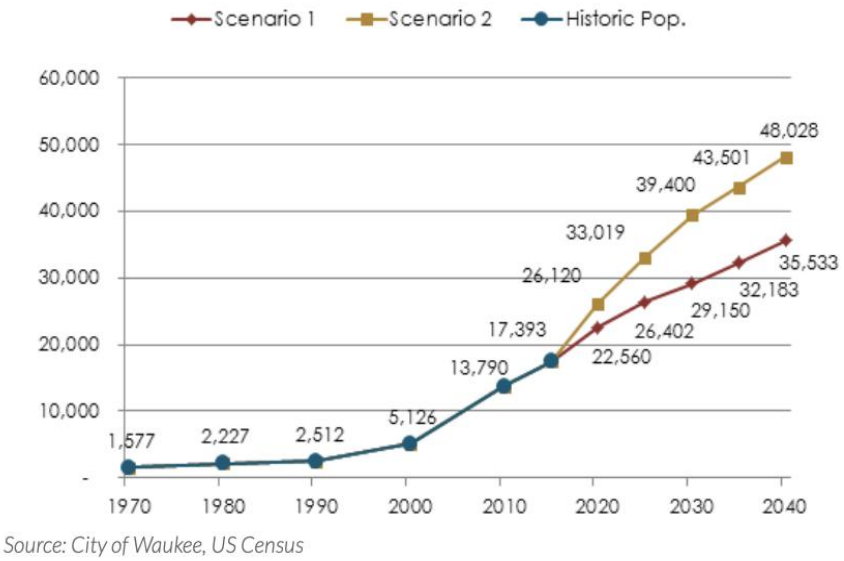


Figure 1: City of Waukee Population Projection

Waukee has an employment rate of 75%, with 56% of their population holding a bachelor's degree or higher. A significant number of employees in the Waukee Laborshed area, encompassing West Des Moines, Clive, and nearby rural communities, commute to other cities for work. Many of these workers express a willingness to change jobs or accept new opportunities if they are closer to home and offer better prospects.Waukee's median age is 34.4, according to the U.S. Census, which is lower than the 2022 state average of 39.1 years old. In the city, the current population is comprised of 51.12% female and 48.88% male residents. There are a total of 10,693 households in Waukee and 7,128 families. The most common size of a household in Waukee is a 2-person household, comprising 39.37% of the number of people per household.

Waukee has established a comprehensive zoning ordinance to regulate land use and development within the city. The ordinance delineates various zoning districts, each with specific regulations to guide the city's growth and maintain its character. These districts include residential zones such as R-1 (Single-Family Residential District), R-2 (One- and Two-Family Residential District), and R-3 (Rental Multi-Family Residential District), each with distinct density and usage specifications. Commercial zones, including C-1 (Community and Highway Service Commercial District) and C-2 (Downtown Village District), are designated for business activities, with regulations tailored to the scale and nature of commercial operations. Industrial zones, such as M-1 (Light Industrial District) and M-2 (Heavy Industrial District), accommodate manufacturing and industrial activities, with appropriate safeguards to minimize impacts on adjacent areas. Additionally, specialized districts like the Kettlestone Mixed-Use (K-MU) District promote integrated residential, commercial, and recreational spaces, fostering a cohesive community environment. The ordinance also includes provisions for Planned Development Overlays (PD-1), allowing for customized development standards to encourage innovative design while ensuring compatibility with the city's overall planning objectives.

1.3. Waukee's Location within the Nearest Metro Area

Waukee, Iowa, is a rapidly growing suburban city located within the Des Moines metropolitan area, approximately 15 miles west of downtown Des Moines. Strategically positioned along Interstate 80 and near the intersection with Interstate 35, Waukee benefits from excellent regional connectivity, making it a desirable location for both residents and businesses. This proximity to the state's capital allows Waukee to serve as a bedroom community, attracting families and professionals who commute to Des Moines and surrounding areas for work while enjoying Waukee's suburban amenities. The city's location also places it within the economic and cultural orbit of the Greater Des Moines region, providing access to a broad range of job opportunities, shopping, dining, and entertainment options. As part of the metropolitan area,

Waukee is integrated into regional planning initiatives, contributing to and benefiting from Des Moines' economic growth, infrastructure development, and cultural resources.

