Kalkaska County

Growth & Investment Area Study

And Commercial Corridor Inventory

FRAMEWORK FOR OUR FUTURE

A REGIONAL PROSPERITY PLAN FOR NORTHWEST LOWER MICHIGAN

2014 Edition

Release Date: 10/22/2014

Networks Northwest

Talent / Business / Community

Acknowledgements

Networks Northwest would like to thank all of the people who gave their time and resources towards the development of the Growth & Investment Area Study and Commercial Corridor Inventory project.

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With funding from:

Financial assistance for this project was provided, in part, by the State of Michigan's Regional Prosperity Initiative.

PURE MICHIGAN

The State of Michigan's Regional Prosperity Initiative was enacted to encourage local private, public and non-profit partners to create vibrant regional economies. Included in the Governor's FY 2014 Executive Budget Recommendation, the legislature approved the recommended process and the Regional Prosperity Initiative was signed into law as a part of the FY 2014 budget (PA 59 2013).

2014

Table of Contents

Introduction i
- Map of Growth & Investment Areas in Northwest Michigan ii

Growth &Investment Areas
- Elements of Identification iii
- Commercial Corridor Inventory Interviews iii
- Focus for Growth & Investment Study iv

Growth & Investment Readiness Assessments
- Original Selection Criteria v
- Census Data Criteria v
- Zoning Policy Criteria vi
- Placemaking Criteria vi
- Opportunity Criteria vii
- Infrastructure Criteria vii

Map Legends
- Growth & Investment Area Maps Legend ix
- Commercial Corridor Maps Legend x

Growth & Investment Area & Commercial Corridor Datasheets
- Kalkaska 1
  - 50 Kalkaska US131 & CBD 9
  - 51 Kalkaska M72 Corridor 11

Methodology
- Growth & Investment Area Study
  - Summary Info 13
  - Population & Housing Trends 19
  - Commercial Corridors 19
  - Housing Data 20
  - Personal Income 21
  - Policy 21
  - Zoning 21
  - Infrastructure 22
  - Placemaking Elements 22
  - Talent Jobshed 23
  - Retail Activity 25
- Commercial Corridor Datasheets
  - Summary Info 26
  - Corridor Overview 27
  - Corridor Segment and Surrounding 1/4 Mile Study Area Map 28
  - Economic Development 28
  - Study Area Summary for 1/4 Mile Area Surrounding the Corridor 28
  - Zoning 29

Table of Contents

Methodology (cont.)
- Infrastructure 29
- Policy 29
- Traffic Counts 29
- Placemaking Elements 30

References 31

Release Notes 33

Introduction

The vitality of our villages and cities and their central business districts and commercial corridors is a critical part of what determines our standard of living in Northwest Michigan. Without economically viable and vibrant commercial areas our ability to earn a living, purchase goods and services, and learn of new opportunities would fail to meet our expectations and needs. Lending support to the self-evident importance of our Northwest Michigan villages' and cities', is a wealth of economic studies that demonstrate the positive impacts that concentrating people and economic activity can have for lifting real wages and elevating our quality of life. To provide the best foundation for our citizens to maximize their individual potentials it is essential that these areas attract growth and investment as the area grows.

The disciplines of planning and economic development imply the ability to analyze a situation and gauge the effectiveness of policy choices. The complexity of our interactions has always been a difficult mountain to climb for discovering which policies lead to successful outcomes. However, we gain better tools to help us sort through the complexities every year. Today's Apple iPad has the computing power of a super computer from 20 years ago. Increasingly we have the ability to make use of large amounts of data to help make better decisions. Not taking advantage of these tools, can potentially lead to the waste of the public and private wealth that Northwest Michigan works so hard to build.

To insure economically healthy and vibrant communities in Northwest Michigan, we need to study how our various communities are preparing themselves to leverage growth and investment forces to assist in achieving their community's goals. The first step is the identification of communities or areas that are preparing for growth and investment. Are they maximizing the benefits, while minimizing the impacts to our predominately rural setting and natural landscapes?

