

Launching the Michigan Zoning Atlas: Report of the West Michigan Pilot

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Pressing Matters
Grant



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ECONOMIC
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Cover: Map showing where apartments in buildings with four or more units can be built

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Abstract

This report summarizes the West Michigan Pilot of the Michigan Zoning Atlas. This project involved mapping the zoning districts for 85 local jurisdictions in Kent, Muskegon, and Ottawa counties. After summarizing the rationale and methodology of our project, we provide an overview of the resulting online tool and a discussion of an illustrative planning analysis conducted using the project data. The report concludes with a discussion about how the project intends to move toward the goal of completing a statewide atlas.

Introduction

The need to understand local zoning codes—the local laws that shape the location and character of new development—has recently taken center stage in Michigan. The rising cost of housing and a broader mismatch between Michigan’s housing stock and housing needs have fostered local, regional, and statewide interest in the need for reforms¹. There is growing interest in the state for investigating and implementing zoning reforms, especially modifying low-density single-family zoning codes to allow for denser, more diverse housing types. While some communities have advanced reforms to increase housing supply, more are realizing they lack the diverse forms of housing needed for today’s populations. In many cases policymakers are flying blind: no consistent, updated, and high-quality data are available that describe the boundaries and details of Michigan’s zoning codes. As a result, planners and other municipal professionals, along with elected and appointed land use officials, are unprepared to identify where reforms are needed, and state policymakers lack the granular detail needed to implement visions like the Michigan Statewide Housing Plan. Furthermore, efforts of the business community, such as homebuilders and land developers eager to build a wider variety of housing types, are often stymied by local codes that prohibit innovative solutions to contemporary challenges.

Objectives and Benefits

The primary objectives of the Michigan Zoning Atlas West Michigan Pilot are:

1. To illustrate what forms of housing development are allowed by zoning codes within communities and across the region, and to clearly identify where inequities in land use are most at stake;
2. To create data for analyzing opportunities and needs for regulatory reforms at the local, regional, and statewide levels to address housing challenges;
3. To establish the team, methodology, and infrastructure needed to complete a statewide zoning atlas.

To clarify, *zoning* data are distinct from *land use* data, which describe what forms of development exist, and *future land use* data, which describe a desired pattern of development. Although both of these are necessary for planning, zoning is essential because it describes what type of development is legal within a community. While housing is the primary impetus in Michigan for mapping local zoning, many other issues could benefit from a greater knowledge of zoning, including parking, coastal resilience, economic development, growth scenarios, renewable energy, and conservation, among others.

West Michigan Pilot

The Atlas was launched through a pilot in Ottawa, Kent, and Muskegon counties in the Grand Rapids metropolitan area. These counties contain 85 local jurisdictions: 22 cities, 9 villages, and 54 townships. This urban region was selected because it is experiencing rapid growth, and local stakeholders are working on how to foster more diverse housing through the Housing Next organization. Many regional stakeholders are also involved in Housing Michigan, a statewide coalition focused on supporting an increased housing supply and affordability. As work was progressing on the pilot, the Michigan State Housing and Development Authority launched a Regional Housing Partnership program aimed at implementing its 2022 Statewide Housing Plan. Housing Next served as one of the three lead agencies for its regional partnership. This West Michigan pilot has allowed us to develop the methodology and experience to complete a statewide atlas while also resulting in data to be used for an immediate impact.

¹ See the Housing Michigan coalition, <https://housingmichigan.weebly.com/>.

Methodology

Our project followed the established methodology created by the National Zoning Atlas (NZA), an approach that has a track record of creating policy-relevant findings and also contributes to a national dataset. This methodology included three distinct phases: code interpretation, geospatial data collection and editing, and mapping.

Code Interpretation

From May through December 2023, a team of University of Michigan research assistants constructed variables from the zoning codes from the 85 jurisdictions in the pilot area, following the NZA guidance.² To tailor this methodology to Michigan, we developed specialized methodological guidance on Michigan-specific issues (Appendix A).

Geospatial Data Collection and Editing

For the pilot zoning atlas, the team collected spatial data for Kent, Ottawa, and Muskegon counties. The team reached out to each county’s administrator, who either provided shapefiles or directed the team toward the lead Geographic Information System (GIS) technician. Kent County and Muskegon County data were obtained from Regional Geographic Information Systems (REGISs). Ottawa County had already collected zoning district boundaries for the communities in the county, and data were obtained from the county’s land use coordinator.³ In some cases, jurisdictions overlapped; in those cases, the most recent data (as evidenced by the date in the “Last edited” field) were used.

Separately, the team collected official PDF zoning maps for each jurisdiction via internet search. In cases where there was no official PDF available online, the team contacted administrators in those jurisdictions to request a copy of the PDF and the raw GIS file, if available.

