

# **Housing Siting Criteria and Development Strategies for the Fox Cities and Greater Outagamie County Region**

**Prepared for**

Outagamie County Department of Development and Land Services

**By**

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# Foreword

This report was written for the Outagamie County Department of Development and Land Services by students at the La Follette School of Public Affairs at the University of Wisconsin–Madison. The learning objective of the La Follette School is to provide graduate students the opportunity to improve their policy analysis skills while providing the client an analysis of a policy problem on which a decision or set of decisions needs to be made.

The La Follette School leads students through a rigorous two-year graduate program to a Master of Public Affairs degree. Students study policy analysis and public management, and they spend the first year and a half taking courses in which they develop the expertise needed to analyze public policies, including skills in statistics, economics, and policy analysis. The authors of this report all are in the final semester of their degree program and are enrolled in the Workshop in Public Affairs. Although acquiring a set of policy analysis skills is important, there is no substitute for doing policy analysis as a means of experiential learning. The Workshop in Public Affairs gives graduate students that capstone opportunity, as they produce a report for a real-world client about a question of importance to the organization.

I am grateful to the Outagamie County Department of Development and Land Services for partnering with the La Follette School on this project. Staff members have been generous with their time supporting the students' work. The students have collectively contributed hundreds of hours to the project and in the process developed critical insights about affordable housing and land use regulations in the Fox Cities/Greater Outagamie County Region. The La Follette School is grateful for this collaborative effort and hopes the report proves valuable.

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May 2022

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We would like to thank all those who assisted us on this project. First and foremost, we thank our client, the Outagamie County Department of Development and Land Services (OCDDLs) for the opportunity to assist in its efforts to advance housing affordability in the Fox Cities/Greater Outagamie County Region. A special thanks to Kara Homan, Director of the OCDDLs, and Sadie DiNatale Burda, Principal Planner of the OCDDLs, for their expertise and guidance. Additional thanks to the Fox Cities/Greater Outagamie County Region Task Force, who invited our team to listen in on its meetings, which provided us additional context on the housing landscape in the region. Finally, we would like to thank Professor J. Michael Collins of the University of Wisconsin–Madison for the support and direction he gave us over the semester, which made this report possible.

The views, opinions, and recommendations in this report represent those of the authors alone and do not reflect findings, recommendations, or policies of the University of Wisconsin–Madison, the La Follette School, or the Outagamie County Department of Development and Land Services.

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## Abbreviations

ACS	American Community Survey
ADU	Accessory Dwelling Unit
AMI	Area Median Income
API	Application Programming Interface
CSA	Combined Statistical Area
DPAP	Down Payment Assistance Program
ECWRPC	East Central Wisconsin Regional Planning Commission
FC/GOC	Fox Cities/Greater Outagamie County
FEMA	Federal Emergency Management Agency
FWHA	U.S. Federal Highway Administration
HUD	U.S. Department of Housing and Urban Development
LIHTC	Low-Income Housing Tax Credit
MFI	Median Family Income
NIMBY	“Not in My Backyard”
OCDDL	Outagamie County Department of Development and Land Services
QAP	Qualified Allocation Plan
RFP	Request for Proposal
TIF	Tax Increment Financing



# Executive Summary

The Fox Cities/Greater Outagamie County (FC/GOC) Region has experienced significant economic growth and population increases in recent years, and projections point to this continuing for decades (OCDDL 2022). Housing development is starting to lag behind demand, indicated by increasingly costly rent and mortgage payments for residents in the region. Certain land use regulations may make it difficult to continue to keep pace with the increased housing demand expected in coming decades. In this report, we discuss these land use regulations, examine the current housing landscape of the FC/GOC Region, and provide a framework to identify areas best suited for affordable housing development.

The decision-making framework we developed is based on the principles of “smart growth,” which prioritizes placing housing development near existing community resources, mixing building types and land uses, developing within existing communities, and diversifying options beyond single-family homes. This approach to housing development is part of a nationwide trend and includes support from groups such as the American Planning Association, the Environmental Protection Agency, the National Association of Home Builders, and the National Association of REALTORS.

The framework we present can only work by aligning land use regulations with smart growth principles. However, oftentimes residential areas have land use regulations such as single-family zoning, minimum lot size and setback requirements, off-road parking requirements, and building height restrictions that present obstacles for communities to implement smart growth strategies.

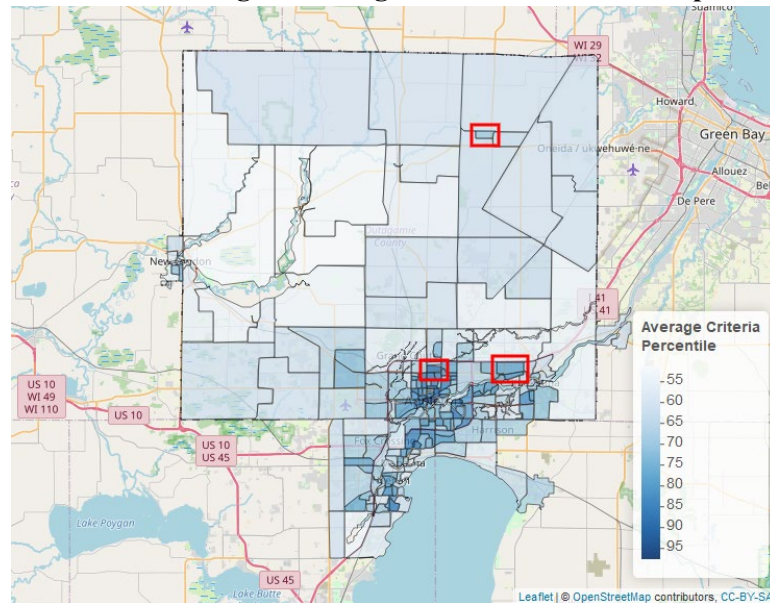
The OCDDL provides comprehensive planning and assists local zoning jurisdictions in developing individual land use, neighborhood, and site-specific plans in the FC/GOC Region. To further assist the OCDDL in supporting affordable housing development, we created a [decision-making framework](#) based on smart growth principles to help identify specific areas best suited for development. Using this framework, we ranked census block group geographies in the region according to the presence of the following community resources and factors:

- |                        |                          |
|------------------------|--------------------------|
| ✓ Floodplains          | ✓ Health Care Facilities |
| ✓ Sewer Services Areas | ✓ Food                   |
| ✓ Public Transit       | ✓ Education              |
| ✓ Employment Hubs      | ✓ Emergency Services     |
| ✓ Recreation           |                          |

The map below shows how each census block group scored in our framework featuring these nine criteria, with the darker shaded areas scoring higher on the factors above. These are areas best situated for housing development in the FC/GOC Region.

To illustrate how to utilize our framework, our report also identifies three specific areas from the below map that are well-suited for housing development in the FC/GOC Region and suggests land use regulation reforms for each site. Our three sites include an urban, suburban, and rural area to showcase how the framework could be adapted to meet the housing demands of the region’s population centers and vast rural areas. The results are listed below the map.

### FC/GOC Region Average Criteria Percentile Map



*Source: Authors' calculations using all data sources.*

*Dark blue indicates areas with many community resources that are ideal for development. Red boxes indicate three areas of focus in this report: Appleton, Little Chute, and Seymour.*

**Result 1: Urban – Appleton:** This location includes several schools, numerous bus stops, and proximity to several large parks and a major hospital. Since the area is fully developed, including good quality housing stock, we recommend 1) infill development and rezoning of underutilized commercial areas and multiple surface parking lots for mixed-use commercial and multifamily housing and 2) considering duplexes and triplexes as-of-right.

**Result 2: Suburban – Little Chute:** This area in eastern Little Chute is likely to see development soon. It includes K–12 schools, access to health and food resources, and Little Chute Industrial Park, an employment hub. We recommend 1) considering duplexes and triplexes as-of-right and 2) alleviating expansion pressure into nearby agricultural land to the north by zoning for multifamily housing.

**Result 3: Rural – Seymour:** Located in northeast Outagamie County, Seymour's existing community resources include its own school district; access to multiple food, health, and recreation resources; and being close to Green Bay, which could present extended transit options in the future. We recommend 1) reducing minimum lot size and lot line requirements for single-family housing development, 2) considering duplexes and triplexes as-of-right, and 3) preapproving designs for accessory dwelling units.

**Recommendations:** We recommend that the OCDDLs, and other local zoning authorities, utilize our decision-making framework to identify high opportunity areas for housing development in the FC/GOC Region. Additionally, we recommend implementing land use regulation reforms in these prioritized areas to follow the principles of smart growth, mix land uses, and permit denser and more diverse housing development.

# Introduction

The Fox Cities/Greater Outagamie County (FC/GOC) Region is one of the fastest-growing areas in Wisconsin. Over the past decade, significant population increases accompanied by economic growth have increased the demand for housing, including single-family homes and apartment buildings. The Outagamie County Department of Development and Land Services (OCDDL) officials project this growth to continue, anticipating the need for an additional 11,000 housing units between 2020 and 2030 to keep pace with demand and avoid the affordability issues cities across the United States are facing (OCDDL 2022).

The increased demand for housing generates an increased demand for a diverse selection of affordable housing that meets the needs of residents of differing incomes and family sizes. One barrier to the development of diverse and affordable housing is restrictive land use regulations, which cities and counties use to govern land development. This includes single-family zoning, minimum lot sizes, maximum building height requirements, and requiring a minimum number of parking spaces.

Amending these land use restrictions is often required in areas best suited for affordable housing according to “smart growth” principles. These principles are a part of a nationwide movement toward prioritizing, among other things, placing housing development near already existing community resources, prioritizing infill development to combat sprawl, mixing land uses, and expanding housing choices beyond single-family homes.

The OCDDL has zoning and permitting authority in many of Outagamie County’s unincorporated townships. In cities and villages outside of its jurisdiction, department staff often work in tandem with local officials (OCDDL n.d.). In the county comprehensive plan, the OCDDL identified the goal of advancing housing affordability and ensuring a housing stock that meets the needs of all residents (Outagamie County 2020). To realize this goal, the OCDDL conducted research on housing related topics and is coordinating with municipal officials and other stakeholders on zoning and regulatory issues to encourage housing development. In 2022, the OCDDL staff have also organized the Fox Cities/Greater Outagamie County Region Housing Task Force, a diverse group of stakeholders working in the housing space, to identify strategies to address the region’s housing needs.

To help further the County’s efforts—in particular, the goal of advancing housing affordability and ensuring a diverse housing stock—this report aims to provide a decision-making framework to identify specific areas to prioritize for affordable housing development, including recommended changes in land use regulations.

The report begins by providing an overview of the area’s current housing stock and population trends. Then it discusses the smart growth principles that constitute the qualitative framework for our selection criteria, along with common land use regulations that can be a barrier to more affordable housing development. A description of affordable housing selection criteria used to construct the decision-making framework follows. In the Analysis, we apply the framework to identify areas suitable for affordable housing developments in the region. The report highlights three specific locations to shed light on how smart growth principles can be deployed across rural, suburban, and urban settings. Finally, the report recommends that the OCDDL and other regional zoning jurisdictions utilize the decision-making framework to identify areas where the policy levers outlined in the report would most effectively advance the housing needs and goals of the Fox Cities/Greater Outagamie County Region.

## Background of the Region

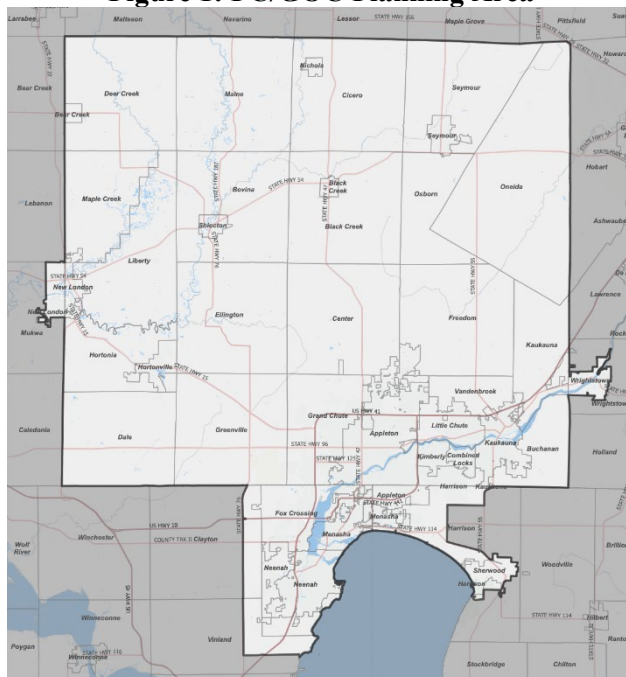
This section provides an in-depth description of the geographic scope used for site selection before discussing relevant trends in population, housing stock, and housing affordability. In doing so, this section

offers regional and national comparisons to illuminate how the housing needs of the FC/GOC Region compared to other areas of Wisconsin and the United States.