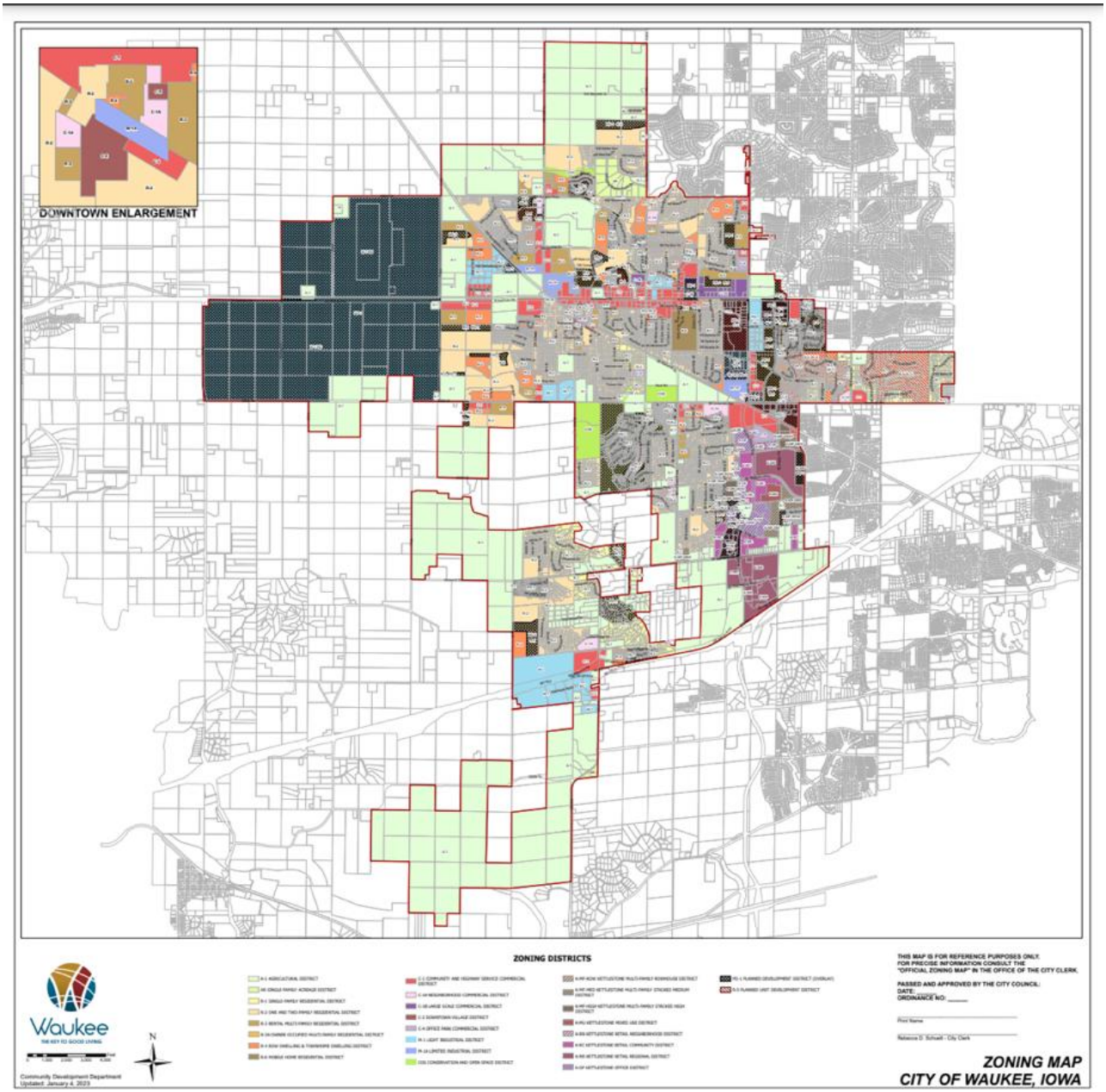


Figure 2: City of Waukee Zoning Map, source – City of Wuakee

1.4. Existing Development Plans

Waukee, Iowa, is actively pursuing a range of development initiatives to accommodate its rapid growth and enhance community amenities. Central to these efforts is the "Imagine Waukee 2040" Comprehensive Plan, a strategic framework guiding land use, housing, parks, economic

development, and infrastructure over two decades. A key project under this plan is the Waukee Towne Center, a $132 million mixed-use development spanning 62 acres southwest of Hickman Avenue and Alice's Road. Anchored by a Target store, the center will feature approximately 300,000 square feet of retail space, restaurants, an amphitheater, an 8-acre lake, and trails connecting to the regional system. The first phase is slated for completion by summer 2025, with the second phase expected by late 2029. Additionally, the city is advancing the Kettlestone development, a mixed-use area designed to integrate residential, commercial, and recreational spaces, promoting a cohesive community environment. These projects, aligned with the comprehensive plan, aim to sustain Waukee's growth while enhancing residents' quality of life. In addition, the "Imagine Waukee 2040" Comprehensive Plan, there are some key drivers, or planning considerations that they are basing their development plans on. These drivers were developed from a review of existing conditions and input from the public. They are stated as follows:

- **Driver 1:** Development / Replacement of Parks and Open Space and Preservation of Areas for Future System Needs
- **Driver 2:** Preservation of Lands for Future Commercial / Industrial Uses
- **Driver 3:** Providing Diversity in Housing Choices
- **Driver 4:** Transportation Corridors and Alternative Mobility
- **Driver 5:** Planning for City Buildings and a Civic Campus
- **Driver 6:** Planning for Stormwater Integration and Management
- **Driver 7:** Balancing Maintenance and Community Expansion

Overall, the land use of Waukee plans to account for more streamlined commercial and industrial land use, which will make Waukee an enticing location for incoming businesses and existing industries.

2. Report Overview

The purpose of this report is to identify a range of plausible future outcomes in the land use and transportation system for the City of Waukee through scenario planning exercise. The specific scenario planning exercises for this project were conducted using Urban Footprint, a web-based analytical platform that enables urban planners to analyze and visualize different scenarios and help make data-driven and informed decisions. This report evaluated the future land use and transportation scenarios by exploring two discrete scenarios:

1. A baseline scenario, guided by Waukee's current comprehensive plan.
2. An alternate scenario focusing on compact, mixed-use and transit-oriented development.

By examining these scenarios, this report seeks to explore how land use patterns can influence development of transportation infrastructure. Concurrently, how transportation decisions can influence the distribution of population, housing, economic growth and eventually shape the land use pattern of a certain place.

2.1. Scenario Planning

Scenario planning is a process of understanding the unforeseen challenges and opportunities in the future to support the short-term and long-term decision-making process in the field of urban planning (APA, 2024) . Scenario planning works through creating, perceiving, and evaluating a series of scenarios to understand the potential future contexts (UN-Habitat, 2012). Scenario planning process begins with assessing the current context, projected future and significant internal and external factors to produce a set of probable futures. To support those future scenarios either partially or fully, a series of initiatives, policies and strategies are developed. A tipping or trigger point may be established as an indicator to aware planners about the higher likelihood of a scenario becoming reality, instigating appropriate actions by allocating funding or advancing towards implementation (APA, 2024). There are several upsides and downsides to scenario planning, discussed in the following sections.

2.1.1. Advantages of Scenario Planning

A major advantage of scenario planning is that it provides a range of probable futures that can alert planners and decision makers about the anticipated challenges and opportunities, therefore enabling them to respond swiftly and decisively. By identifying possible alternatives for the future, it can reduce the uncertainty in the future (Ljubenovic, Mitkovic, & Mitković, 2014). It can serve as a robust mechanism to identify and adapt strategies to varied future scenarios, integrate innovations and facilitate communications and alignments among diverse stakeholders by forming a shared understanding of the plausible future (Good, 2023). Scenario planning is not just a planning tool, it helps planners to understand the development reason,

key factors, driving forces and stakeholders in the planning process. Scenarios for the long-term planning process can help the plan becoming flexible and adaptive to future transitions (Ljubenovic, Mitkovic, & Mitković, 2014).