The raw GIS files were a composite of shapefiles of all jurisdictions within each county. In order to process and update jurisdiction data, each jurisdiction needed to be its own feature layer. The team downloaded the Minor Civil Divisions shapefile from the State of Michigan’s open data portal, then ran “*Select by Location*” on the raw GIS files to assign township names to each record. To create unique feature layers, the team used an *iterator* in ModelBuilder that selected attributes from the raw GIS files based on jurisdiction name and created a new feature layer (Fig. 1). The model also retrieved the jurisdiction name from the assigned field and used it as the layer name.

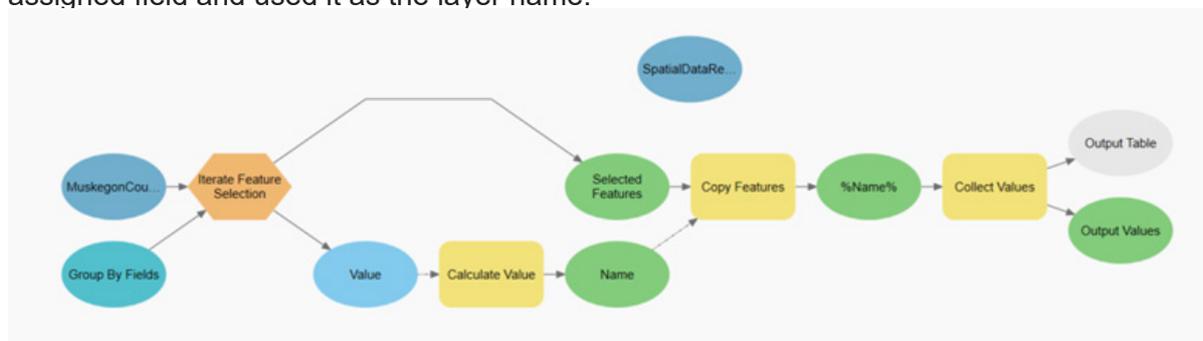


Fig. 1. ModelBuilder schematic that creates unique feature layers for townships included in the pilot

²Bronin, Sara C. and Markley, Scott and Fader, Aline and Derickson, Evan, How to Make a Zoning Atlas 2.0: The Official Methodology of the National Zoning Atlas (June 13, 2023). Available at SSRN: <https://ssrn.com/abstract=4476927>

³Standardized Mapping in Ottawa County: https://www.miottawa.org/Departments/Planning/pdf/EconomicDevProjects/Standardized_Mapping_inOC.pdf

Mapping

The resulting district attributes and spatial data were then uploaded to the National Zoning Atlas Editor for final quality control and publishing. At this stage, we resolved final data problems related to attributes and boundaries. The published data were then visible on the national map and on the project website.

Results

National View

The data are integrated into the National Zoning Atlas, available at www.zoningatlas.org/atlas. The initial view of the site generally identifies the areas of the country where the zoning code has been analyzed, presenting both a map view and a list of jurisdictions (Fig. 2). The symbology, which is the same for the whole nation, shows whether each zoning district is primarily residential, mixed with residential, or nonresidential. Areas with no zoning are also indicated.