## Geographic scope

The geographic scope of this report is the FC/GOC Region as defined by the OCDDLs (Figure 1). The FC/GOC Region includes the entirety of Outagamie County, the predominantly suburban and urban parts of northern Winnebago and Calumet counties that together comprise the Fox Cities, and small portions of Waupaca and Brown counties to include the full city of New London and the village of Wrightstown.

**Figure 1: FC/GOC Planning Area**



*Source: OCDDLs*

*Map of the FC/GOC Region planning area*

## Population characteristics and trends

The FC/GOC Region is a major population center in northern Wisconsin. It is part of the Appleton-Oshkosh-Neenah Combined Statistical Area (CSA), which is the third-largest CSA in Wisconsin, behind Milwaukee and Madison. The FC/GOC Region grew by about 7 percent, from 291,000 people in 2010 to 312,000 people in 2020. This significantly outpaces Wisconsin's statewide population growth, which experienced a 3.6 percent change in that time. Holding the annual growth rate constant at 0.7 percent annually, the FC/GOC Region will have a projected population of nearly 335,000 by 2030.

The FC/GOC Region is primarily white, with a greater proportion of white residents and a younger population than the state average. The fastest growing population category in the region is the group aged 60 and older. From 2000 to the 2015–2019 period (American Community Survey (ACS)), the share of the regional population aged 60 and older grew from 13 to 20 percent. Overall, household income and housing

mix are similar in the region when compared to Wisconsin. The poverty rate in the region is slightly lower than the state, but median income is roughly the same (OCDDLS 2022).

## Current housing stock

As of 2019, the FC/GOC Region had an estimated total housing stock of just under 129,000 units (U.S. Census 2019). This stock primarily consists of single-family detached units. Single-family detached units include both traditional free-standing residential buildings as well as mobile homes, boats, and recreational vehicles. These units totaled around 92,000, or 71 percent of all housing units in the region. This share of total housing stock was larger than both the Wisconsin proportion of single-family detached units of 70 percent and the national proportion of 68 percent. The FC/GOC Region had a total of 10,000 duplex, triplex, and quadplex units as of 2019, or about eight percent of the total housing stock. This is about the same as the national average and slightly less than the statewide average, which includes larger metro areas like Milwaukee. Multifamily units, or structures with five or more units, totaled 21,000 in the region, or 16 percent of all housing, similar to the Wisconsin average and less than the national share of 18 percent.

Typically, duplexes and larger units offer more affordable housing options, which means that the higher share of single-family units in the region limits affordable housing. Over the last decade, the region has experienced a modest increase in construction of multifamily housing from 13 percent of all units in 2000 to 16 percent by 2019. Under the assumption that the region will continue to see population growth over the next decade, with additional 23,000 residents being added, the OCDDLS estimates that the region will need to add a minimum of 11,000 more housing units to the existing housing stock to keep up with demand. With space and cost constraints, the region will need to continue to diversify its housing stock to provide suitable housing options for both the new and existing populations.

## Housing affordability

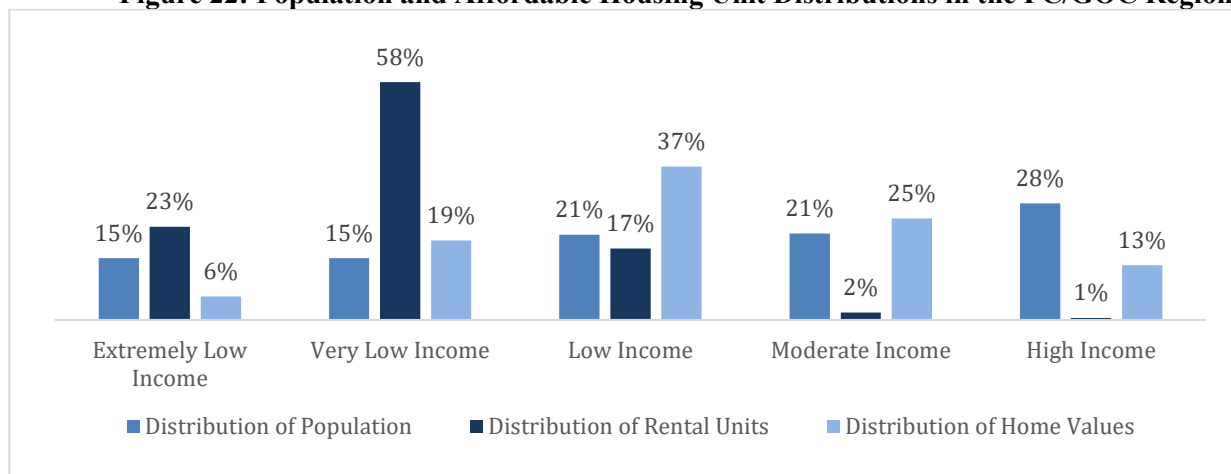
Nationally, chronic underproduction of housing has been cited as one of the key reasons why 80 percent of metro areas saw home prices grow 10 percent or more (Badger 2022). These national trends make the fact that the Green Bay-Appleton area was recently named the most affordable in the United States all the more exceptional (Lester 2022). According to a 2019 Wisconsin REALTORS Association Special Report, Wisconsin's 20 largest counties collectively underproduced nearly 20,000 units of housing, meaning that population growth outpaced housing availability. Between 2006 and 2017, Outagamie County added 5,727 new households and 6,249 new housing units. Outagamie County is one of few growing areas of the state where housing stock is keeping pace with demand (Wisconsin REALTORS Association n.d.). Cautionary tales like Dane County show that housing production is a critical aspect of maintaining affordability. If there is not enough housing for new residents to move into, housing will become more expensive and scarcer.

The U.S. Department of Housing and Urban Development (HUD) defines cost-burdened households as having “monthly housing costs (including utilities) exceeding 30 percent of monthly income,” and it defines those with “monthly housing costs (including utilities) exceeding 50 percent of monthly income” as severely cost-burdened (U.S. Department of Housing and Urban Development Office of Policy Development and Research n.d.). The OCDDLS conducted an analysis based on HUD-defined cost burdens using 2019 ACS 5-year estimates for the region. Overall, 14 percent of households in the region are cost-burdened, and eight percent are severely cost-burdened. Cost issues are more challenging

for renters: 38 percent reported being cost-burdened and 16 percent severely cost-burdened. Just 16 percent of homeowners reported being cost-burdened and 5 percent severely cost-burdened (OCDDLs 2022).

Figure 2 shows that while 15 percent of the population falls into the extremely low-income category, 23 percent of rental units have monthly rents that are affordable for this income range compared to just six percent of owner units. Lower-income households primarily have rented units as an affordable housing option. Low- and moderate-income households can afford to rent higher-cost units but instead rent surplus lower-rent units. This may indicate that higher-income individuals, with more ability to pay, may be crowding out lower-income individuals from affordable units. This in turn indicates that, in addition to lower-income housing development, there may be a need to develop higher-end rental housing at a higher price range to open up units at lower rent levels.

**Figure 22: Population and Affordable Housing Unit Distributions in the FC/GOC Region**



Source: OCDDLs; U.S. Census, ACS 5-year estimates, 2015-2019. HUD Income Limits, 2019. See [Appendix A](#) for income and housing cost definitions.

While the FC/GOC Region has an adequate housing stock compared to its current population and is generally considered affordable when compared to other areas in the state and country, continued population growth over the next decade presents challenges that the region will need to address. Adding an estimated 10,000 housing units will require the development of mixed housing types to provide affordable housing options at various sizes for the new and existing population.

## Smart Growth

“Smart growth” refers to land use, zoning, and transportation policies aimed at addressing issues created by the proliferation of Euclidian zoning. Euclidian zoning refers to the practice of separating residential, commercial, and industrial zones. This stems from a United States Supreme Court decision, *Euclid v. Ambler* (1926), which gave cities legal precedent for single-family zoning and other restrictive zoning practices. At scale, Euclidian zoning practices push new housing farther from traditional urban centers at a lower population density. This phenomenon is referred to as urban sprawl. As sprawling development increases the land area of urban and suburban development, municipalities bear the cost of expanding utilities to reach far-flung residents. A 2006 Department of Natural Resources report warned that low-density development yields service costs that exceed the property tax revenues generated by such

development (Wisconsin Department of Natural Resources 2006). A study of Harrison, Wisconsin, found that residential areas were the only land use to generate more expenses than revenue (Hansen 1999). This phenomenon has been observed across the country (Farmland Information Center 2016). Smart growth allows municipalities to make better use of their existing public service coverage and keep pace with demand for housing by promoting infill development, lowering the land area required for each resident, and promoting a diverse housing stock.

The exact scope of these policies varies by region and institution. The Smart Growth Network defines 10 principles of smart growth, as listed below (Smart Growth Network n.d.).

- Mix land uses
- Take advantage of compact building design
- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Foster distinctive, attractive communities with a strong sense of place
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Strengthen and direct development towards existing communities
- Provide a variety of transportation choices
- Make development decisions predictable, fair, and cost effective
- Encourage community and stakeholder collaboration in development decisions

These principles overlap with many priorities in the FC/GOC Region, including creating a range of housing opportunities and preserving farmland and critical environmental areas. We use the principles of smart growth to guide our discussion of land use regulations and the analysis of locations for housing development in the FC/GOC Region.

## Land Use and Zoning Regulations

Following World War II, Euclidean zoning, single-family homes, and sprawling development patterns that necessitate vehicle ownership became the norm across the United States. More than a half-century later, local zoning and land use regulations are still largely built on these policies. After defining the term “missing middle” as it relates to housing, the forthcoming sections describe common land use and zoning regulations that constrict multifamily housing and mixed-use development, discuss the long-term threat these regulations pose to affordability, and cite examples of where these policies are in place in the FC/GOC Region.

Land use regulations in FC/GOC Region differ little from those across Wisconsin and the United States. The proliferation of single-family zoning, minimum lot sizes and setback requirements, off-road parking requirements, and restrictive maximum building heights work in tandem to encourage sprawl and limit the types of housing that can be constructed. This poses a fundamental barrier to smart growth.

### Problem of “missing middle” housing

The term “missing middle” refers to a wide spectrum of medium-density multifamily housing between the categories shown in Figure 3 that are not universally permitted as-of-right in most jurisdictions. While many



communities in the region do permit various forms of missing middle housing in some zones, many larger areas are designated exclusively for single-family homes. The proliferation of single-family zoning has left a “missing middle” of multifamily housing that obstructs housing affordability and produces a uniform housing stock that fails to meet the needs of all residents.

**Figure 33: Missing Middle Housing**



*Source: Used with permission.*

*Missing Middle Housing term created by Daniel Parolek/Image © [Opticos Design, Inc.](#)*

## Single-family zoning

Suburbs built in the post-war era are unique in that they typically solely accommodate single-family detached housing and are built on much larger lots than their prewar counterparts. Bolstered by Euclidian zoning codes that prohibited other types of development, detached single-family homes on large lots have monopolized new housing construction in the United States. Single-family zoning does not allow legacy residential areas to accommodate population growth, forcing new development to open space on the periphery of a city or village. This phenomenon is referred to as urban sprawl.

Single-family zoning results in urban sprawl that rapidly consumes agricultural land, increases commuting distances, and fosters a uniform housing stock with little sense of place. Between 1950 and 2001, Wisconsin lost 7.4 million acres of farmland, an area seventeen times the size of Outagamie County (Wisconsin Department of Natural Resources 2006; U.S. Census Bureau 2010). Over a similar period, 1945 to 1992, the average urban resident’s land consumption nearly quadrupled from 0.22 to 0.85 acres (Wisconsin Department of Natural Resources 2006). From 1975 to 2019, Wisconsinites more than doubled their annual vehicle miles traveled (Wisconsin Department of Transportation n.d.). These troubling trends are a clear indication of what Outagamie County residents can expect if current development patterns persist indefinitely: diminishing open space and longer commutes as housing is isolated far from job centers and cultural amenities.