2.1.2. Limitations of Scenario Planning

While scenario planning provides a comprehensive outlook about the future, developing a range of scenarios requires a significant amount of time, human and financial resources. It can limit the ability to engage in scenario planning of the planning entities with limited resources. As scenario planning is based on future assumptions, inaccurate assumptions or overlooking critical factors can lead to developing flawed tactics and make the entire planning process ineffective. Furthermore, scenario planning may not provide concrete outcomes, which can make it seem ambiguous for any strategic planning process that requires real data and certainty (Good, 2023).

Despite these limitations, scenario planning is a valuable instrument to explore the unforeseen challenges and increase the sustainability of a planning project.

2.2. Goal of Analysis

The goal of the analysis is to explore how different land use patterns and transportation layout can guide Waukee's future growth in a sustainable and equitable manner. By comparing the compact development with baseline scenario, the implication of each method on population, housing distribution, employment and transportation infrastructure can be evaluated. The analysis aims to identify potential strategies to balance job-housing growth, increase transportation options and enhance regional connectivity.

3. Literature Review

A comprehensive understanding of existing literature is essential to contextualize the scenario planning analysis within the broader field. This section reviews relevant theories and concepts that inform the study's objectives.

3.1. Land use

Our land use strategy is based upon a wide array of empirical evidence suggesting that dense, mixed-use development is most supportive of non-car forms of transportation. Ewing and Cervero in their meta-analysis compiled the demand elasticities for different modes of travel based on factors related to accessibility and urban design. They found that land use diversity is one of the leading factors contributing to walking as a mode choice.

Mixed-use land development has emerged as a powerful tool to support non-car transportation modes, such as walking, cycling, and public transit. The Enterprise Community Partners report highlights that equitable transit-oriented developments (Carlisle, 2020), characterized by mixed-use and compact designs, integrate residential, commercial, and recreational spaces within walking proximity, significantly reduces dependency on automobiles (Carlisle,2020). Additionally, mixed-use environments enhance transit accessibility and promote community benefits by linking housing, jobs, and amenities through multimodal infrastructure.

The meta-analysis by Ewing and Cervero demonstrates that land use diversity measured through metrics like job-to-housing ratios and entropy indices is one of the strongest predictors of walking as a travel mode. Diverse land use creates shorter trip distances and a greater variety of destinations, making walking a convenient and attractive choice (Ewing,2010). Furthermore, the inclusion of street network designs, such as high intersection density and pedestrian-friendly layouts, enhances the appeal and practicality of walking and transit use, underscoring the importance of mixed-use urban planning.

3.2. Sustainable Transportation Options

According to the US Department of Transportation, US residents make an average of 15 miles of commute to work every day, usually by alone in an autonomous vehicle. The use of modern large autonomous vehicles to transport small loads of passengers like individuals aggravates inefficiency, and environmental impacts. Each type of vehicle requires energy and material costs not just to operate, but also during manufacturing. Therefore, it is paramount for energy-conscious societies to consider energy-efficient and sustainable alternatives as transportation modes (Dave, 2010). Providing more energy-efficient choices is a crucial strategy to minimize greenhouse gas emissions and improve the resiliency of the transportation system. Active transportation such as walking, biking along with public transit offers less driving, saves more

money and in many cases, saves time. According to the research, Americans are gradually seeking opportunities to drive less (EESI, 2024).

Active transportation infrastructure such as sidewalks, bike lanes, rail crossings, safe roads etc. are critical but often overlooked in transportation planning (EESI, 2024). Walking and biking are more often correlated to physical activity benefits; however, these activities have potential impacts on social cohesion, mental health, public safety, crime prevention, multimodal traffic safety and economic effects (Braun, 2015).

Public transportation provides various benefits including job creation, reduction in greenhouse gas emissions, promoting travel safety etc. Transit riders typically consume half the gasoline per person compared to those without reliable transit options. Switching autonomous vehicles to public transit reduces greenhouse gas emissions by approximately 16.2 million metric tons annually (EESI, 2024). Effective integration of walking and biking with public transportation can provide health and environmental benefits to the communities and minimize congestion. Furthermore, multimodal integration can increase the efficiency of public transportation by reducing the demand for feeder bus services (Transportation, 2024). According to (Riggs & Sethi, 2019), walkability is connected to diverse modes of transportation such as walking, biking and public transportation use. While transit behavior is influenced by travel distance, walking and biking are closely tied to built environmental factors and demographic characteristics such as age, income, household size etc. to promote sustainable travel behavior, cities should adopt policies focused on spatial equity and income mobility.

3.3. Housing Unit Types

The "Imagine Waukee 2040" Comprehensive Plan outlines a strategic vision for accommodating diverse housing unit types to meet the evolving needs of its growing population. The plan emphasizes the development of traditional single-family homes, which currently dominate the housing landscape, while promoting higher-density residential options such as townhomes, duplexes, and multi-family units. This approach aligns with contemporary urban planning literature that advocates for a mix of housing types to enhance affordability, inclusivity, and community resilience (Geffner, 2018). For instance, the incorporation of accessory dwelling units (ADUs) and "missing middle" housing defined as multi-unit or clustered housing types compatible in scale with single-family homes addresses gaps in the housing market by providing options for different income levels and life stages (Geffner, 2018). By integrating various housing forms, Waukee aims to create a more adaptable and sustainable urban environment, reflecting best practices identified in housing studies.

4. Analysis

This section presents a comparative analysis of two future development scenarios for Waukee - the Comprehensive Plan 2040 Scenario and the Compact Development Plan 2040 Scenario. Using UrbanFootprint, the analysis evaluates the impact of each scenario on land use, transportation, housing, and sustainability. The findings highlight the differences between traditional suburban growth and a more compact, mixed-use approach, offering insights to guide Waukee's future planning decisions.