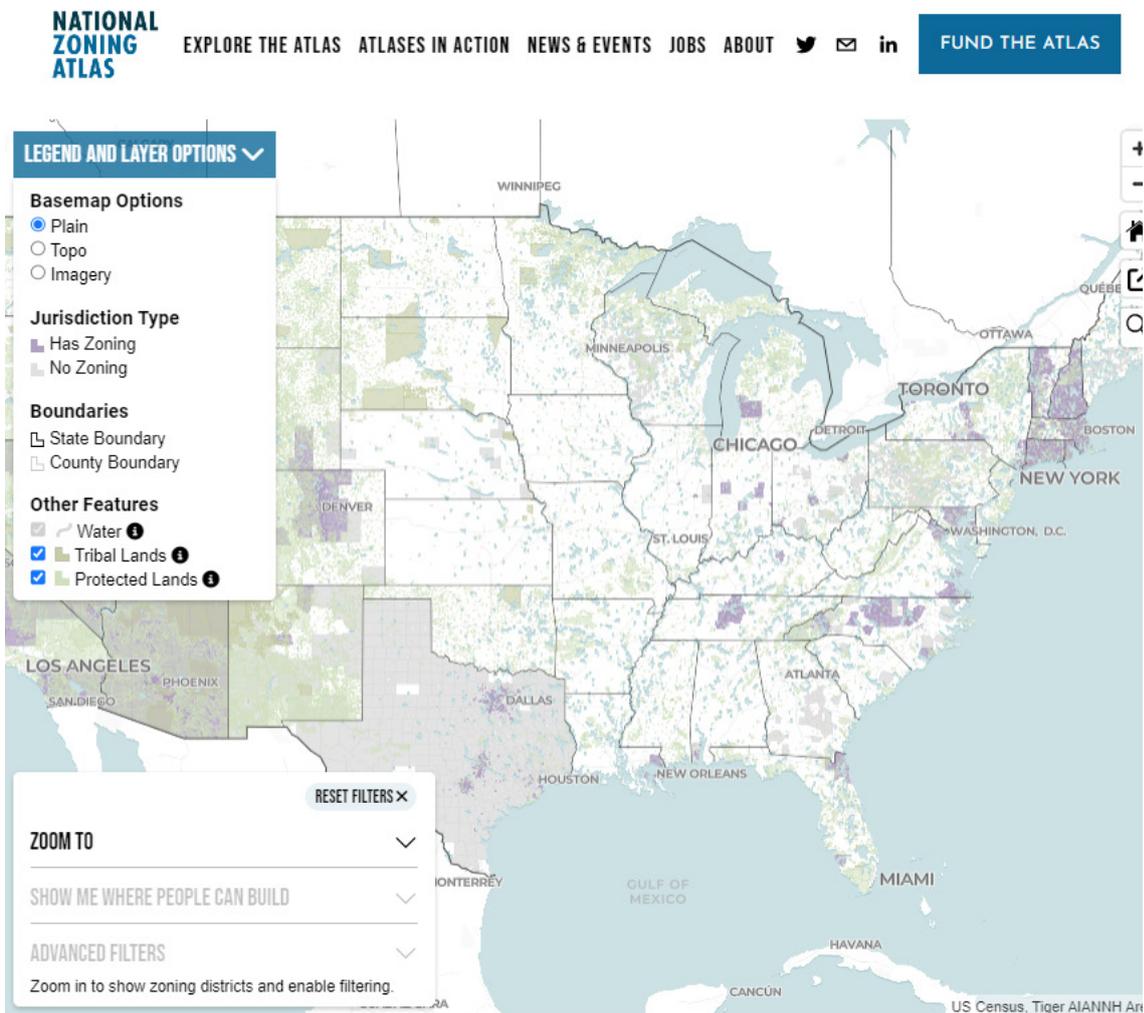


TABLE OF JURISDICTIONS IN CHOSEN GEOGRAPHY

Showing 1 to 50 of 4,671 jurisdictions

Search:

Jurisdiction	County	State	Number of Districts	Record Last Updated
Abbott	Potter County	Pennsylvania	0	2023-08-25
Aberdeen	Harford County	Maryland	17	2024-07-25

Fig. 2. The National Zoning Atlas Map

Identifying Districts by Housing Permitted

The “*Show me where people can build*” feature and the “*Advanced filters*” work together to narrow the view, showing where specific housing treatments, site standards, and approval processes apply (Fig. 3). These filters incorporate the coding done by the research teams in every jurisdiction to present a consistent set of information across the national map. The result enables a user to see exactly where a project with particular characteristics can be built—across districts, jurisdictions, counties, and states.