The extent of single-family zoning varies across the FC/GOC Region. Some municipalities, such as the Villages of Kimberly and Little Chute, allow missing middle housing on a sizable portion of their residential districts (Village of Kimberly 2020; Village of Little Chute 2022). Others, like the Village of Harrison, are almost entirely zoned for single-family homes (Village of Harrison 2020). Allowing accessory dwelling units, duplexes, and triplexes as-of-right will advance affordability in the FC/GOC Region by giving prospective homeowners and tenants more housing choices. Permitting infill development of missing middle housing in R-1 single-family districts will facilitate construction of the 11,000 housing units that the OCDDLs estimates the region will need to keep pace with demand and promote the benefits of



smart growth. Allowing for light commercial, like cornerstones, in residential districts can further promote smart growth by mixing land uses and allowing residents to access some goods and services without driving.

## Minimum lot sizes

Large minimum lot sizes are one of many Euclidian zoning practices exacerbate affordability issues by driving up developer land costs, which are passed on to homebuyers. Open space on residential land is neither free nor accidental: it is a cost mandated by zoning authorities, imparted to developers, and passed on to consumers (Wisconsin REALTORS Association n.d.). Beyond higher costs for individual homebuyers, large lots consume vacant land at a faster pace, pushing future development farther from traditional urban centers into agricultural land.

A 2019 survey conducted by the National Association of Home Builders found that the average price per square foot for a completed single-family home is \$8.22 (Wisconsin REALTORS Association n.d.). The Village of Harrison requires a minimum lot size of 12,000 square feet for RS-1 single-family housing developments (Village of Harrison n.d.). Given this, on average, developers must recover \$98,640 just to pay for the size of the lot. This incentivizes the creation of larger and more expensive homes to justify the price the increased lot size necessitates (Wisconsin REALTORS Association n.d.). Revising minimum lot size requirements, setback requirements, and lot lines, as well as implementing maximum lot sizes, increases affordability, creates a more diverse housing stock, preserves agricultural resources, reigns in public service costs, and yields more walkable neighborhoods.

## Setback requirements

Setback requirements further increase the amount of land developers must acquire to build a unit of housing. Like minimum lot sizes, this increases home prices and encourages urban sprawl. Zero lot lines refer to zoning regulations that lower or abolish setback requirements. This facilitates missing middle housing like attached single-family homes and is particularly important in and around the urban cores of the Fox Cities, where real estate is at a premium and expansion pressure is high.

Oftentimes, land use regulations in the FC/GOC Region allow zero lot lines as-of-right under limited circumstances. While the City of Neenah does allow zero lot lines in its C-1 general commercial district with a modest front and rear yard setback of ten feet (City of Neenah n.d.-b), dwellings in Neenah's R-2 two-family residential districts must have side yards totaling 16 feet in aggregate, have a minimum front yard setback of 25 feet, and a minimum rear yard of 30 feet (City of Neenah n.d.-a). Broadening the number of zones where zero lot lines are permitted and lowering front and rear yard setback requirements will foster walkability, yield a more diverse housing stock, and reign in urban sprawl by lowering the land area required for each resident.

## Off-road parking requirements

There are eight parking spots for every car in the United States (Chilton & Mackie 2017). Together, these spaces consume an area about the size of West Virginia. Off-road parking requirements are popular across the United States because they generate a large amount of parking with no immediate cost to the local government. However, free parking does come at a cost (Chilton & Mackie 2017). Large, oftentimes underutilized surface parking consumes valuable land that could be devoted to housing and other tax

revenue generating development. Beyond supporting the proliferation of urban sprawl, off-road parking requirements work to drive up housing prices. Developers must purchase additional land to meet these requirements or construct an expensive parking structure (Chilton & Mackie 2017). Both options yield an increase in development costs that is passed on to homeowners and tenants.

These minimums persist throughout the Fox Valley, even for multifamily development. Winnebago County and Kimberly require two parking spaces for each dwelling unit; Hortonville requires one parking space per family (Village of Hortonville n.d.; Village of Kimberly n.d.; Winnebago County n.d.). Outagamie County, which has zoning authority in most unincorporated areas, requires parking for mixed-use development to equal the sum of the requirements of the uses computed separately (Outagamie County n.d.). Parking requirements can be especially damaging to medium-density developments as they increase construction costs on the already limited quantity of land zoned for such development. Mixed-use and multifamily residential development is well-suited to promote smart growth. Off-road parking requirements erode these benefits by lowering walkability and the cost effectiveness of developments. These requirements also deprive municipalities of the property tax revenues that would be generated by the addition of housing (Connecticut Public Radio 2014).

## Maximum building height

Maximum building heights pose another barrier to the construction of missing middle housing. As is, any form of multifamily housing requires a difficult balancing act: developers must find lots large enough to meet minimum lot size requirements while often devoting a substantial portion of this space to surface parking lots. Increasing building height can help remedy space needs by creating additional income-generating units without expanding the building footprint on the lot. Upon reviewing residential building height standards in communities across the FC/GOC Region, we determined that most communities have generally enacted stringent height limits. The typical maximum multifamily residential building height enacted in the region equates to about three stories (e.g., 35 feet in Kaukauna, 40 feet in New London, and 45 feet in and Shiocton (City of Kaukauna 2020; City of New London n.d.; Village of Shiocton n.d.)).

A “five-over-one” is a mid-rise building common across the US. Oftentimes some or all of the first story in these developments is dedicated to commercial activity. Increasing the maximum building height will permit more of these to emerge, advancing affordability and increasing housing choices. In some instances, developers will have more flexibility to meet off-road parking and minimum lot size requirements without having to purchase additional land.

## Analysis

This section describes a data framework and methodology that served as a guide in recommending promising areas for development in the FC/GOC Region. The goal of this analysis is to identify areas across the FC/GOC Region where changes to zoning and land use regulations identified in the previous section would be most effective in advancing the priorities of the OCDDLs. We use the principles of smart growth, as well as other feedback and literature, to help inform our selection criteria for areas for development. Each criterion, its rationale for inclusion, and its data source is discussed further below. Then the criteria are evaluated at the U.S. Census block group level, as described in the Methods section, to create an aggregate index of nine equally weighted criteria. The Limitations section discusses practical limitations to the methodology and how we addressed those limitations.

## Selection criteria

The selection criteria listed below are factors that are necessary or useful for development that follows the principles of smart growth. The Wisconsin comprehensive planning law, also known as the “Smart Growth” law, includes several factors for comprehensive plans to address, including transportation, utilities and community facilities, natural resources, and economic development. (State of Wisconsin n.d.-a). These factors are also addressed by the criteria below. In addition to the comprehensive planning law, criteria are informed by comprehensive plans in the FC/GOC Region and client feedback. [Appendix B](#) gives more information about the underlying datasets and the methods, and [Appendix C](#) displays maps of the data for each criterion across the FC/GOC Region, which can also be found in the links in our [decision-making framework](#).

### Floodplains

Areas that flood introduce special problems for development and land use. For that reason, floodplains can have special zoning overlays that prevent specific kinds of land use and are cited as a consideration in the Outagamie County Comprehensive Plan (Outagamie County 2020). In our analysis, we used National Flood Hazard Layer data from the Federal Emergency Management Agency (FEMA) to identify floodways and areas in the 500-year floodplain. Floodways are the main channels of waterways and adjacent areas that are used to hold a base flood that increases the waterway’s water level a minimal height, while the 500-year floodplain is defined as any area with a 0.2 percent annual chance of a flood. All areas in a floodway were excluded from consideration for development, but areas of block groups outside of the floodway remained in consideration. 500-year floodplain areas were an additional criterion (Federal Emergency Management Agency n.d.-a, n.d.-b).

### Sewer Service Areas

Wisconsin code requires certain communities to create Sewer Service Area plans, which outline areas that can accommodate development of sewer and wastewater infrastructure (State of Wisconsin n.d.-b). These areas are not the same as areas already served by sewer infrastructure, and some communities that have sewer infrastructure may have not created these plans. Still, Sewer Service Areas are one way to identify specific areas that already have sewer infrastructure and areas in which it can be accommodated easily. This is also a signal of which areas communities with Sewer Service Area plans deem ready for development. Finally, it is expected that Sewer Service Areas correlate strongly with other utilities, including municipal water. Sewer Service Area data was acquired from the ECWRPC (East Central Wisconsin Regional Planning Commission n.d.).

### Public transit

Provision of a variety of transportation options is one of the principles of smart growth as it allows community resources to be outside of a walkable distance, and also prevents automobile ownership from being a necessity to participate in the community. Because of that, public transit is an important community service. The only fixed-route public transit provider in the region is Valley Transit, which also offers origin to destination services in its service area to those with ADA certification. There is also limited rural transportation for those with disabilities and persons 60 years or older, as well as intercity bus transportation to Oshkosh and Green Bay (Outagamie County 2020). However, transit access can easily expand or change

to fit development, which should also be considered. We collected data on bus stops using the Google Places Application Programming Interface (API) (Google n.d.).

### **Employment hubs**

Proximity to employment hubs is a priority of the OCDDLs for future development, especially because of challenges filling job vacancies in the area due to lack of housing for prospective employees (Fox Cities/Greater Outagamie County Region Housing Task Force 2022). The principles of smart growth emphasize mixed land use and creating a range of transportation options, both of which necessitate closer access to employment hubs. Nearby affordable housing also is valuable for future economic development because of the financially viable options it offers for the workforce. The Fox Cities Regional Partnership identifies 26 of the area's largest employers which we use to locate employment hubs (Fox Cities Regional Partnership n.d.).

### **Emergency services**

Emergency services are one of the most important services provided by communities. This is especially important for rural communities that are farther from more populated areas and more often have volunteer fire departments and no local police department. Because of that, rural communities that offer emergency services present an opportunity for development. Other challenges for rural communities include an aging population and increasing deaths in the opioid overdose epidemic (King et al. 2018). We found fire station and police department locations using the Google Places API (Google n.d.).

### **Health**

Access to health care facilities is a factor to be considered in addition to emergency services. In emergency situations, proximity to a hospital is especially important. However, even in non-emergency situations, preventative care provided by doctors and pharmacies is necessary for community health and well-being. We collected locations of hospitals, doctors, and pharmacies using the Google Places API to evaluate communities on this criterion (Google n.d.).

### **Food**

Access to healthy food is an increasingly important indicator of community health and well-being. "Food deserts" are areas in which there are few or no grocery stores or supermarkets that provide food necessary for healthy diets such as fruits and vegetables usually healthier and can be more expensive in the long-term (R. E. Walker et al. 2010). We found locations of grocery stores and supermarkets using the Google Places API (Google n.d.).

### **Education**

Many families strongly consider education, both its quality and proximity, in choosing a place to live. Schools can also be an employment hub, serve as a center for community participation and engagement, offer playgrounds or other recreation facilities, and more. Primary and secondary education, as well as colleges and universities, can provide these benefits to a community. We focus on the proximity of education resources in the region and obtained locations of schools, colleges, and universities with the Google Places API (Google n.d.).

## **Parks and recreation**

Recreation and access to green space is important to a community's physical and mental well-being. Preservation of open space is also a principle of smart growth. Park locations were found using the Google Places API (Google n.d.). This criterion could also include recreational trails and other similar resources, but those are not included in this analysis.

## **Additional considerations**

Beyond the criteria measured above, there are considerations beyond the scope of this analysis due to a lack of quantitative measurement tools or available data. However, these considerations should still be evaluated through local knowledge.

One area is access to municipal water. Housing development should be preferred in areas that already have access to water or those in which expansion is relatively easy. Access to roads and telecommunications may be other attributes that are important to consider.

Environmental factors may be an important consideration. Current land use regulations require setbacks from navigable waterways and other environmental factors may affect decisions on housing development or policy change. Public health should be considered, especially with respect to brownfields, which are abandoned commercial properties that may be contaminated. These often-present health risks and increase the cost of redevelopment (Wisconsin Department of Natural Resources n.d.).

There are also potential costs to development that may not be reflected in the initial financial cost. Negative externalities may include increased congestion and noise pollution, while positive externalities may include improved culture, equity, and subsequent development. Housing development should also consider the opportunity cost of projects, or the next best use of the space being developed. For instance, particularly productive agricultural land may have a high opportunity cost that should make it less efficient for development relative to other locations, and preservation of that land is a principal of smart growth. In addition to next best use of space, another factor of cost is the current use. Vacant space, particularly near community resources, provides a great opportunity for new development, while space that is already built up provides fewer options for development.