4.1. Comprehensive Plan 2040 Scenario

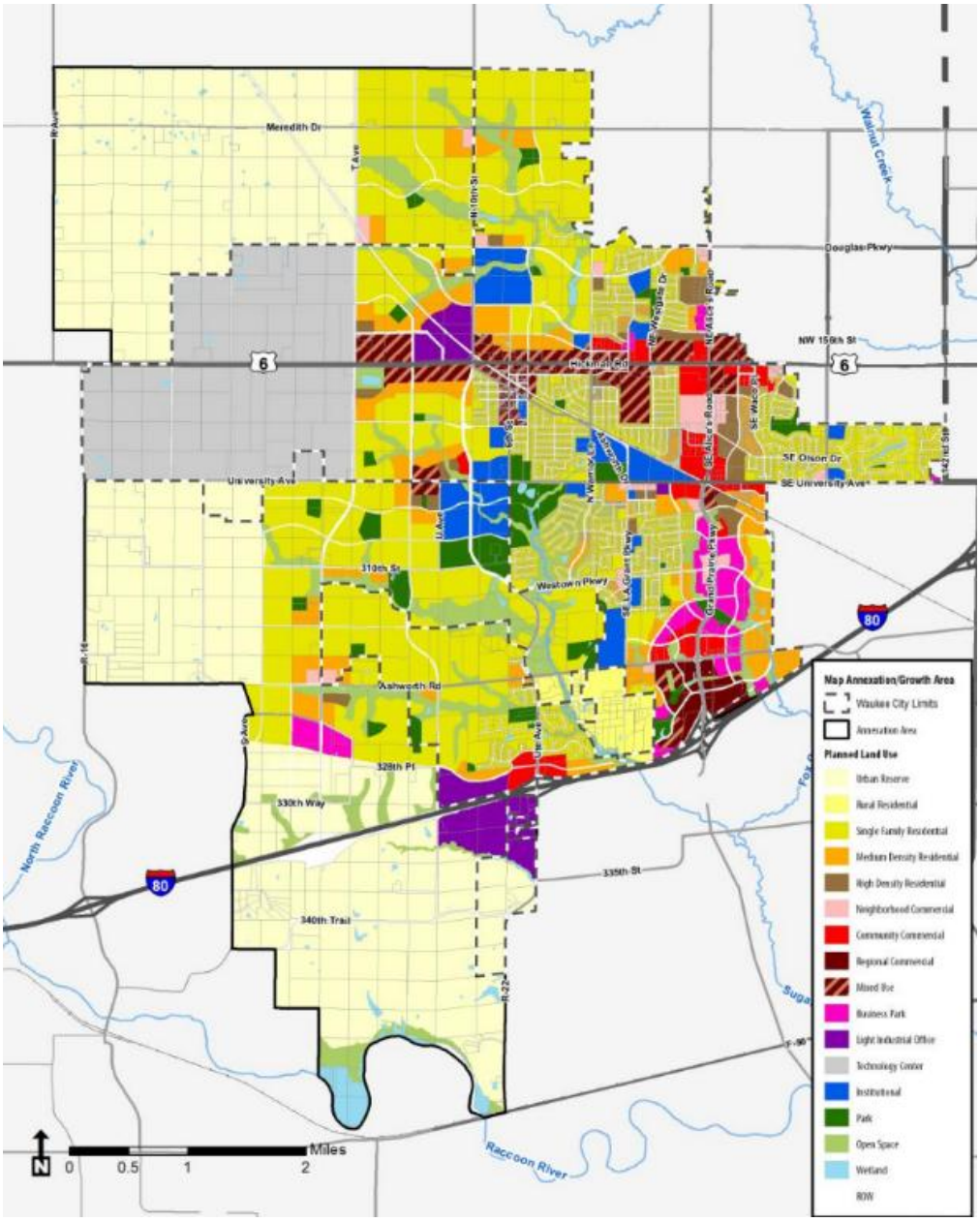


Figure 3: Future Preferred Land Use Map, Imagine Waukee 2040

Waukee's comprehensive plan lays out a plan for future development that attempts to maintain the community's current suburban character but ultimately misses the mark for promoting sustainable, non-auto-centric development. One way in which the plan promotes car-dependent sprawl is through its prioritization of low-density housing. By far the land use category with the most dedicated future land use is low-density residential, which is given 60% of Waukee's future developable acreage. This category only allows 2 to 4 dwelling units per acre and allows very limited multifamily development. By comparison, medium-density residential (4-12 dwelling units per acre) is given 13.3% of developable land, and high-density residential (over 12 dwelling units per acre) has a miniscule 1.4%. With most housing being planned at a very low density, a large amount of land is required to house a relatively low number of people. This contributes to sprawl, inflating the distance between residences and requiring people to travel further to reach their destinations, therefore decreasing the viability of active modes.

Additionally, a high separation of uses and inefficient placement of commercial and office development contributes to sprawl by making people live far from their places of work and commerce. Only 5% of developable land is designated for mixed use in the comprehensive plan. The mixed-use areas, like almost all commercial development, is situated in a linear pattern along major highways and arterial roads, particularly along Highway 6. This setup is clearly intended to benefit drivers, who can easily and quickly access businesses from any direction via the large, pedestrian-unfriendly roads while pedestrians would have to walk long linear distances to travel between them. Offices are also clustered in a "business park" district along Grand Prairie Parkway, meaning that only a small number of office workers could live in residences within walking distance of their workplaces. Overall, the separation of uses displayed in Imagine Waukee 2040 puts distance between places of residence and work in a way that forces people to live on a scale only accessible by cars, which contributes to environmental degradation and socioeconomic inequity.