In addition to learning which locally implemented policies are successful, it is useful to measure key components of growth and investment, as identified by experts in the field of community economic development. Understanding where our Northwest Michigan communities fall on the scale of a group of select factors will provide potential goals for communities interested in maximizing their potential outcomes for their citizens. Studying these areas and learning what policies are working and which ones are not, will ultimately help to maintain and improve life in Northwest Michigan.

In order to gauge how our communities are growing, attracting economic activity, and putting in place policies that maximize potentials, Networks Northwest has conducted studies of Growth & Investment Areas (G&I Areas) and their associated Commercial Corridors, with the assistance of the State of Michigan Regional Prosperity Initiative (RPI) and the Partnership for Sustainable Communities, a cooperative program of the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), and the U.S. Environmental Protection Agency (EPA). This companion document to the Regional Prosperity Plan collected data from a variety of public and commercial providers, as well as conducted interviews of public officials, which were synthesized into this report.

Map of Growth & Investment Areas in NW Michigan

Growth &Investment Areas

Elements of Identification

A community asset inventory survey was conducted in 2010 by the Northwest Michigan Council of Governments in conjunction with the Growth & Investment Network, which was initially formed during the community engagement portion of The Grand Vision. The survey collected responses from cities, incorporated and unincorporated villages, townships, and planned growth areas in Antrim, Benzie, Charlevoix, Emmet, Grand Traverse, Kalkaska, Leelanau, Manistee, Missaukee, and Wexford counties. The results of the survey were used to develop criteria for selecting areas from the region that were best positioned to accommodate future growth patterns anticipated for northern Michigan over the next 25 years. Initially, five criteria were chosen to select areas for additional analysis regarding their Growth & Investment readiness, trends, and capabilities. The five criteria are:

1. Operational Municipal Water System
2. Operational Municipal Sewer System
3. Approved Master Plan that recommends a defined higher density downtown core for development & investment
4. A Zoning Ordinance in place that codifies higher density development in the downtown core
5. Available Governmental Staff to process requests and permits

The community asset inventory was updated in 2012 with respect to these five criteria and then used to select the initial Growth & Investment areas for additional study. This resulted in 31 areas being selected. In those 31 initially identified Growth & Investment Areas, there are 42 individual units of government comprising the core commercial development areas. These 42 units of government were contacted by the Networks Northwest and asked to assist this study by providing time with staff or elected officials to conduct the Commercial Corridor Inventory Interviews.

Commercial Corridor Inventory Interviews

As a central component of this project, units of government in the initial selection of G&I Areas were interviewed to collect their responses to questions regarding master planning, land use, capital improvement, transportation, infrastructure, and community marketing policies. The communities were asked to select their best qualified personal and/or elected official(s) to participate. Additionally, these interviews asked the local units of government to self-identify their commercial corridors of significance. The interviews were conducted from December 2012 to March 2014.

The interviews were conducted using a checklist tool called the *Commercial Corridor Inventory*. This inventory was designed to be objective and focused on current attributes, not future plans. Most of the Inventory's questions required a simple "Yes/No" answer; however they also contained an "Additional Comments" space to expand upon the answers or in many cases indicate policy areas that are currently in the development stage. Many of the policy questions relate to a sampling of best practices from the Michigan Economic Development Corporation's (MEDC) Redevelopment Ready Communities (RRC) program.

The commercial corridors were identified by the units of government based on their own criteria for significance to their community after receiving a brief introduction to the goals for the study. The corridor identification information from the interview was then entered in a Geographic Information System and place database for the mapping and analysis contained in this report.