Equity is another factor to consider. The goal of housing development is to provide adequate, affordable housing for people of all levels of income. This includes the priority of creating more affordable housing in areas that have historically excluded people based on income, race, or class. This should be an additional consideration and can be quantified but cannot be properly evaluated without understanding equity goals of development in the region.

Finally, political feasibility is a major factor for consideration. "Not in my backyard," or NIMBY-ism, can prevent certain projects from taking place or dramatically slow them down. In those cases, political capital may be better used on smaller projects or projects in other locations.

## **Methods**

After selecting the above criteria and collecting the original data, we first excluded all areas that fell within the FEMA floodplain designation because those areas are not preferred areas for development. The excluded areas can be found in [Appendix C](#). Next, we aggregated the data to the geographic unit of a U.S. Census block group. A block group is a sub-community unit that typically has a population of fewer than 3,000 people (U.S. Census Bureau n.d.). For 500-year floodplain and Sewer Service Area data, we found the percentage of the total block group area that fell under those designations. For all other criteria, which

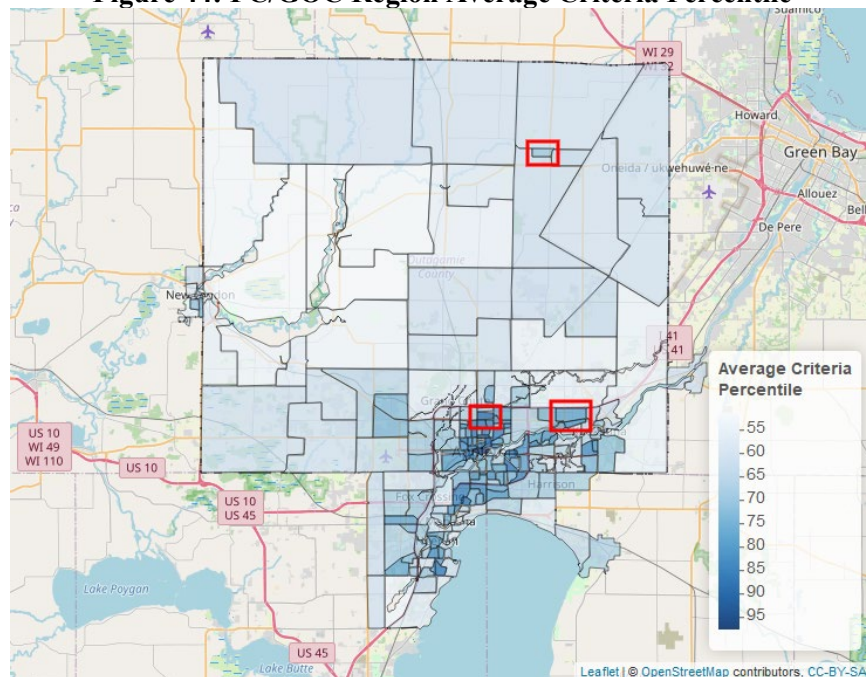
was point data, we counted the number of locations in each block group and divided by the total area of the block group in square miles to accurately compare block groups of different sizes.

After aggregating the data to the block group level and adjusting the criteria data for block group size, we found the percentile rank of each block group for each criterion. Then we found the average across all criteria for each block group, giving equal weight to all nine criteria. Although this could produce a distribution that spreads from zero to 100, in this case the distribution only spreads from about 55 to 98 because of the odd distributions and limited data variation in the underlying criteria. A score of 98 denotes the block group that has the best average percentile and is most prepared for development while a score of 55 denotes the block group with the lowest average percentile and is least prepared for development. For technical information on methods and the datasets, see [Appendix B](#).

## Results

Figure 4 below shows the average percentile for each block group. [This interactive data tool](#) displays the same data. Darker areas represent areas that have more resources, while lighter areas represent block groups with fewer resources. Unsurprisingly, the southern areas of the region in the Fox Cities tend to have the most resources, as the data is not population-adjusted. The block group that includes downtown Appleton has the highest average percentile, while the more forested areas in the western part of Outagamie County have the lowest average percentiles. [Appendix C](#) provides visuals of criteria percentiles in each block group in the region. The red boxes in the figure identify three areas on which we focus as examples for ideal areas for development.

**Figure 44: FC/GOC Region Average Criteria Percentile**



*Source: Authors' calculations using all data sources.*

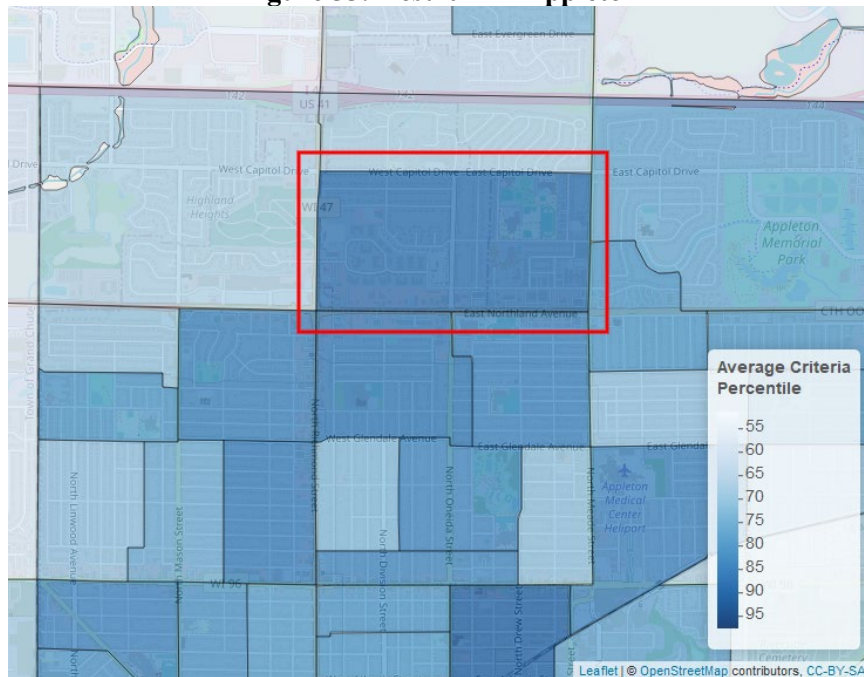
*Dark blue areas indicate areas suitable for development with a high average criteria percentile. The three red boxes indicate areas of focus—Appleton, Little Chute, and Seymour.*

Using this framework, we identified three areas as ideal for housing development in the FC/GOC Region. This includes an urban area, Appleton (the bottom-left box in Figure 4); a suburban area, Little Chute (the bottom right in Figure 4); and a rural area, Seymour (the uppermost box in Figure 4). These example results provide a framework that the OCDDLs and other governmental entities can use as key considerations when identifying areas for housing development. Each example considers the rationale based on scoring for the analysis, the jurisdiction of the areas, current housing and development, and policy considerations.

Current housing and development for each example was identified using a mixture of jurisdictional zoning maps and aerial maps ([Appendix D](#)). After identifying current land use patterns in each area, we made considerations for future land use, specifically as they relate to housing development, based on the overarching principles of smart growth central to this analysis. These example results and their accompanying policy considerations are not definitive and are presented to display how the framework established in this report can be utilized for future housing development planning in the FC/GOC Region.

### ***Result 1: Urban — Appleton***

**Figure 55: Result 1 — Appleton**



*Source: Author's calculations using all data sources.*

*The block group highlighted by the red box is the Appleton-area block group of interest, with many community resources.*

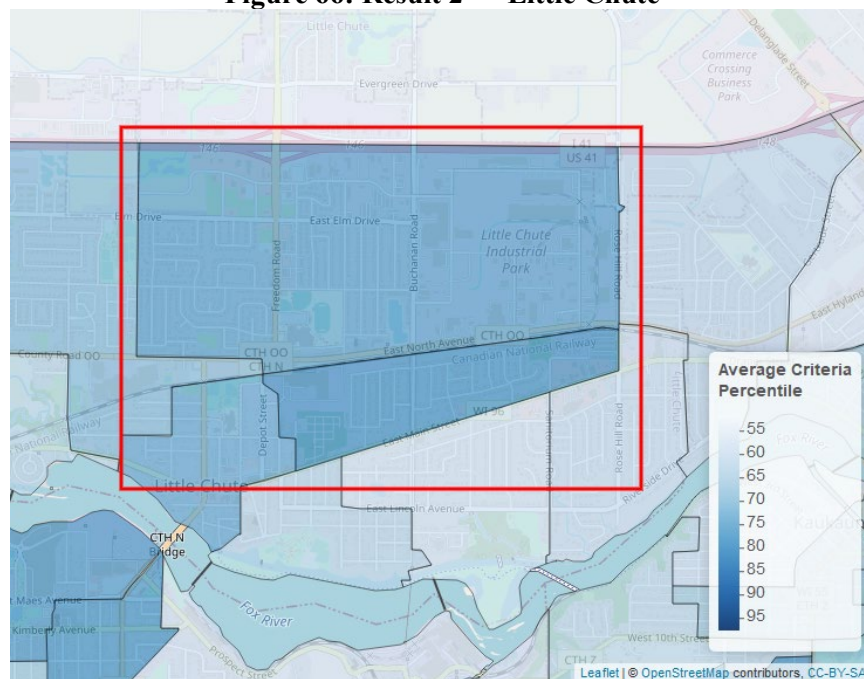
This location was selected for its high criteria score relative to the surrounding areas. Among other qualities, this area includes several schools in the block group and nearby, as well as many bus stops that give residents transportation options beyond a personal automobile, lowering vehicle miles traveled. It also includes a mix of residential and commercial areas and the possibility for continued development. Finally, neighboring block groups have several large parks, and a major hospital is located nearby.



The City of Appleton has jurisdictional control over the area (Outagamie County GIS 2017). This area currently maintains a mix of commercial, multifamily residential, and single-family residential land uses (City of Appleton 2021). Given that this area is primarily built out and the current housing stock is of good quality, our primary policy recommendations for this area are to explore the redevelopment of underutilized parcels and consider as-of-right development in current single-family zoning to allow for duplex and triplex homes. The City of Appleton—and the entire FC/GOC Region—should revise off-road parking requirements to promote mixed-use infill development along commercial avenues. Underutilized commercial areas are ideal locations for “five-over-one” developments. Redeveloping these areas to allow for a mixed-use of commercial and multifamily housing will promote infill development and expand housing opportunities without disrupting neighborhood character. If implemented across the FC/GOC Region, residents will enjoy more walkable, accessible, and distinct neighborhoods in proximity to commercial amenities. Additionally, allowing current single-family homeowners to convert to duplex or triplex homes will advance affordability and grow housing choices while maintaining the aesthetic features of single-family residential neighborhoods.

## ***Result 2: Suburban — Little Chute***

**Figure 66: Result 2 — Little Chute**



*Source: Author's calculations using all data sources.*

*The block groups highlighted by the red box are the Little Chute-area block groups of interest.*

*These block groups have many community resources and have areas primed for development.*

This area of eastern Little Chute is recommended for possible development due to its potential for infill and new development. The block groups include Little Chute High School and Middle School, with the elementary school nearby. It also includes a pharmacy, as well as other food and health resources. Notably, the area includes the Little Chute Industrial Park, offering an employment hub for area residents.