4.2. Compact Development Plan 2040 Scenario

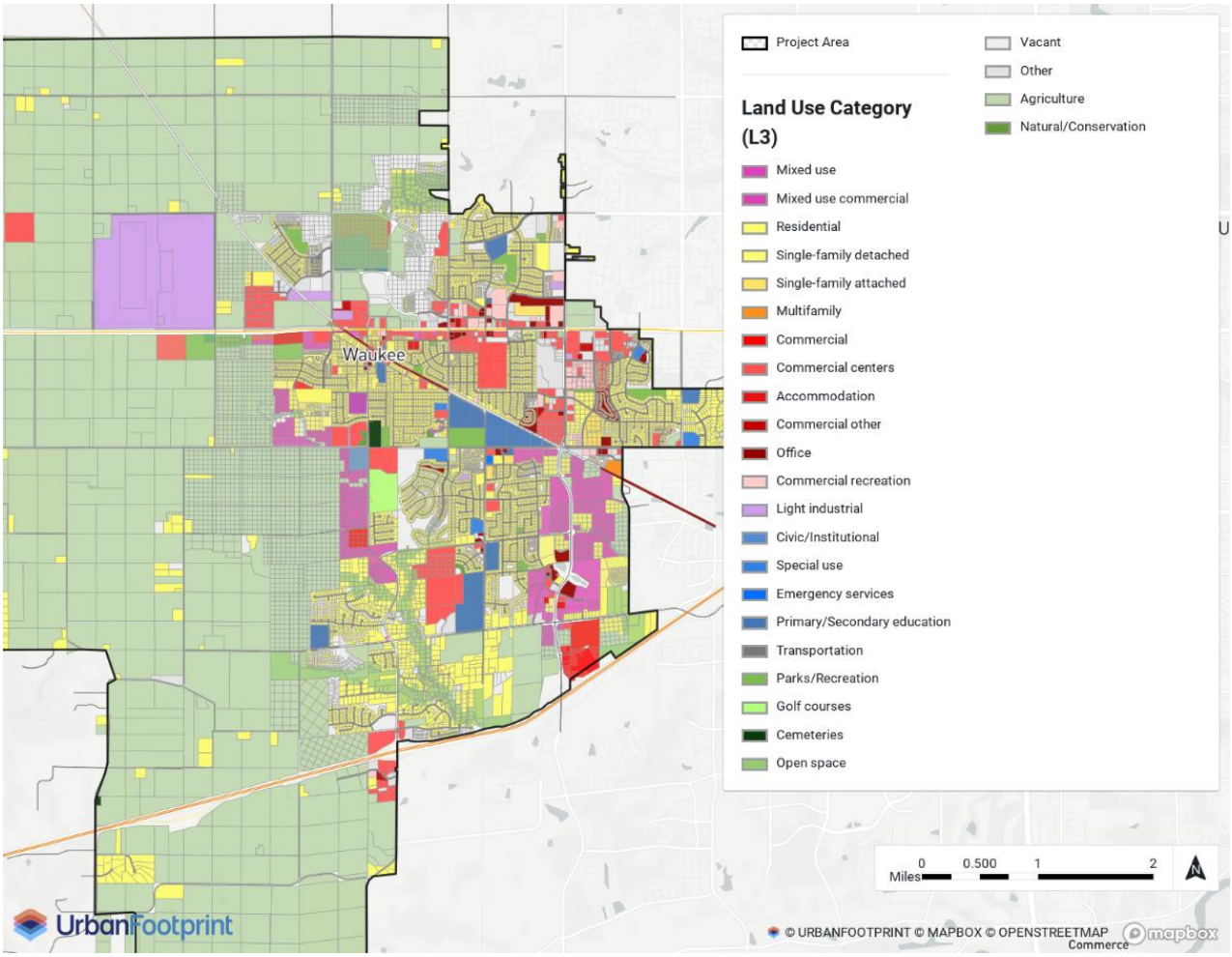


Figure 4: 2040 Compact Development Scenario via UrbanFootprint

The 2040 compact development scenario was built with the vision of better employment-housing balance. For this, the compact scenario planning aimed for increasing housing diversity and stock, increasing land use variations and thus promoting sustainable land use practices, promoting walkable and bikeable urban areas with compact land uses while balancing congestion utilizing Waukee's grid-like road networks. These goals were set to eventually support the city's transit vision and enhance regional connectivity. To achieve these goals, a range of strategies were taken including increasing medium and high-density housing, mixed used development along the major streets, incorporating civic spaces in the key areas as well as establishing neighborhood commercial spaces to serve the surrounding communities with daily needs. While increasing density was the key focus of scenario planning, the scenario planning activity considered realistic future growth for Waukee. Therefore, the future residential, commercial and mixed-use development was placed following Waukee's zoning standards to avoid unrealistic development like highly compact residential development, high rise buildings,

massive scale commercial or mixed-use development without adequate infrastructure. The compact scenario planning also avoided development of sensitive areas like floodplain and critical habitat areas considering the environmental sustainability. The following table represents the land use types used in Urban Footprint for compact development and their consistency with Waukee's zoning standards

Table 1: Land Use Typology for Scenario Analysis

Land Use Typology Used for Scenario Analysis	Waukee's Land Use Standards
Residential Subdivision • 3.8 DU/acre	Low Density Residential • typical lot size: 8,000 sq feet to 0.50 acres • average density: 2 to 4 units per acre
Neighborhood Residential • 9.7 DU/acre	Medium Density Residential • average density: 4 to 12 units per acre
Village Residential • 16.5 DU/acre	High Density Residential • average density: greater than 12 units per acre
Village Commercial • 3.4 DU/acre	Neighborhood Commercial • Area: 3 to 5 acres • Trade Area: up to 3 miles in radius • Location: along collectors, or at the intersections of collectors and minor arterials
Town Commercial • 6.2 DU/acre	Community Commercial • Area: 10 to 40 acres • Trade Area: 3 to 6 miles in radius • Location: along minor or major arterials
Village Mixed Use • 16.1 DU/acre	Mixed Use Corridor • Residential Density: 8 to 25 units per acre • Land Area: 3 to 5 acres • Trade Areas: up to 3 miles in radius • Location: along key transportation corridors (arterials) or in between key "nodes"
Town Mixed Use • 24.5 DU/acre	Mixed Use Village • Residential Density: 12 to 40 units per acre • Land Area: 10 to 20 acres • Trade Areas: 3 to 6 miles in radius • Location: along minor or major arterials