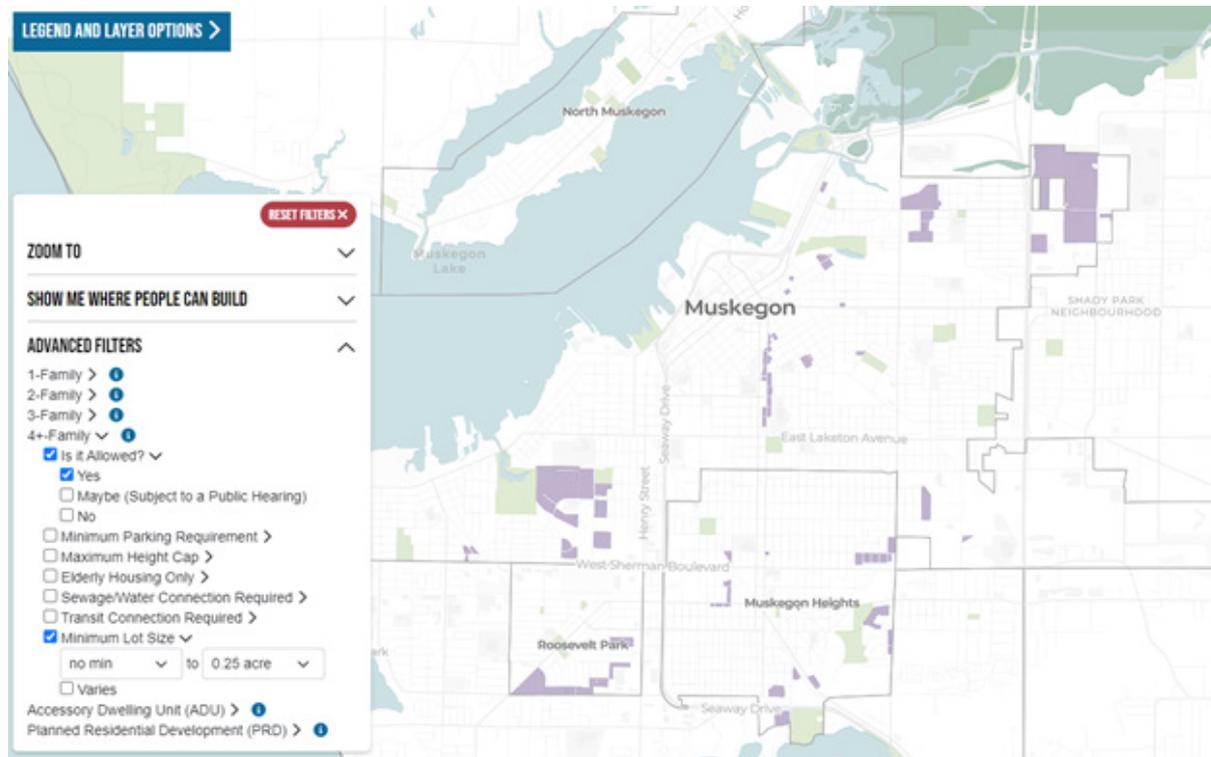


Fig. 3. Exploring Local Zoning through the National Zoning Atlas

Displaying District Regulations

The “*zoom to*” and “*select*” tools define the state, county, or jurisdiction of interest. When a jurisdiction is selected, the list of jurisdictions below the map is replaced with a display showing a card for each zoning district in the selected area (Fig. 4). The cards show whether each of the six housing treatments (1-family, 2-family, 3-family, 4+-family, accessory dwelling units, planned residential development) is allowed, requires a public hearing, or is prohibited. In each card, a “*show more details*” button yields a pop-up that lists the district’s dimensional, parking, and other requirements for each treatment. The result allows the user to see the scope of regulations that apply to each district.

RS, RESIDENTIAL	
Wyoming, Kent County	
Record Last Updated: Jun 10, 2024	
This zoning district is a Primarily Residential district. To dig deeper into the meaning of the following details, cf guide .	
1-Family Treatment: Allowed/Conditional	
Min. Lot Size	2 Acres
Has a Min. Parking Requirement?	Yes
Has a Height Cap (Stories)?	No
Has a Height Cap (Feet)?	Yes
2-Family Treatment: Allowed/Conditional	
Limited to Elderly Housing Only?	No
Min. Lot Size	2 Acres per 2-Family
Has a Max. Density?	No
Has a Min. Parking Requirement for 0/1BR?	Yes
Has a Min. Parking Requirement for 2+ BR?	Yes
Has a Height Cap (Stories)?	No
Has a Height Cap (Feet)?	Yes
3-Family Treatment: Prohibited	
4+-Family Treatment: Allowed/Conditional	
Limited to Elderly Housing Only?	No
Min. Lot Size	2 Acres per 4+-Family
Has a Max. Density?	No
Has a Min. Parking Requirement for 0/1BR?	Yes
Has a Min. Parking Requirement for 2+ BR?	Yes
Requires Connection to Sewer and/or Water?	No
Requires Connection to Public Transit?	No
Has a Height Cap (Stories)?	No
Has a Height Cap (Feet)?	Yes
Accessory Dwelling Unit (ADU) Treatment: Prohibited	
Planned Residential Development (PRD) Treatment: Prohibited	

Fig. 4. Detailed Zoning Jurisdiction Attributes on the National Zoning Atlas

Findings

Consistent with findings around the country, our data, summarized in Table 1, reveal that the overwhelming majority of land in the study area is zoned exclusively for single-family housing by right (70.6%), with alternative housing types only allowed by right or public hearing in small percentages of land area: duplexes (13.4%), accessory dwelling units (14.4%), housing with 4+ units (6.9%). In combination with the regulation of where these types of housing are allowed, other zoning regulations impact the feasibility of these housing types. For example, only a minority of residential zones require fewer than two parking spaces per unit (16.1%) and only 1.3% of land overall allows residential development on parcels smaller than 5,000 sq. feet (or 0.11 of an acre). To facilitate more detailed analysis, we also present the percentage of residential areas where these types of housing are allowed in this table.