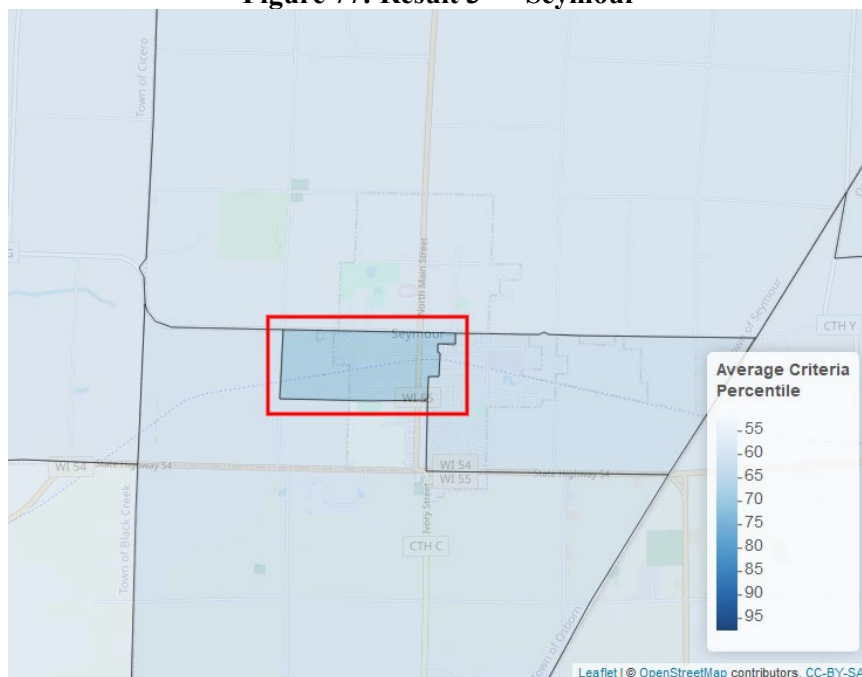


The Village of Little Chute has jurisdictional control over this area (Outagamie County GIS 2017). It currently has a zoning mix of commercial highway, single-family residential, two-family residential, multifamily residential, and industrial (Village of Little Chute 2022). Given that the area is primarily single-family homes, we recommend that the Village of Little Chute explore allowing as-of-right development for duplexes and triplexes in areas currently zoned for single-family. Promoting missing middle housing will make better use of existing public services and prevent unnecessary intrusion into agricultural lands immediately north of the Census Block and subsequent utility expansions.

Above U.S. Route 41, the land is part of the Town of Vandenbroek. Outagamie County has zoning jurisdiction over this land (Outagamie County GIS 2017). While currently zoned for general agriculture, the area is likely to see residential growth in the future (OCDDL 2021). It is recommended that Outagamie County consider allowing for a mix of residential zoning (both single and multifamily) and maintain agricultural preservation in the area. Working in tandem, county, and municipal officials can prevent further sprawl on the periphery of the region's suburban area.

### ***Result 3: Rural — Seymour***

**Figure 77: Result 3 — Seymour**



*Source: Author's calculations using all data sources.*

*The block group highlighted by the red box is the Seymour-area block group of interest. This area is especially ideal for development relative to other rural areas in the FC/GOC Region.*

Seymour represents a relatively well-resourced rural community in northern Outagamie County. The community includes its own school district, along with multiple food, health, and recreation resources. Notably, Seymour is close to Green Bay as well as the Fox Cities. This may allow for future extended transit options.

The City of Seymour has jurisdictional control over the city, as well as adjacent areas in the Town of Seymour (Outagamie County GIS 2017). The City of Seymour has an extraterritorial zoning agreement

with the Town of Seymour, meaning that the city maintains control of the zoning area to uniformly ensure that the public health, safety, aesthetics, and general welfare of the town are maintained (University of Wisconsin Extension 2009). The area also includes residential and traces of flood plain zoning (Seymour Public Works Department and Outagamie County 2012). It is recommended that the City of Seymour reduce minimum lot size and lot line requirements for single-family housing development in the area and consider duplexes and triplexes as-of-right to allow for missing middle housing. Missing middle housing, such as duplexes and triplexes, will be more suitable for the area than large multistory apartment complexes.

In addition to these land use regulations, because this area represents a more rural area of the county, we recommend that upon pursuing development in these areas, that the development supports the preservation of agricultural land. Additionally, we recommend that the City of Seymour explore the options of preapproved accessory dwelling units (ADU). ADUs are secondary housing units, typically on a single-family residential lot, that allow for missing middle housing. Generally, allowed occupants in an ADU must be handicapped, elderly, or related to the owner-occupant of the primary building. Preapproving certain ADU structures will yield an expedited, lower cost permitting process that can lead to increased housing construction around existing homes, offering an alternative to sprawling tract housing that depletes agricultural land.

## Limitations

Our methodology includes some limitations. One significant limitation is that aggregation is at the block group level and the data does not incorporate locations that are just beyond the block group boundary. However, we account for this by using the data analysis as a guide rather than a rule and by incorporating community resources from nearby block groups in our rationale for site selection. Similarly, we recommend that other users consider the data framework in the same way—as a guide.

We also recognize that the data framework gives preference to smaller block groups that have a significant number of resources. Some of the criteria are even specifically only found in the Fox Cities. Due to this data limitation, the block groups that perform the best in the methodology are all urban or suburban areas in the Fox Cities. That was a factor in the decision to identify locations separately in urban, suburban, and rural areas, recognizing that these areas face not only different resource challenges but also different housing opportunities.

To varying degrees, criteria can be modified in the real-world to improve block groups' community resources. For example, transit stops can be added to routes or routes can be brought to new areas. Other infrastructure like schools or hospitals can be built to accommodate new development as well. We do not directly consider this potential in the quantitative framework, but it was a consideration in the selection of the three example sites.

In our analysis, after considering the prerequisite non-floodway criterion, we give equal weight to all nine quantitative criteria. We discussed other methods, including incorporating subject-matter expert feedback in weighting decisions. However, we decided that equally weighting the criteria provided for the most simple and flexible analysis, keeping in mind that the quantitative results are a guide rather than a decision rule. Other users of the framework might apply their own priorities, especially to address specific challenges faced by communities.

Finally, the quantitative criteria included in the analysis are far from comprehensive. This is largely due to limitations on data availability and acquisition. This is why we describe additional qualitative considerations that should be considered at the local level by housing practitioners. There are also other

community resources and services that could feasibly be added to a similar framework as additional quantitative criteria to make it more complete.

## Recommendations

Based on our research and analysis, we offer two recommendations for the OCDDLs. Each recommendation is designed to aid the OCDDLs and other stakeholders in planning and developing future housing opportunities in the FC/GOC Region. In addition to these recommendations, there are complementary policies in [Appendix E](#) (see text box) as well as land use and zoning regulations that the OCDDLs and other governmental entities in the region may consider aiding in the development of housing.

### Complementary Policies

Down payment assistance programs  
Employer Assisted Housing  
Tax Increment Financing  
Housing Trust Funds  
Maximizing LIHTC  
Low-Income Housing Tax Credit  
Density Bonuses  
Developer Incentives

See [Appendix E](#)

### Utilize the framework

**Recommendation:** We recommend that the OCDDLs, as well as other zoning jurisdictions in the FC/GOC Region, utilize and expand upon the framework established in this report to aid in future housing development planning in the region.

**Rationale:** The framework established in this report for identifying areas in the region well-suited for housing development is a tool that the OCDDLs, and other governmental entities responsible for housing development in the region, can utilize to aid in planning. With a rapidly growing population, housing demand will continue to increase. To meet the region's housing needs and avoid the negative externalities generated by urban sprawl, it is vital to identify areas best suited for missing middle housing and infill development. This framework allows a user to do so methodologically. Additionally, the OCDDLs should look to expand and improve upon the framework to better suit the planning needs of the region by incorporating more criteria, better data collection, and a better understanding of the community resources. While qualitative considerations are discussed, we recommend that those using the framework further explore the qualitative considerations mentioned and incorporate other factors that may be relevant to housing development in a given area.

### Promote smart growth principles

**Recommendation:** We recommend that the OCDDLs and other zoning jurisdictions in the FC/GOC Region continue efforts to integrate smart growth principles into future housing development planning decisions.

**Rationale:** Smart growth principles were central to this analysis and the basis of the criteria used in the data analysis and subsequent framework. Throughout the region, stakeholders are making use of smart growth principles in their planning decisions. As jurisdictions look to remediate the negative externalities generated by Euclidian zoning and meet current and future housing demand, they must prevent further proliferation of urban sprawl. As such, we recommend that the OCDDLs continue to use smart growth

principles and educate areas that do not about the long-term ramifications of sprawl-inducing planning decisions. Utilizing smart growth principles as the basis of land use and zoning decisions will allow for efficient and equitable housing to be built. Additionally, we recommend that the OCDDLs and other zoning jurisdictions in the region explore options to reevaluate current regulations that have negative impacts on multifamily, mixed-use housing development. Regulations such as minimum lot sizes, maximum building height, off-road parking requirements, and others discussed in the report are currently prohibitive to housing construction that supports smart growth in the region. By alleviating these constraints, the region will be able to construct various forms of missing middle housing that will allow it to better meet its need of an additional 11,000 housing units by the end of the decade. Proactively addressing affordability concerns with smart growth will allow the region to avoid the housing crises other regions across the United States are experiencing.

## Conclusion

The FC/GOC Region has experienced significant population growth, which is expected to continue. This growth could continue to exacerbate housing affordability challenges if certain land use regulatory barriers are not addressed in areas that are the most suitable for affordable housing. Using the principles of smart growth, we identified several land use regulations that present barriers to development in the region, including single-family zoning; minimum lot size, setback, and parking requirements; and maximum building heights.

As part of this report, we identify areas suitable for potential affordable housing development. We focus on the efficient use of existing community resources, which promotes communities that have higher density and offer different modes of transportation. By looking at nine quantitative criteria and considering differences between urban, rural, and suburban areas, we identified three examples of well-resourced areas for potential development and a transition that implements the principles of smart growth. These areas are identified in the Results section of this paper and include parts of the City of Appleton, the Village of Little Chute, and the City of Seymour. In these locations, we recommend allowing more flexibility in single-family zoning, infill development through multifamily zoning, ADU options for rural areas, and preservation of agricultural land where possible.

The three highlighted areas serve as examples of urban, suburban, and rural areas within the FC/GOC Region that are suitable for affordable housing; however, more flexible housing options throughout the region can improve the stock of housing, create more affordable housing by increasing supply, and provide greater options for people of a range of socioeconomic backgrounds. Institutions and programs throughout the FC/GOC Region should continue to look for ways to implement the principles of smart growth and strategies that support flexibility in housing. We hope the decision-making framework presented in the report can assist in those efforts.

# Appendices

## Appendix A: FC/GOC affordability analysis

**Table 1: Percent Cost-Burdened Households by Housing Tenure, 2019**

Group	Cost-Burdened	Severely Cost-Burdened
Renters	22	16
Homeowners	11	5
Total Population	14	8

Source: OCDDL; U.S. Census, ACS 5-year estimates, 2015-2019. HUD Income Limits, 2019.

**Table 2: Percent Cost-Burdened Households by Income and Tenure, 2019**

Income Range	Renters	Homeowners with Mortgage
Less than \$20,000	92	97
\$20,000–\$34,999	66	89
\$35,000–\$49,999	13	52
\$50,000–\$74,999	2	21
\$75,000 or more	0	3

Source: OCDDL; U.S. Census, ACS 5-year estimates, 2015-2019. HUD Income Limits, 2019.

**Table 3: Median Family Income (MFI) Affordability Ranges, 2019**

Household Affordability Category	Extremely Low-Income	Very Low-Income	Low-Income	Moderate-Income	High-Income
MFI Range	< 30%	30 – 50%	50 – 80%	80 – 120%	> 120%
Household Income	< \$25,140	\$25,140 – \$41,900	\$41,900 – \$67,040	\$67,040 – \$100,560	> \$100,560
Affordable Rents	< \$629	\$629 – \$1,048	\$1,048 – \$1,676	\$1,676 – \$2,514	> \$2,514
Affordable Home Values	< \$75,000	\$75,000 - \$126,000	\$126,000 – \$201,000	\$201,000 – \$302,000	> \$302,000

Source: OCDDL; U.S. Census, ACS 5-year estimates, 2015-2019. HUD Income Limits, 2019.

These tables and the accompanying analysis are a summary of an analysis conducted by the OCDDL as part of their 2022 Housing Strategy that was provided to us as part of an underlying data request. The data used in the analysis and the resulting values were fact-checked and confirmed by our team before being added to our report. Assumptions of this analysis include that it is based on HUD's MFI for the Appleton, Wisconsin, MSA for a family of four in 2019 of \$83,800. Affordable rents are based on a monthly housing cost less than or equal to 30 percent of a household's monthly income. Home values are based on three times a household's monthly income.

## Appendix B: Data methods

This research relied on data cleaning, analysis, and visualization performed in the software R, along with a variety of R packages for special work with geospatial data and the Google Places API. Table 4 includes the data sources and type of data for all criteria. The next appendix shows maps for all of the criteria listed below.