The compact scenario focused on shaping future development in three strategic areas of Waukee: Downtown, Hickman Street corridor and Kettlestone. These will also be referred to as transit-oriented development (TOD) neighborhoods, as they will be pivotal for future transit implementation in Waukee. The downtown land use scenario was developed considering a few major visions in Waukee Downtown Master Plan. The plan lays out a vision for Hickman Crossing to develop the future downtown transit hub. Additionally, it has vision for increasing higher density multifamily residential development, particularly in the transitional district like corridor between 6th St and 7th St, areas north of Ashworth Dr. etc. Currently 6th St serves as a main street for traffic circulation, connecting the downtown with Interstate 80 (Waukee, Waukee Downtown Master Plan, 2009). This street corridor has higher potential for extending regional connectivity. Considering these factors, the scenario planning focused on incorporating medium and high-density residential development in vacant and unused lands, mixed use development along the arterial and collector streets, small scale commercial areas such as neighborhood commercial and community commercial as well as civic spaces for community events. In addition, the compact scenario considered the adaptive reuse of properties (Waukee, Waukee Downtown Master Plan, 2009) by rezoning Waukee Elementary School into a mixed-use village.

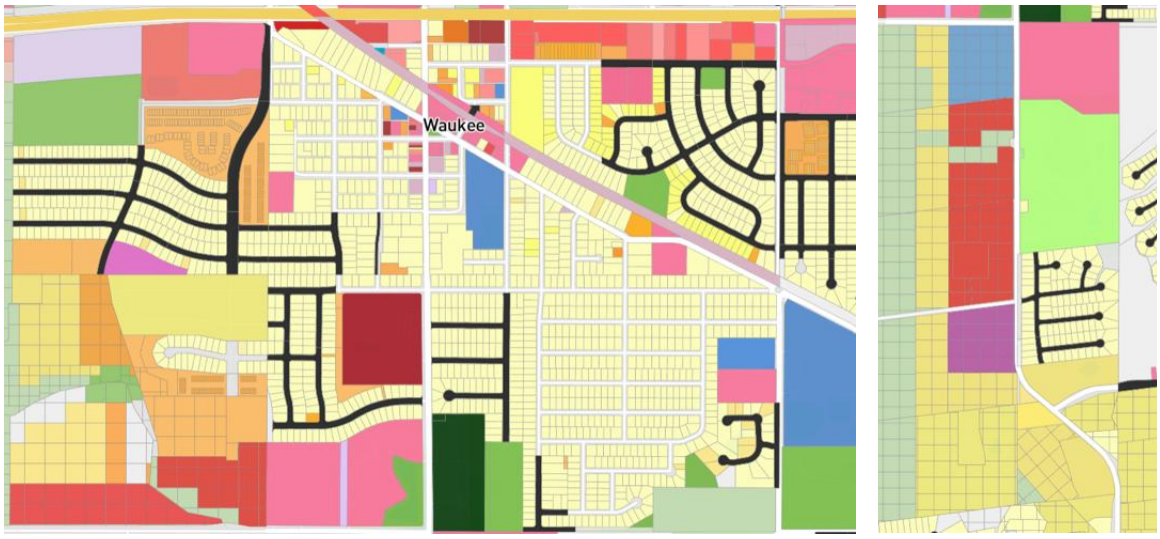


Figure 5: Downtown Waukee (left) and 6th St corridor (right), via UrbanFootprint

The Hickman Road corridor, also known as U.S. Highway 6 is a vital east-west corridor, connecting Waukee to Des Moines, Clive and larger metro area. Despite its significance, challenges including limited housing options particularly affordable housing, poor walkability, inadequate mixed development, green space and lack of aesthetics persist in this area (Waukee, Imagine Waukee 2040, 2019). The compact scenario planned to address these issues by introducing mixed-used development that combines retail, businesses and mix of housing

and create a dynamic, connected space, support better walkability and bikability, transit, public and green space like plaza and streetscaping to create a vibrant community.



Figure 6: Hickman Road corridor, via UrbanFootprint

For the Kettlestone area, the compact scenario focused on transforming the areas along the Grand Prairie Pkwy into radial mixed-use centers. The innermost areas along the road feature lots of storefronts, retails, businesses and office parks to encourage pedestrian activity and serve as a community gathering place. The outermost areas currently feature some sparsely located office parks. Due to their sparsity, those areas are dying out as an isolated work environment is not preferable to employees anymore; the market nationwide appears to prefer mixed-use centers where employees may live, work, and play (Strungys and Jennette 2014). For those areas, the scenario planning focused on reimagining mixed-use residential, office and industrial centers to balance the work environment with livability. Surrounding these mixed-use zones, medium-to-low density residential growth with neighborhood commercial areas were proposed. These “retail-centered neighborhoods” allow for commercial, and employment uses within residential areas without compromising too much of the existing community’s low-intensity character. To address Waukee’s housing needs, the medium-density residential growth according to Waukee standard would allow much needed housing diversity while maintaining the traditional suburban feelings with limited retail services. This approach will not only promote livability, active transportation and economic development, but also will address the sprawl effect with outdated office park design.



Figure 7: Kettlestone neighborhood in compact scenario, via UrbanFootprint

Focusing only on the three key TOD neighborhoods, the scenario planning exercise successfully achieved the population and employment goal. Introducing compact residential, mixed-use, retails and businesses facilitated the achievement of targeted population of 48,128. The number of dwelling units increased to 22,474 from an initial 10,813 units. The number of jobs reached a total of 30,644, resulting in a job/population ratio of 0.63. The following charts describe the share of residential units and employment across various types.