Focus for Growth & Investment Study

The wealth of economic studies that demonstrate the positive impacts that concentrating people and economic activity can have for lifting real wages and elevating our quality of life was used as a guide in the development of the analysis components for Northwest Michigan Growth & Investment Area Studies and Commercial Corridor Inventories. This study is not intended as a one size fits all yard stick for Northwest Michigan communities to measure their status with respect to growth and investment. Some communities may choose to focus on areas that can assist in maintaining the viability of their community's existing business establishments and others may choose to focus their attention on areas that can grow their local economies and population. One of the study's components that contains a mix of evaluation tools is a Growth Readiness Assessment. The mix of included criteria contain some that apply to all communities regardless of size and some that are designed primarily for larger communities. Communities should evaluate which study criteria are of value in gauging progress on the individual growth and investment goals they have set for their communities.

Growth & Investment Readiness Assessments

Original Selection Criteria

Municipal Water & Sewer

Determining the density limit for individual residential septic systems is a complex issue and is based on an understanding of the site specific hydrology and water quality impacts. Michigan is the only state without specific state enabling legislation related to on-site wastewater treatment systems. Regulatory control over conventional septic tank and drain field siting, design, and construction is under the jurisdiction of local health departments. (Michigan Department of Environmental Quality 2004) The commonly accepted housing density standards before Municipal Water or Sewer are required may be summarized as follows: (American Society of Planning Officials 1952)

- *Two families to the acre where both water and sewage systems are lacking.*
- *Four families to the acre where either water or sewer systems are lacking.*
- *Greater density where both facilities are provided.*

As a caveat to these standards, studies have indicated that depending on the site conditions, even one family to the acre may not be sufficient to protect water quality and guard against conditions that could lead to premature failure of Onsite Sewage Disposal Systems.

Thus for the greater density made possible by community water and sewer service together with the greater environmental protections that properly maintained and updated municipal systems can achieve, This study focused on communities that had municipal systems in place or were trending towards implementing them.

Government Staff

In order to process development requests as well as having the capacity to analyze the successes and failures of land use application reviews, this study focused on communities that had sufficient staff resources.

Master Plan Includes Higher Density Center

The previous Community Asset Inventory reviewed community master plans to determine if they contained goals for the establishment of a higher density core or downtown. This was determined as a key predictor of the community's capability to accommodate future growth.

Zoning Ordinance Supporting Master Plan Density Center

As with the master plan high density center criterion, the previous Community Asset Inventory reviewed community zoning ordinances to determine if they codified the master plan goals for the establishment of a higher density core or downtown.

Census Data Criteria

Core Place Population Increasing

One of the effects of Northwest Michigan's vacation market, is declining year round population for some of the communities with high rates of second home ownership. This can lead to year round cash flow challenges for the local retail sector. As a result this study chose to track changes in Core Place population as a potential indicator for the sustainability of retail business activity.

Housing Growth Rate Over 15% (2000-2010 Census)

The criterion of a 15% housing growth rate for the period between the 2000 and 2010 Censuses assists in determining which communities presently are experiencing significant development activity.

Core Place Housing Growth Increasing Faster than Surrounding Area

This criterion is utilized as a measure of how our rural quality is being preserved by minimizing sprawl. It is measured by the percentage change of housing in the Core Place over the Growth & Investment Area as a whole from the 2000 to 2010 decadal Census. Other techniques for measuring of sprawl, such as satellite spectral analysis for changes in impervious surface, could be employed in the future provided sufficient budget availability.

Census Class (Rural, Urban Cluster, Urbanized Area, MSA)

The US Census provides a classification of rural and urban areas that is helpful in determining growth and concentrations of population (*see*: 2010 Census Urban and Rural Classification and Urban Area Criteria, page 13)

Job Density Over 75 Jobs per Acre in Commercial Corridors

A study on density as it relates to the reduction of Single Occupant Vehicle (SOV) trips and transit use found that SOV travel decreases at employment densities of 20 to 50 jobs per acre, and transit use increases dramatically at densities over 75 jobs per acre. (Frank and Pivo 1994) The Growth & Investment study chose to measure Job Densities over 75 jobs per acre to indicate corridors with strong demand for fixed route transit. In addition to transit benefits, workers support nearby retail and food service business. On average, an office worker can support 7 square feet of restaurant space and 23 square feet of retail space. (Gibbs 2012)

50% of Workers Living within 5 miles

The criterion of determining whether 50% or more of the workers are living within a 5 mile commute of jobs located in Growth & Investment Core Places was selected to measure potential positive agglomeration effects for real wage growth as supported by the economic studies cited previously in this report.