**Table 4: Data Sources**

<b>Criterion</b>	<b>Data Source</b>	<b>Type of Data</b>
Floodways	FEMA – National Flood Hazard Layer	Polygon
500-Year Floodplains	FEMA – National Flood Hazard Layer	Polygon
Sewer Service Areas	East Central Wisconsin Regional Planning Commission	Polygon
Public Transit	Google Places API	Point
Employment Hubs	Fox Cities Regional Partnership	Point
Emergency Services	Google Places API	Point
Health	Google Places API	Point
Food	Google Places API	Point
Education	Google Places API	Point
Parks and Recreation	Google Places API	Point

Table 5 contains the Google place types used for the six criteria that used the Google Places API for data collection. These place types were searched using a script that splits a query of a geographic area into multiple sub-queries to cover an entire geographic region. The script then retrieves the data for each of these areas using the Google Places API (Ballatore, 2020; Google, n.d.).

**Table 5: Google Place Types**

<b>Criterion</b>	<b>Google Place Types Searched in API</b>
Public Transit	bus_station, transit_station
Emergency Services	police, fire_station
Health	hospital, doctor, pharmacy
Food	grocery_or_supermarket, supermarket
Education	primary_school, secondary_school, university, school
Parks and Recreation	park

All geospatial operations in the data analysis were performed using the sf package in R. This package allows for loading of shapefiles and other geospatial data and can create geospatial objects using longitude and latitude for point data (Pebesma 2018). The sf package was also used to remove floodway areas from consideration in the analysis.

All geospatial data was intersected or joined with 2020 U.S. Census block group data obtained using the R tigris package (U.S. Census Bureau 2020; Walker 2021).

As described in the Methods section, polygon data was evaluated by finding the criteria percent of the total block group area, while point data was evaluated by counting the number of locations in the non-floodway block group area, then dividing by the total block group area in square miles. Percentiles were found for each block group using an author-created function, where the 99<sup>th</sup> percentile would indicate an area with many resources and prepared for development while the 1<sup>st</sup> percentile would indicate an area

unprepared for development with few resources. A simple arithmetic mean was used for each block group on all nine remaining criteria to create an index for overall evaluation. While the possible range for the average is zero to 100, in practice the range was from about 55 to 98, due to the underlying data distributions.

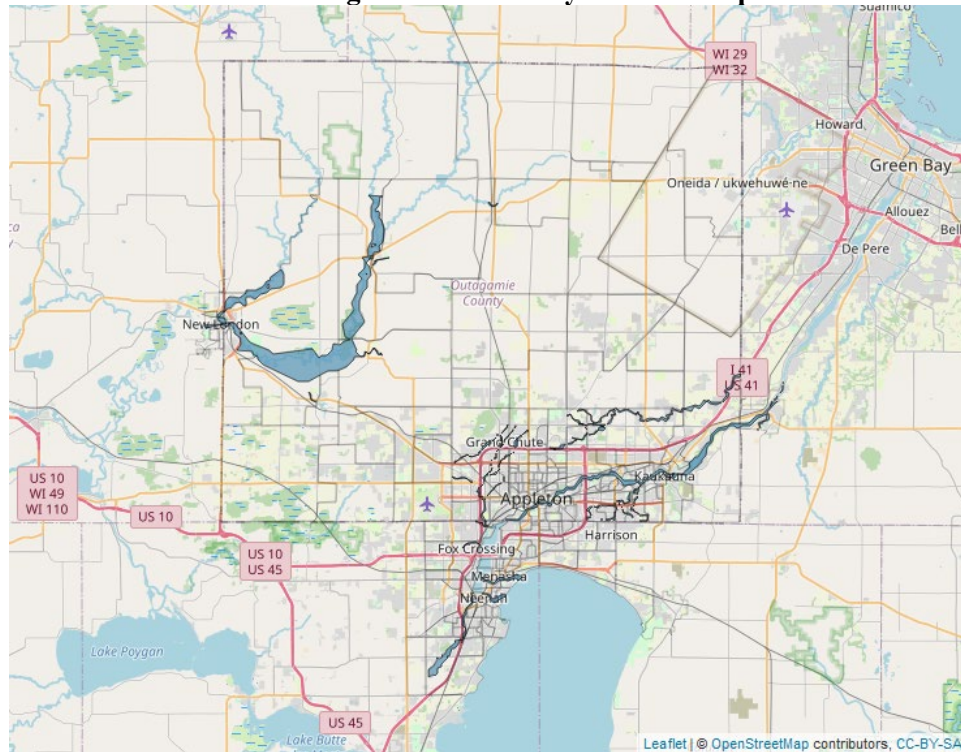
Finally, all maps contained in this report use the R leaflet package (Cheng et al 2021). Data and code for this project can be furnished upon request.

## Appendix C: Criteria maps

The static maps below display the results of the analysis by criteria, which informed the recommendations for potential housing development locations. Additionally, the data for each criterion and for the criteria average can be explored interactively in maps and data tables found [here](#).

Figure 8 shows floodway areas in blue, with no other areas shaded. The floodway areas were excluded from our analysis.

**Figure 88: Floodway Criteria Map**

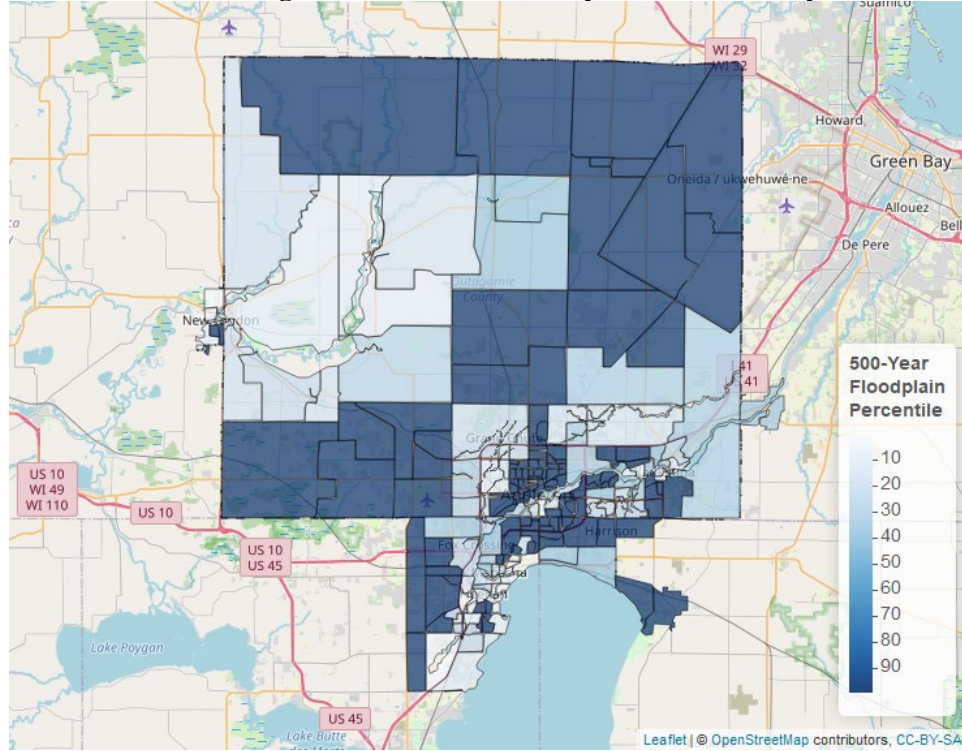


*Source: Authors; National Flood Hazard Layer, FEMA*

The remaining maps show the other criteria, all of which were included in the analysis in the average percentile rankings. The values on the maps are the percentile ranking for each U.S. Census block group, with the darker blue colors meaning that the block group has more resources or is in a better position for development while lighter blue colors mean the block group is less suitable for development. The 500-Year Floodplain criterion is the only one in which a lower percentage of the resource is shown in a darker color and is more appropriate for development. These values were averaged to reach a final index of all criteria, which is seen in Figure 4 in the report.

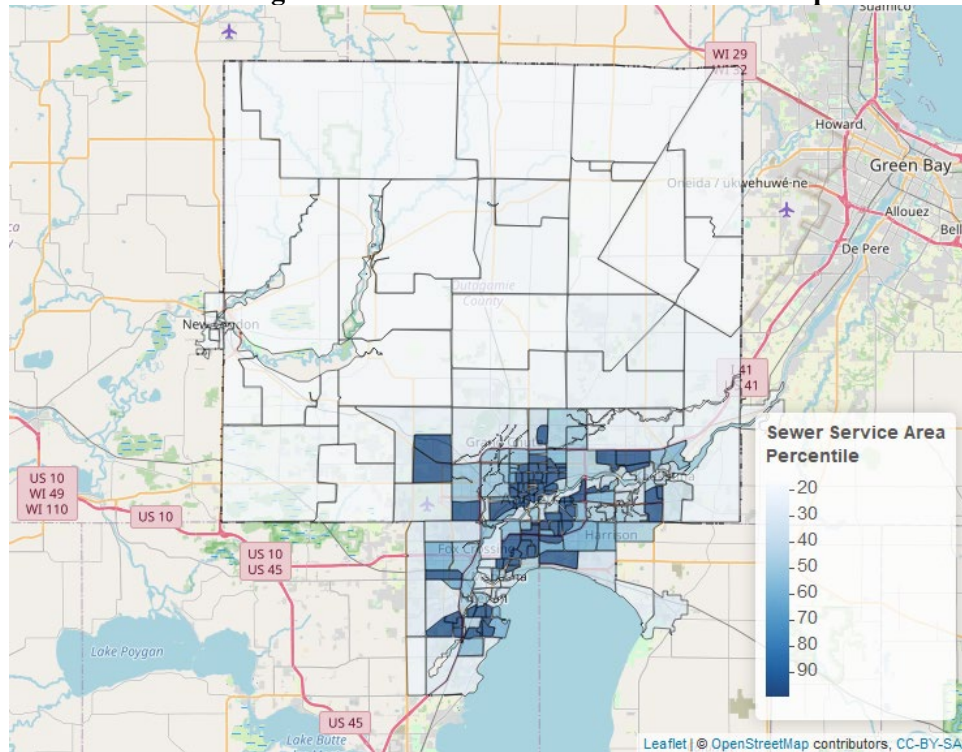


**Figure 99: 500-Year Floodplain Criteria Map**



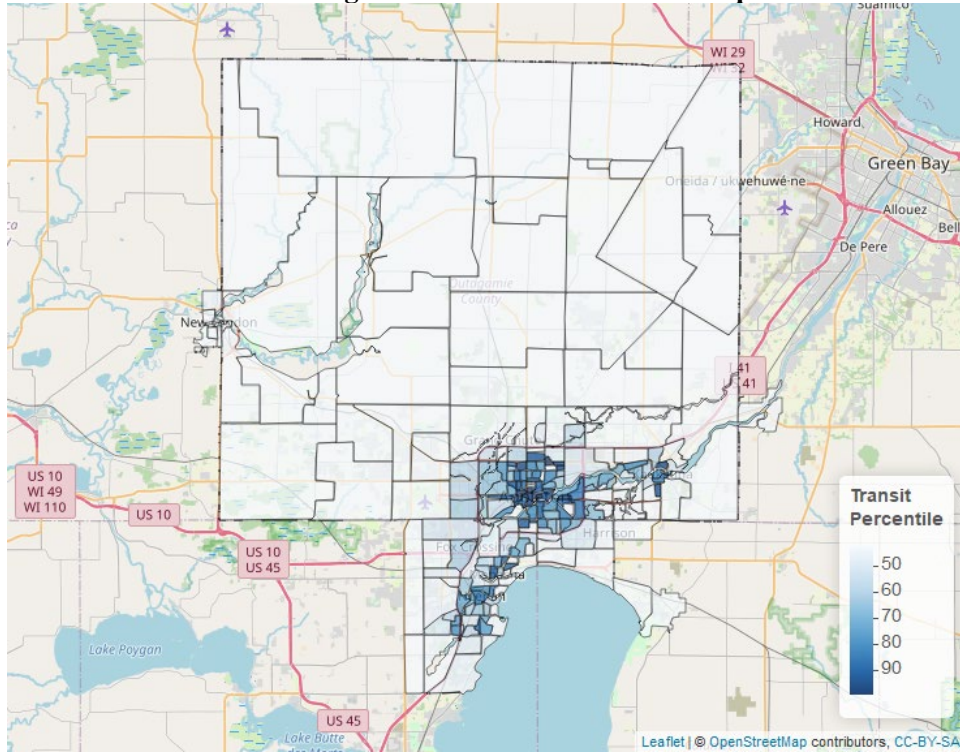
*Source: Authors' calculations; National Flood Hazard Layer, FEMA*