Table 1. Summary Results

	Three- County Total		Kent County		Muskegon County		Ottawa County	
	Total	Residential ¹	Total	Residential ¹	Total	Residential ¹	Total	Residential ¹
Area (acres)	1,259,546	1,110,747	549,875	504,265	335,965	268,738	373,706	337,744
Single Family								
by right (%)	70.6	80.1	75.9	82.8	58.2	72.8	73.9	81.8
Duplexes								
by right (%)	4.3	4.9	4.5	4.9	4.4	5.5	3.8	4.2
by public hearing (%)	9.1	10.3	9.3	10.1	13.1	16.3	5.3	5.9
Accessory dwelling units (ADUs)								
by right (%)	5.2	5.9	8.7	9.5	0.5	0.6	4.2	4.6
by public hearing (%)	9.2	10.4	8.1	8.8	0.1	0.2	19.0	4.6
Housing with 4+ units								
by right (%)	2.0	2.2	2.5	2.7	1.5	1.9	1.6	1.8
by public hearing (%)	4.9	5.5	6.9	7.5	2.8	3.5	3.7	4.1
Residential zones requiring fewer than 2 parking spaces per unit (%)	16.1		23.1		12.5		9.0	
Required minimum lot size less than 5,000 square feet (%)	1.3	1.5	2.1	2.3	0.9	1.1	0.6	0.6

¹ Total residential area includes zones classified as Primarily residential, Mixed with residential, and Agricultural with residential.

Corridor Study Application

This section summarizes an analysis study conducted for local project partner Housing Next that illustrates one possible use of the zoning data produced by the project. The analysis investigates the question: Where do current rules allow housing to be built, and what alternative pattern could be possible under alternative zoning? Given that our purpose is to illustrate how the data are used, we did not document the detailed methodology here but instead refer readers to Housing Next to learn more or explore the possibility of conducting a novel analysis in their area.

The Status Quo

Kent County has 115,299 acres of vacant residentially-zoned land, and 97.8% of that land allows only single-family homes (Fig. 5). If all of the vacant land in the county were fully developed to current zoning, 73,067 new homes could be built at a density of 0.63 dwelling units per acre.

The average purchase price of a new single-family home in Kent County is \$384,000, resulting in approximately \$2,817 monthly mortgage and tax payments. This amount is affordable to a household with an income of \$112,680. The median household income in Kent County is \$77,028. The only housing types that are accessible to almost half of the population are confined to 2% of vacant residential land.