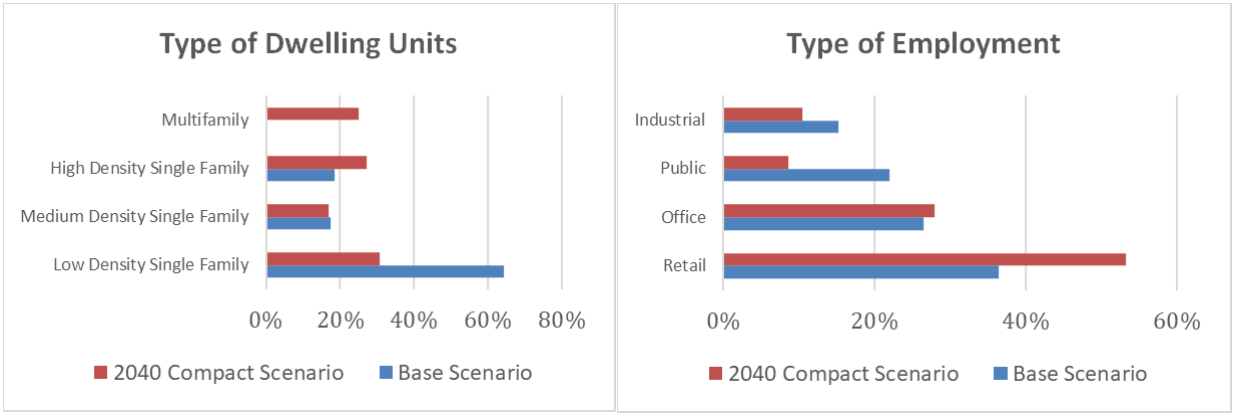


Figure 8: Distribution of housing and jobs across different types in the compact scenario

The result implies that by strategically focusing on compact, integrated land use practice a balanced population and employment ratio can be achieved that provides more housing and job opportunities. This approach can promote more sustainable economic and community growth while reducing the commuting distance and create pedestrian and bike friendly neighborhoods.

4.3. Comparison of the Scenarios

By drastically improving opportunities for people to live, work, shop, and play without using a car, our compact development plan will most likely help Waukee achieve a more multimodal future, most importantly through providing opportunities for viable transit service. Using scenario planning tools within UrbanFootprint, we conducted analyses comparing metrics of vehicle miles traveled (VMT) between the existing comprehensive plan scenario and our compact development scenario. As shown in the table below, compared to the comprehensive plan, our plan was not able to decrease car mode share or total VMT, but was able to decrease per-household residential VMT.

Table 2: Comparison of Mode Share and VMT in two Scenarios

Metric	Comprehensive Plan	Compact Plan
Travel Mode Share	Transit: 1.0% Bike/walk: 10.5% Auto: 88.6%	Transit: 1.3% Bike/walk: 7.1% Auto: 91.6%
Annual VMT	279.467 million	334.319 million
Per Capita Average Residential Individual VMT	4,955	4,203
Per Capita Average Residential Household VMT	11,741	9,489

Because total VMT increased while average residential VMT decreased, we believe that the increase in VMT created by our scenario can be accounted for by an influx of non-residents traveling into Waukee. As our scenario incorporates many new opportunities for shopping and employment, people from outside the Des Moines metro area will likely find more reasons to drive into the city. This may also account for the small increase in the automobile mode share. However, people living inside Waukee on average will need to drive less because they will be more likely to live near their destinations. This assumption is also supported by metrics of retail and parks accessibility by walking; our scenario significantly increased the percentage of the population within 5, 10, 15, or 20 minutes walking distance of parks or stores.

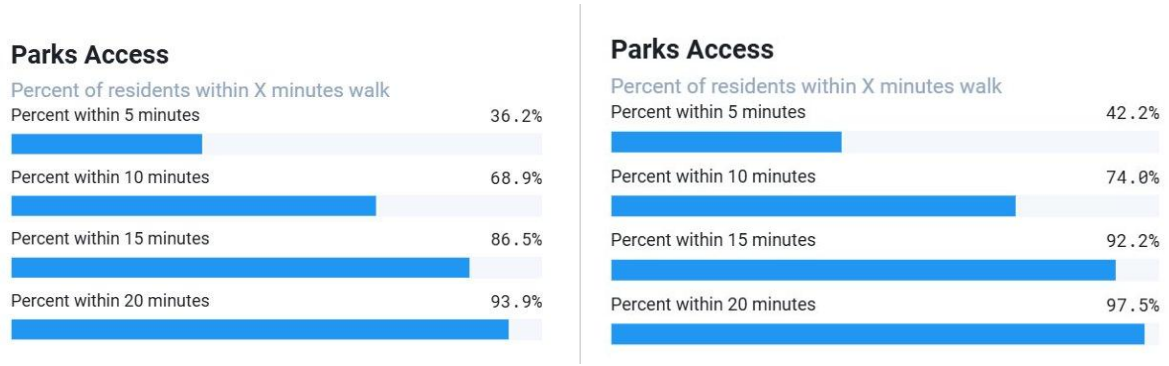


Figure 9: Population within walking distance of parks in the comprehensive plan scenario (left) and the compact plan scenario (right), via UrbanFootprint

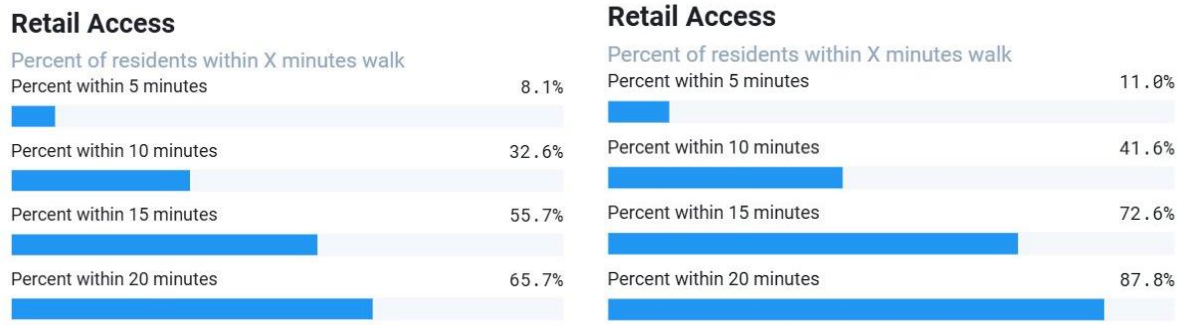


Figure 10: Population within walking distance of retail in the comprehensive plan scenario (left) and the compact plan scenario (right), via UrbanFootprint