**Figure 1010: Sewer Service Area Criteria Map**



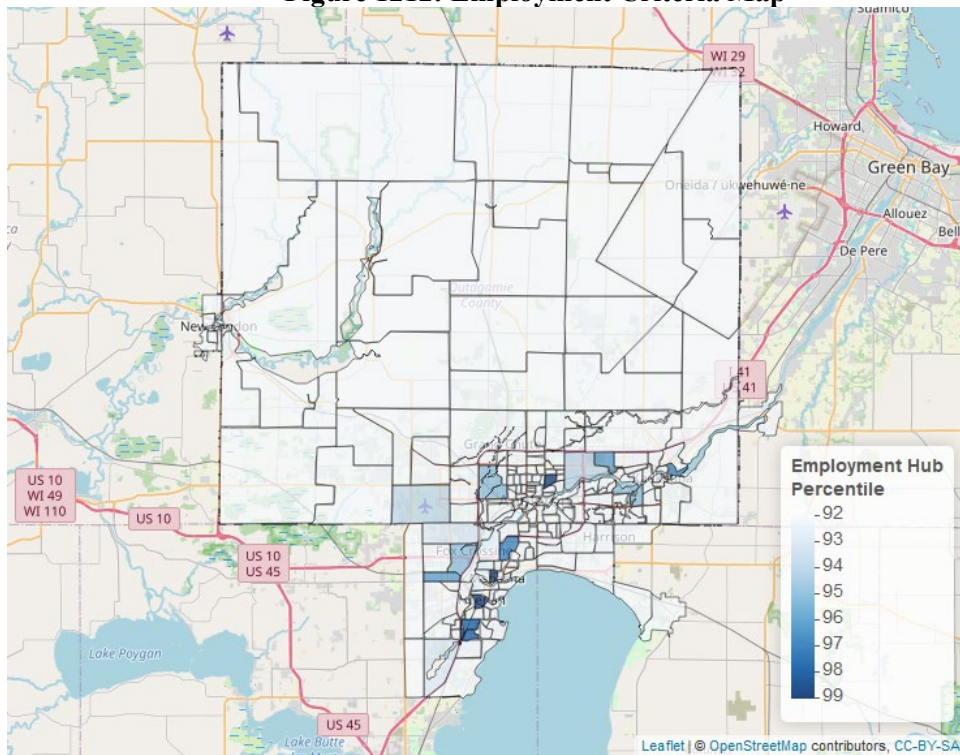
*Source: Authors' calculations; East Central Wisconsin Regional Planning Commission*

**Figure 1111: Transit Criteria Map**



*Source: Authors' calculations; Google Places API*

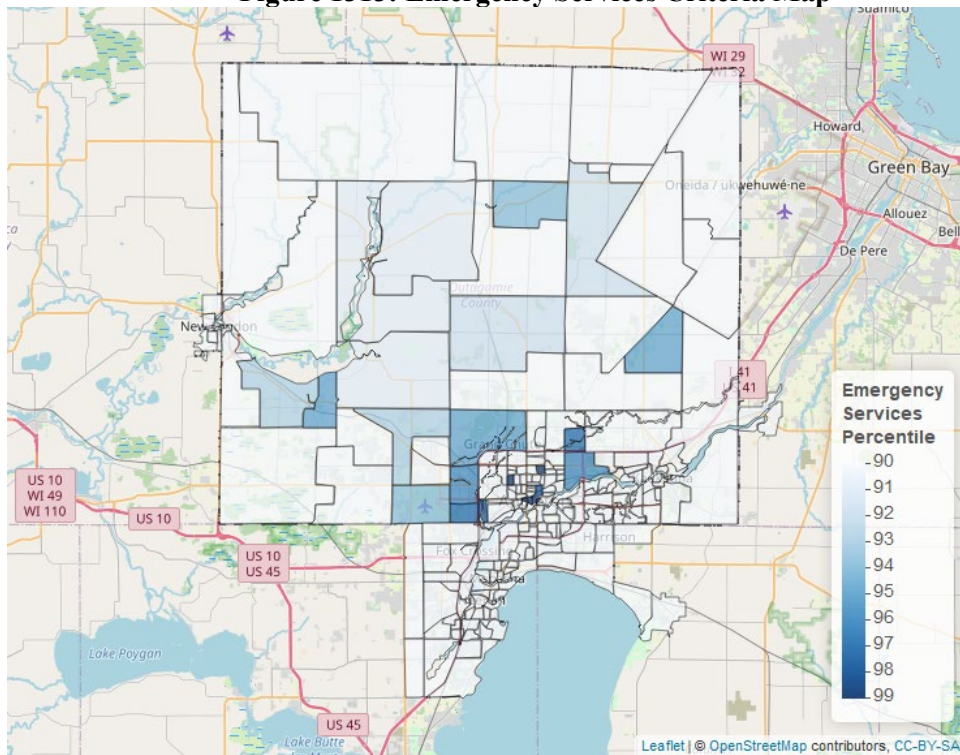
**Figure 1212: Employment Criteria Map**



*Source: Authors' calculations; Fox Cities Regional Partnership*

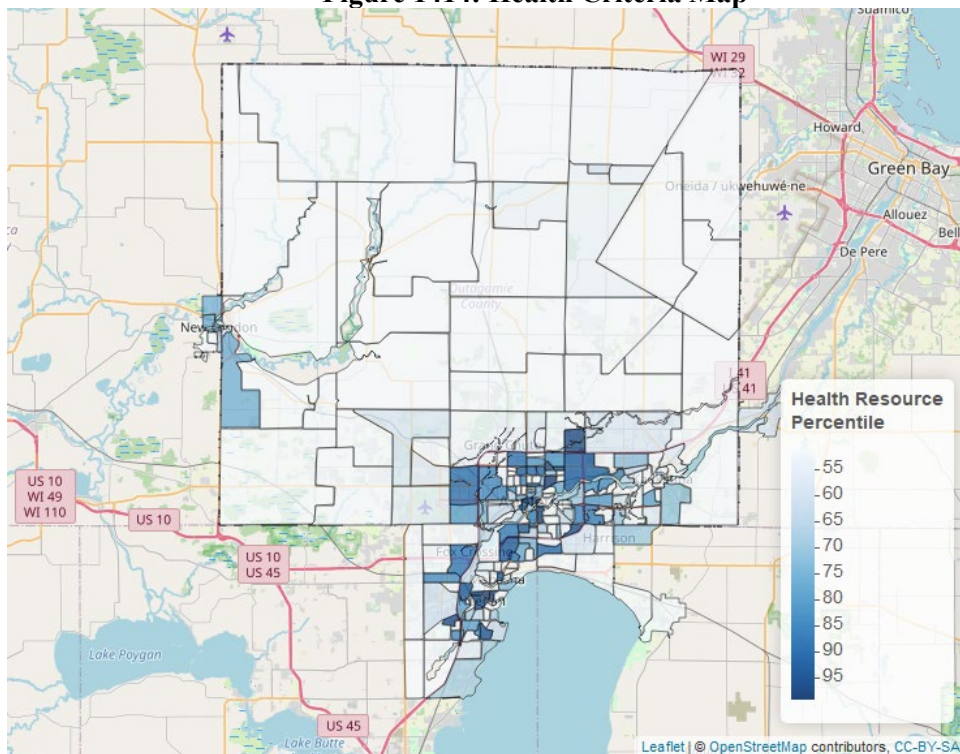


**Figure 1313: Emergency Services Criteria Map**



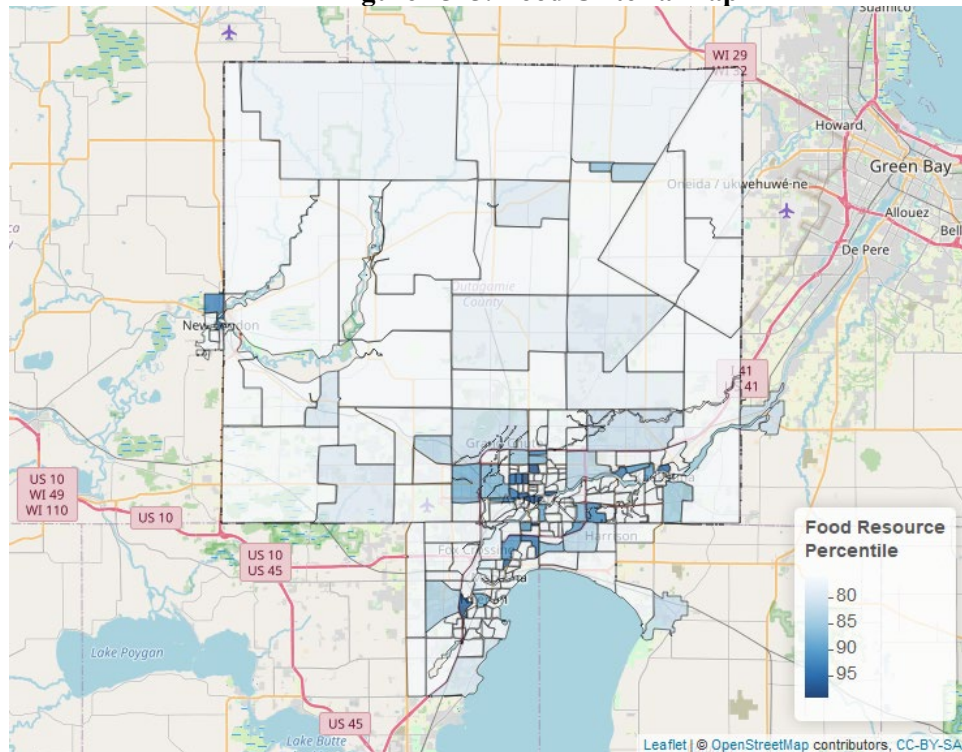
*Source: Authors' calculations; Google Places API*

**Figure 1414: Health Criteria Map**



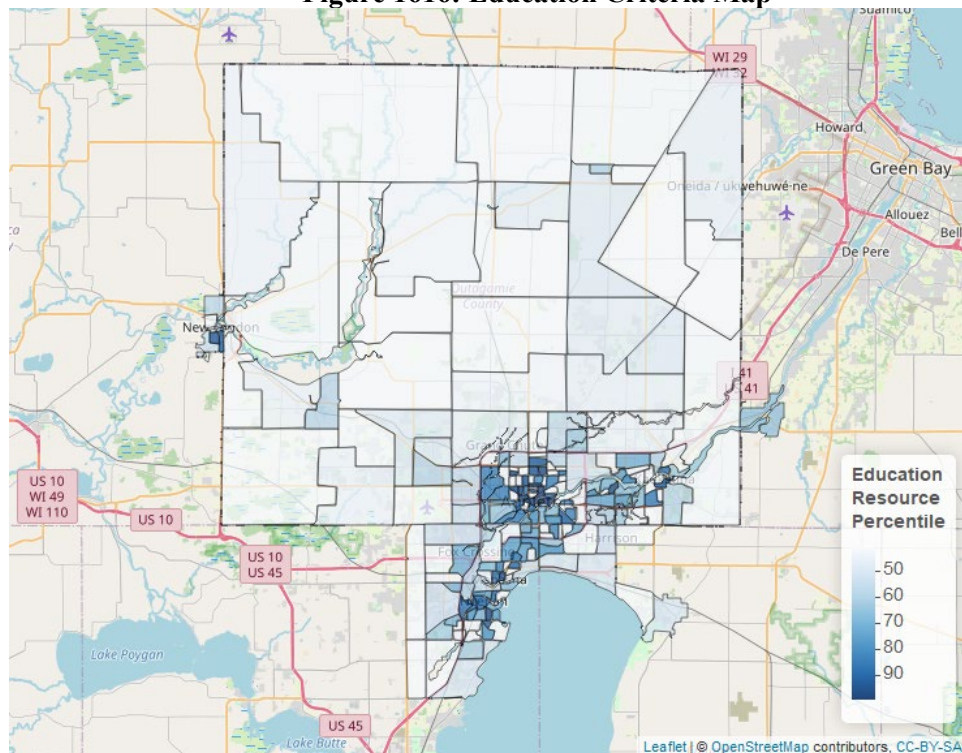
Source: Authors' calculations; Google Places API