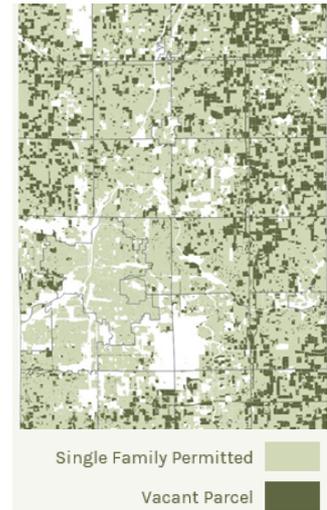


Fig. 5. Vacant Parcels in Kent County

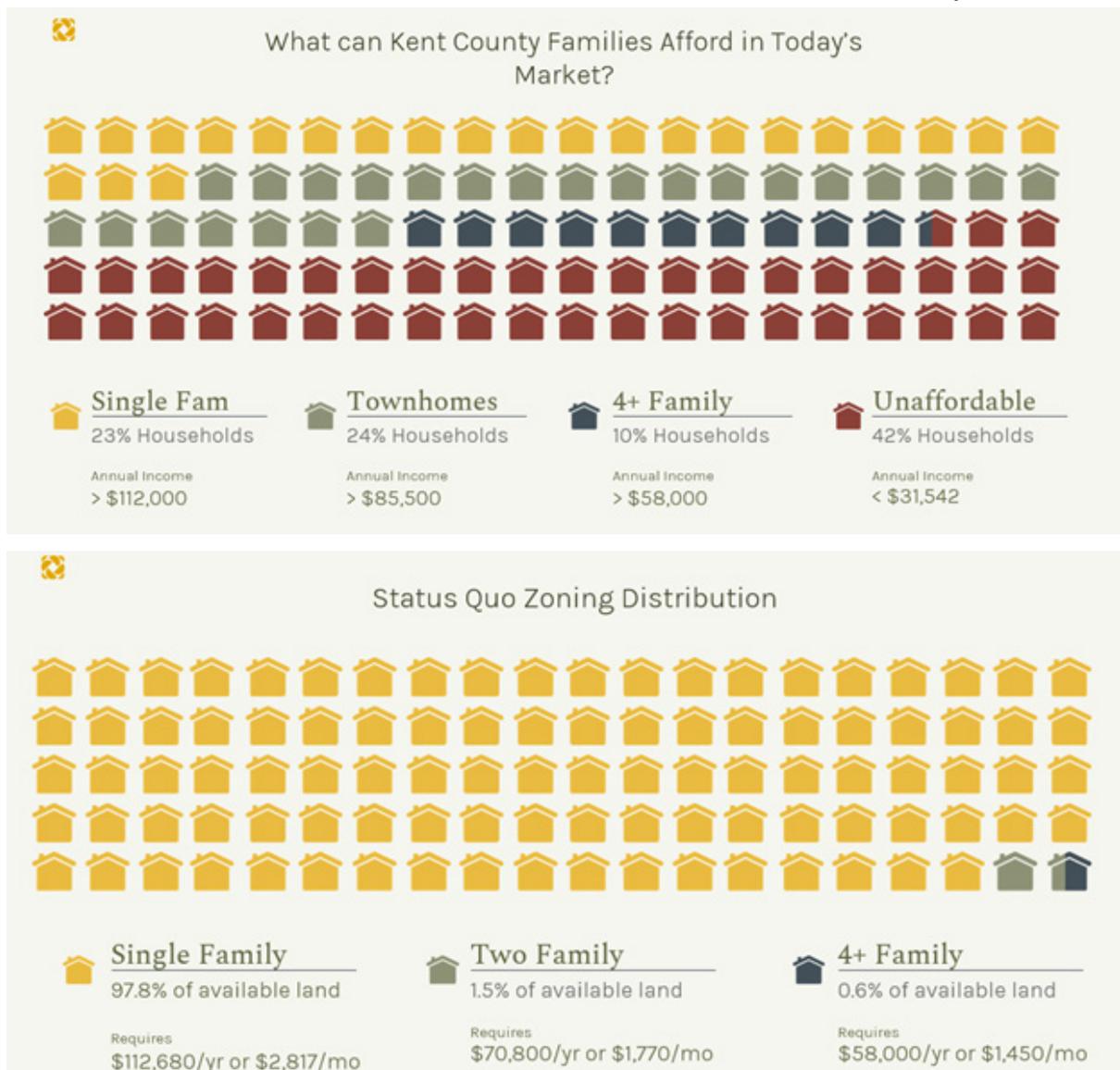


Fig. 6. Housing Types Needed to Meet Current Affordability and Housing Types Allowed by Zoning for New Development

The Corridor Strategy

In addition to the private sector's concerns about the cost of land, lumber, and labor, the public sector is concerned about infrastructure costs in perpetuity. At \$1,300 per linear foot (based on regional estimates) for water, sewer, and roads, a new greenfield lot that matches the county average width of 78 feet incurs a \$101,000 bill before a shovel ever comes on the property. Planning and zoning are the main factors in determining how many households will share in the cost of any given infrastructure investment. It takes 35 years to recoup that investment from a single-family home but only 16 years to pay off the same investment when it serves three townhomes.

One strategy is to leverage corridors with existing sewer and water infrastructure and where land is underutilized (Fig. 7). This strategy focuses investment in a relatively small area where amenities are available and incentives can be targeted. To implement it, communities would first remove barriers in the zoning code, then use incentives and impact capital to catalyze the first handful of developments. Next, these private investments could be supported through the use of targeted street and recreational improvements to create strong places where people want to be. With the support of additional financing, such as through the Low-Income Housing Tax Credit (LIHTC) or local support, greater housing affordability could be realized, with a 3:1 or 4:1 ratio of market rate to affordable units. Keys to success for this strategy are flexible and adaptable building types, a mix of rental and homeownership, and housing diversity in every neighborhood with infrastructure.