A limitation of the UrbanFootprint scenario planning is that we were not able to compare levels of transit access, simply because there are no existing or proposed transit routes or stops in Waukee. Because transit access metrics within the scenario planning tools are based on existing stops, we do not know how the future addition of transit lines would affect mode share and VMT. However, we believe that our scenario would increase transit as a mode share in a way not represented in current analyses because our compact scenario followed TOD principles. Our strategy of clustering mixed-use, dense development in nodes along existing high-traffic corridors is conducive to the placement of transit stops that people can easily walk to from their homes or workplaces, mirroring the “transit corridor” development recommended by the Center for Transit-Oriented Development (2010). This is especially important given Waukee’s historic status as a “bedroom community” of the Des Moines metro; although our scenario does increase employment within Waukee, many will still choose to work outside the city, and transit corridors with access to I-80 and US-6 will be important for providing mobility options to these residents. The future implementation of both local and regional transit networks will be vital to the success of our compact development plan.

5. Recommendations

Our recommendations for implementing the Compact Scenario plan fall into four goal categories:

5.1. Increase use mix

Waukee's history of separation of land use has created large distances between where people live and where they need to go. Mixed use development will offer people the chance to live within walking distance of work and other needs, therefore decreasing car dependence.

5.2. Implement form-based code

Certain design standards are important for creating an active pedestrian environment. Smaller setbacks, active first-floor uses, and doors and windows on the street should be required in core TOD neighborhoods. Additionally, moving from use-based to form-based standards will allow the community a degree of control over the aesthetics and "feel" of a neighborhood while still allowing greater diversity in uses.

5.3. Utilize pedestrian-friendly street design

Even with dense and mixed land use, car-centric street design will discourage people from walking. This is especially a concern in our TOD target neighborhoods positioned around existing major highways and arterials, because such roads are designed to accommodate high volumes and speeds of traffic at the expense of pedestrian safety and comfort. Streets should be appropriately narrow and feature pedestrian-friendly elements like bump-outs, trees, and wide sidewalks. A "complete streets" approach should be used, especially in TOD areas.

5.4. Aim for transit-oriented development

The implementation of public transit is key to an inclusive and sustainable future for Waukee. Priority for project implementation as well as future development in general should be given to the designated TOD neighborhoods in this plan, which are strategically located to facilitate local and regional bus connections. Concentrating mixed-use, dense development in these areas will lead to an interconnected network of walkable, livable neighborhoods.

The following table provides an implementation guideline for the recommendations:

Table 3: Implementation Matrix

Goal 1: Increase use mix			
Objective	**Action steps**	**Timeframe**	**Funding Source**
Ensure a balanced housing-jobs mix, particularly in TOD neighborhoods	1. Pass zoning map amendments to allow appropriate levels of use mix in TOD neighborhoods 2. Create tax incentives for mixed-use developments in TOD neighborhoods	2-3 years	Action 2: TIF, CDBG funding
Allow for flexibility in residential and commercial development citywide	1. Pass zoning text amendments that allow for accessory dwelling and commercial units in residential neighborhoods 2. Pass zoning text and map amendments that expand mixed—use and multifamily housing	2-3 years	N/A

Goal 2: Implement form-based code			
Objective	**Action steps**	**Timeframe**	**Funding Source**
Ensure development within TOD neighborhoods meets best-practice standards for pedestrian friendliness	1. Implement zoning overlay in TOD neighborhoods that enforces maximum parking limits, maximum front setbacks, and architectural design standards 2. Offer incentives for infill development/redevelop ment within existing	3-4 years	Action 2: TIF, CDBG funding

	properties in TOD neighborhoods		
Encourage property owners in all neighborhoods to adhere to best practices in design	1. Establish density bonuses for property owners who meet certain urban design standards	2-3 years	N/A

Goal 3: Utilize pedestrian-friendly street design			
Objective	**Action steps**	**Timeframe**	**Funding Source**
Ensure all new streets prioritize multimodal access	1. Establish a "complete streets" policy for new road development 2. Require new subdivisions to follow a grid pattern that maximizes pedestrian connectivity	2-3 years	N/A
Retrofit existing streets to be pedestrian-friendly	1. Renovate major streets in TOD neighborhoods to meet the highest standards of multimodal accessibility 2. Implement pedestrian improvements in major thoroughfares throughout the city, especially those with many traffic accidents	5-7 years	Action 1: business improvement district (BID), sales tax, parking fees, DOT grants Action 2: sales tax, parking fees, DOT grants

Goal 4: Aim for transit-oriented development			
Objective	**Action steps**	**Timeframe**	**Funding Source**
Establish effective transit service in Waukee	1. Contract regional commuter bus service with DART, highlighting established TOD neighborhoods 2. Seriously consider and pursue the creation of a local bus service	4-5 years	Action 1: sales tax, parking fees, DOT grants, development fees Action 2: sales tax, parking fees, DOT grants, development fees
Stimulate transit use through strategic development	1. Offer tax incentives for development in TOD neighborhoods	2-3 years	Action 1: TIF, CDBG grants

6. Conclusion

Currently, most people in Waukee do not have any viable option for travel other than using cars. This setup has drastic negative implications for social equity and environmental sustainability. The cause of this car dependency is not just the lack of sidewalks and bus lanes, but also the way Waukee has chosen to regulate land development. If this community wants to mitigate the negative effects of auto-centric design, it cannot choose the status quo.

We believe that if Waukee adopts the goals and objectives in this plan, it will reap benefits in many areas. Not only will emissions drop and new opportunities open for socially disadvantaged groups, but economic development will flourish as people are given new choices for how to live their lives. Waukee will attract not only those who want a traditional suburban lifestyle, but those who prefer a more walkable environment or who wish not to own a car. This will give Waukee an advantage over other suburban communities who only cater to one type of resident.

The key to adopting these more inclusive policies while reflecting the community's values is to involve the community at every stage of the implementation process. The public should know what is being done and why, and they should have a say over things such as form-based design standards and new transit service. The balance between retaining a community's character and adapting it to the future is difficult to reach, but it is crucial for securing an economically, socially and environmentally sustainable future.

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