**Figure 1515: Food Criteria Map**



Source: Authors' calculations; Google Places API

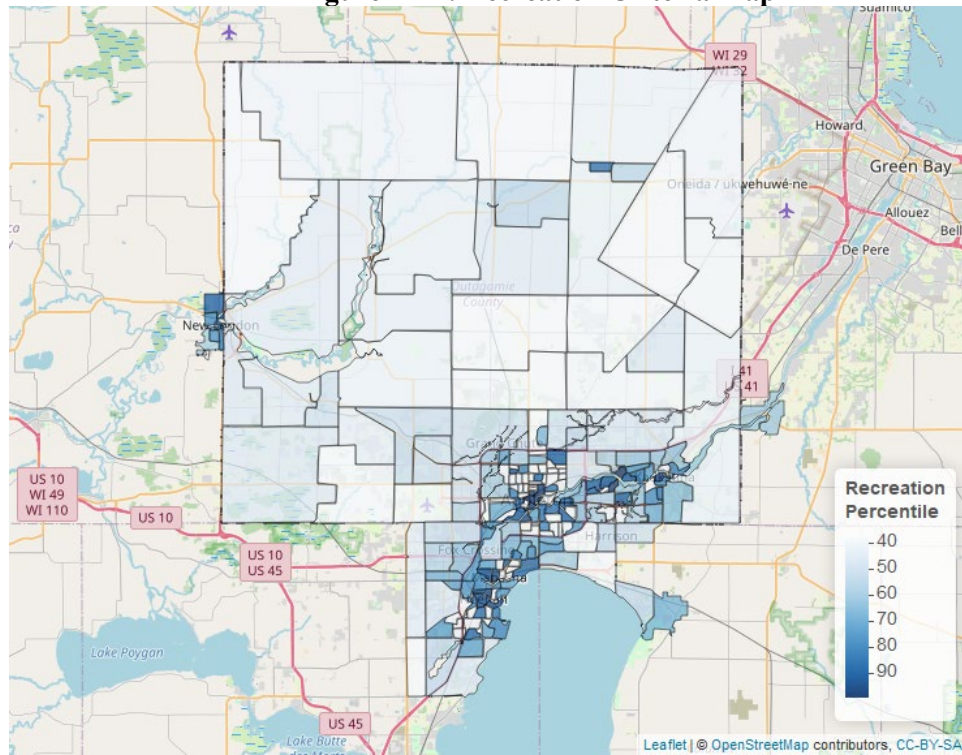
**Figure 1616: Education Criteria Map**





Source: Authors' calculations; Google Places API

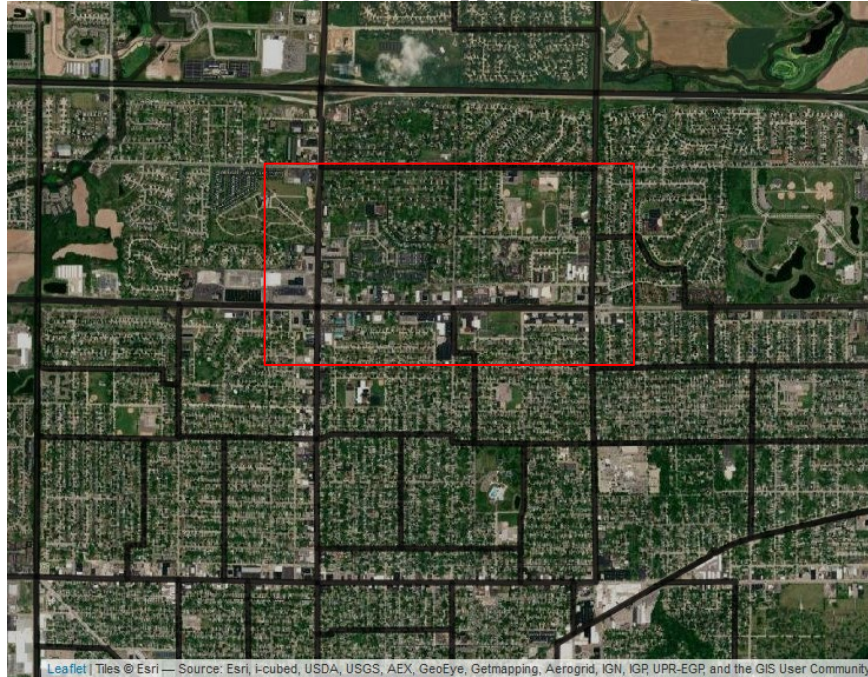
**Figure 1717: Recreation Criteria Map**



Source: Authors' calculations; Google Places API

## Appendix D: Site maps

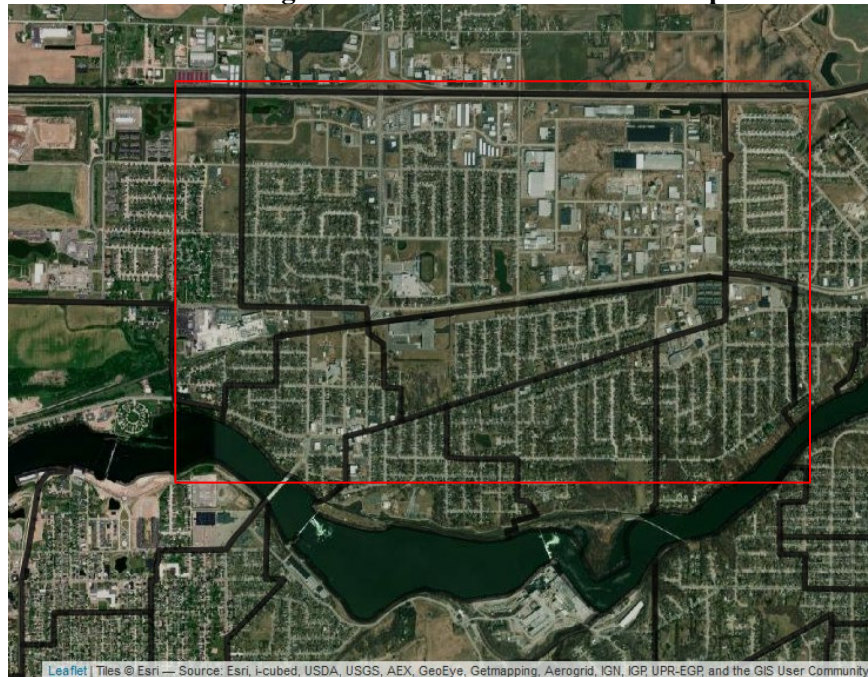
**Figure 1818: Appleton Aerial Map**



*Source: Authors; Esri World Imagery Layer*

*Aerial map of the Appleton area results example; area within the red box designates the example area*

**Figure 1919: Little Chute Aerial Map**

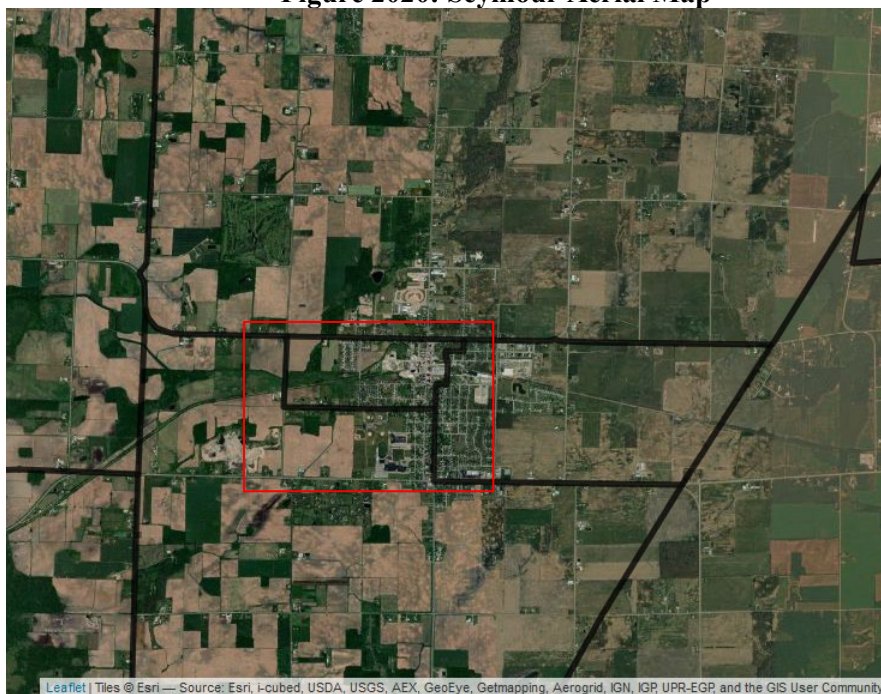


*Source: Authors; Esri World Imagery Layer*

*Aerial map of the Little Chute area results example; area within the red box designates the example area*



**Figure 2020: Seymour Aerial Map**



*Source: Authors; Esri World Imagery Layer*

*Aerial map of the Seymour area results example; area within the red box designates the example area*

## Appendix E: Other policy levers

### Direct Assistance to Households

#### ***Down payment assistance programs (DPAP)***

Research recently estimated that 45 percent of potential homebuyers could afford a median-value home with a DPA of \$25,000 or less, and oftentimes much less than that. These are best accompanied with homeowner counseling and financial literacy training programs. The Wisconsin Housing and Economic Development Association and Federal Home Loan Bank of Chicago operate DPAPs that county and local governments could design their DPAPs around.

#### ***Employer-assisted housing programs***

One way to bring in additional funding for DPAPs and other direct assistance is to facilitate an employer-assisted housing program. These programs can operate without the involvement of a public entity, but there are examples where government can play a role either directly or in partnering with community stakeholders. In Perham, Minnesota, the local housing authority created a down payment assistance pool leveraging financial contributions from the city, local employers, and the local housing trust fund (City of Burlington, VT n.d.). Assistance can come in the form of forgivable loans for down payments, rental subsidies, and, in rarer cases, direct investment in the construction of affordable housing.

### Financing Housing Development

#### ***TIF districts***

Tax increment financing (TIF) is a tool that municipalities use to fund infrastructure and economic development. In Wisconsin, a TIF district can be extended one year to invest in affordable housing infrastructure anywhere in the city the TIF existed. Appleton recently utilized this option to invest in street repairs in a low-income neighborhood. Shorewood, Wisconsin, extended a TIF district in 2021 that allowed the city to invest \$2.5 million toward affordable housing (Morales 2021). A few states have experimented in expanding the ability of municipalities to either create TIF districts explicitly for the development of affordable housing. More commonly, states pass legislation requiring a certain portion of TIF revenue goes toward the development or preservation of affordable housing (National Housing Conference n.d.).

#### ***Housing trust funds***

To help leverage private and public funding into affordable housing, more than 750 city and counties have set up housing trust funds (Community Change n.d.). At the county level, the most common revenue source is through document recording fees (Harris et al 2019). The most common applicants for county housing trust funds are developers, local housing authorities, and units of government, who usually apply through a request for proposal (RFP) process. These funds are most commonly used for the acquisition of land, new construction, and the preservation or rehabilitation of existing multifamily housing units.

#### ***Maximizing LIHTC***

The Low-Income Housing Tax Credit (LIHTC) program provides financial incentives for private investors to finance affordable rental housing developments. These federal income tax credits are awarded by the Wisconsin Housing and Economic Development Authority based on a competitive application process and scoring via a Qualified Allocation Plan (QAP) (Wisconsin Housing and Economic Development Authority 2020). The process can incentivize projects that prioritize low-income housing, place development near areas of economic opportunity, and emphasize energy efficiency and sustainability. Ensuring the appropriate zoning codes are already in place for prime LIHTC locations can further improve the competitiveness of applications from the FC/GOC region and allow for more private capital to boost affordable housing production.



## Incentive Zoning

### *Density bonuses*

One way to incentivize the development of more affordable housing is through density bonuses. In exchange for allowing a housing developer to build more units than is normally permitted, the developer sets aside a certain number of units to be made available for households under a certain income level (Municipal Research and Services Center n.d.). Wisconsin state statute prohibits making this a mandatory requirement for housing and zoning decisions (City of Madison Planning Division 2019), but voluntary density bonuses offer developers an opportunity to create more economic value through increased density while offering the public more affordable housing options.

### *Other incentives for developers*

To further make providing more affordable housing financially feasible, other incentives can be offered to housing developers. More common incentives include allowing developers to increase their building heights, reducing the minimum parking requirement, and streamlining the review process. In Boise, Idaho, the city offers these incentives to developers who develop and preserve affordable housing, reuse existing buildings and structures for affordable housing, and prioritize development near roadways or other community resources (City of Boise n.d.).

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