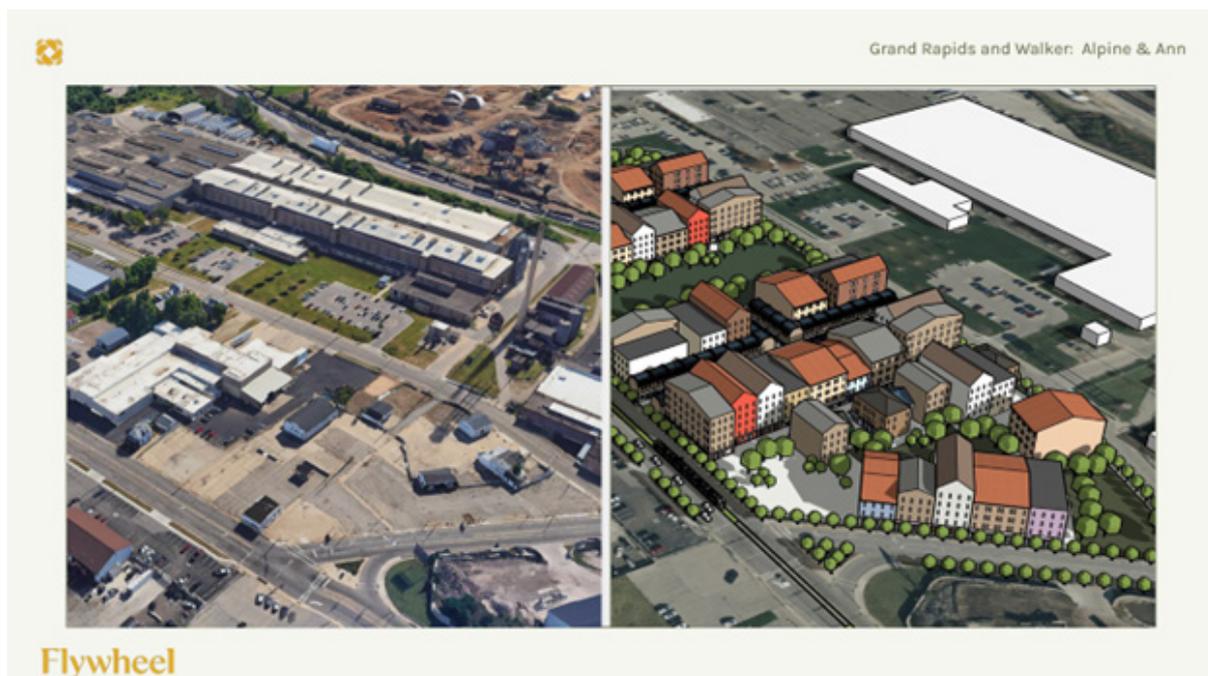


Fig. 7. Conceptual Site Plan Illustrating Corridor Infill Housing

Meeting Housing Needs at Less Public Cost

The same housing needs can be met by looking exclusively at vacant and underutilized corridors rather than vacant and unimproved land. Using this strategy to create a hypothetical countywide scenario would result in the estimate that it would consume just 18% of the land on major corridors, in contrast to using 100% of the vacant land in the county. It would also lower the infrastructure bill from \$24.8B to \$1.8B—a 93% savings over 30 years.

A key value of the Zoning Atlas is in showing the consequences of the path of least

resistance. The Zoning Atlas demonstrates the near-universal extent to which current zoning laws compel the most expensive type of housing, the least efficient use of infrastructure, and the steady consumption of pristine land even in the absence of population or economic growth. These troubling findings serve as the impetus to consider alternative land-use scenarios, such as the corridor strategy proposed here, which may allow communities to better achieve their housing and other goals.

Future Plans for Expansion and Updates

Statewide Expansion

The Michigan Zoning Atlas Team is exploring options for expanding the atlas to other counties and regions, through a similar approach to this pilot, which involves identifying a local partner along with the matching funds or staff resources needed to complete the mapping project. We are in the early stages of launching a project in the Traverse City region, and we welcome inquiries from individuals or organizations anywhere in the state interested in learning more about how they can get involved to map their region.

Updates

The Michigan Zoning Atlas is affiliated with the NZA, an incorporated nonprofit run by Sara Bronin of Cornell University with its own staff and capacity. The NZA has created a sophisticated data platform that we utilize, and we work in partnership with them. In the long term, the NZA is committed to maintaining zoning data nationwide. However, it is currently in a “build” phase in which it is creating data in multiple states, collaborating with state teams like ours in that effort. Therefore, the NZA has some capacity to contribute to updating while generally deferring to state teams to manage their own updates as the NZA focuses on continuing to build out the atlas nationwide. There are two types of updates: making high-priority updates to reflect significant changes, and conducting a comprehensive update.

High-Priority Updates

These are changes that are important to be immediately reflected in the atlas, e.g., there has been a massive rezoning that we want to reflect immediately. These can be accommodated in two ways: The Michigan team directly makes the changes internally, or we pass them along to the NZA team to make the updates if needed. In both cases, we’d probably rely on the NZA to handle geospatial updates, if relevant, but their capacity may be limited. In the short term, the Michigan Zoning Atlas team is available to make updates reflecting significant reforms as we are made aware of them; to our knowledge, none has occurred in the study area during the 18 months of project activity.

Comprehensive Updates

The practice that has been launched in other states such as New Hampshire, Rhode Island, and Connecticut is to conduct a comprehensive update process as its own project. In general, this involves:

- Collecting all zoning codes and maps and inspecting for evidence of updates (e.g., change dates),
- Identifying and logging relevant changes to geospatial boundaries and textual amendments that impact our variables, and
- Entering the resulting data into the NZA.

The NZA team suggests this is only needed once in every 1–3 years. In Michigan, it would require funding but could be conducted within a region, by the statewide team, or directly by the NZA under contract.

Conclusion

The Michigan Zoning Atlas West Michigan Pilot successfully illustrates which forms of housing development are allowed by zoning codes in each community and across the region as a whole. Analysis shows that while single-family homes are nearly universally permitted by right, opportunities for attached development are limited to a very small fraction of land within the study area. When this information is coupled with housing needs data produced by the Michigan State Housing and Development Authority as well as independent county-level assessments, it is clear that the identified need for housing that is accessible and attainable to residents in the study area cannot be met within the existing regulatory framework. This should serve as a strong incentive for regulatory reforms at the local, regional, and statewide levels.

The pilot project also established a methodology, example, and infrastructure to continue developing a statewide Michigan Zoning Atlas. The pilot has allowed the team to identify northwest Michigan as a successor region, and the findings have been compelling to potential funders. It has also allowed for the development of a proposal template that will be used to solicit further participation, and it has demonstrated the practicality of approaching this participation on the county scale.

Appendix

We developed these guidelines to complement the instructions provided in our primary methodological reference: Bronin, Sara C. and Ilyankou, Ilya, How to Make a Zoning Atlas: A Methodology for Translating and Standardizing District-Specific Regulations (Rev. October 2022). Available at SSRN: <https://ssrn.com/abstract=3996609>

Further expansions of the Michigan Zoning Atlas should follow the most recent national methodology, available at <https://www.zoningatlas.org/how>

Methodology Amendments

- **Values**
 - Each cell should store an atomic value (a single number).
 - Where the Zoning Atlas PDF suggests to write a number but then advises “sometimes contextual,” don’t do it; just use the number; Where the Zoning Atlas PDF suggests using “contextual” or “it varies,” use dashes.
- **Types of Zoning Districts**
 - IV.A.1 (Type of Zoning District)
 - We added “Agriculture with residential.”
- **Abbreviated District Name**
 - We removed any special characters or spaces (e.g., R1 rather than R-1; OSP rather than OS P).
- **Setbacks**
 - If there is both a total for both sides and a minimum for one side, use half the total for both.
- **Septic vs. Sewer (Non-septic) Standards**
 - Where there is a distinction between standards for septic and non-septic, use the standard for septic (not-sewer).
- **Sewer Connections**
 - If a sewer connection is required for 2-family or 1-family, record the variables as usual and this fact is not recorded in any variable.
 - If a sewer connection is required for 3-family or 4+ housing, code it using one of the two provided columns for these data.
- **Unit Sizes and Basements**
 - IV.D.3 (1-Family Min. Unit Size [SF])
 - Cell BW, when there are different minimum square footages based on unit size, use 1BR.
 - If code differentiates sizes based on whether a structure has a basement, use the larger size (more restrictive).
- **3-family Housing**
 - If it is not specified in the ordinance, then code as “Not Mentioned” and do not provide details.
 - However, it is often included with “multifamily,” so if that is the case these columns will take the same values as 4+.
- **Types of Planned Residential Development**
 - PUD, mobile home parks, cluster subdivision, etc.
 - Code every district—either not mentioned or other options.
 - Where PUDs indicate setbacks but only for the scale of an entire development (i.e., “50’ from property boundary of development”), do not code this in the 1- /2- /3- /4-family setback columns.
- **Mobile Home Parks**
 - If PRD is not mentioned, mobile home park field is blank.
 - If mobile home parks are allowed, CX is “yes” and CW (PRD treatment) is either allowed or public hearing.
 - If PRD is prohibited, mobile home park is either “yes” or “no” depending on whether mobile homes are specifically mentioned.
- **Elderly Housing**
 - Pay special attention that nursing homes, assisted living facilities, etc., don’t count as

residential uses/housing. A full list is on page 29 of the pdf).

- In the odd case of the only residential structure allowed being elderly housing (e.g., independent senior living), the district should be marked as “Mixed with Residential” and the “Elderly Housing District” column marked as “yes.” See the guidebook for more details of this rare instance.
- **Residential OVER commercial**
 - Sometimes residential is allowed as an accessory use above a business (e.g., in a commercial district used for a traditional downtown). If only one residential unit is allowed with commercial, then, per guidebook, mark it as “nonresidential” and fill out the ADU section (page 26 of pdf). If more than one residential unit is allowed (e.g., residential is allowed, just not on the first floor), it should be marked as “Mixed with Residential” (see page 35 for more details).
- **ADUs**
 - Mark prohibited if not mentioned, but be clear that they are not allowed.