Zoning Policy Criteria

Zoned Densities Greater Than 30 Dwellings/Acre in Commercial Corridors

The criterion of 30 dwellings per acre was selected for study based on studies of density thresholds required for high quality walkable communities. This density is also supportive of transit operations.

Zoning Allows Mixed-Use by Right in Commercial Corridors

Walkable communities require a mix of uses to be successful in providing transportation options demanded by market shifts in housing preferences. Requiring a “Special Use” process for mixed use land use applicants can lead to constraints on the supply of mixed use development over the less cumbersome “By Right” zoning and thus hamper the success of establishing vibrant walkable communities.

Zoning Allows Multi-Family Residential by Right in Commercial Corridors

Multi-Family housing is increasingly in demand as the housing market shifts to smaller households looking for walkable communities. This criterion evaluates a communities policy restrictions on the supply of multi-family housing development.

Building Height Limits Greater than 35 feet in Commercial Corridors

Allowing Building Height limits greater than 35 feet gives greater flexibility for both creating density in Core Places and allocating public space to critical placemaking efforts that help build vibrant communities.

No On-Site Parking Requirement in Central Business District

Many traditional Northwest Michigan downtowns development patterns were established before the establishment of auto parking requirements. Many existing historic downtowns can’t meet the typical auto centric parking requirements without utilizing premium downtown real estate for large surface parking. Additionally, trends as outlined in this document are reducing vehicle ownership rates and thus parking requirements. This criterion helps to assess a Growth & Investment Area’s flexibility to accommodate new market trends.

Density Bonuses Offered for Contributions towards Public Policy Goals

The lack of supply of affordable housing has been identified as an issue for Northwest Michigan’s economic competitiveness. This fact together with the need to create vibrant communities while protecting the areas natural resources can be partially addressed with policies such as density bonuses. This study is tracking community incentive policies for addressing these regionally important goals.

Placemaking Criteria

Placemaking Elements in Support of Walkable Corridors

Placemaking elements that support walkable mixed-use corridors were selected as criterion for the assessment. These elements include the presence of theaters and entertainment venues, grocery stores, parks and pocket parks, and the abundance of pedestrian connections. This selection is not intended to diminish the importance of

other placemaking elements supportive of walkable corridors, but the ability to seek entertainment, purchase food, and recreate within a pedestrian friendly environment where considered important factors to measure.

Retail Hub

This criterion evaluates whether a communities retail sector acts as a local or regional hub. (*see*: Retail Classification: page 16)

Educational Institutions (Trade Schools, Community Colleges, Universities)

In studying the performance of economic clusters, educational institutions play an important role in concentrating entrepreneurial activity and fostering growth and investment.

Contain Medical Centers

With the high concentration of senior demographics in Northwest Michigan's population, this study gave significance to medical infrastructure as a predictor/indicator of growth.

Walkable Density CBD or Commercial Corridors (20-30 Dwellings per Acre)

While the Zoning Policy Criteria is looking at zoning densities sufficient to create viable walkable communities, this criterion tracks actual densities as determined by the 2010 Census.

Opportunity Criteria

Community Identified Development Opportunities

The presence of community identified development opportunities demonstrates that the community is proactive about development and has devoted resources towards potential future growth and investment.

Marketing Redevelopment & Infill Sites

Potential development sites are abundant, especially in the current post-recession economic recovery period. The existence of a marketing effort by communities of redevelopment and infill sites can lead to a greater probability of attracting development activity.

Fixed Route Transit (Headways 15 mins or less)

According to The Transit Cooperative Research Program headways of 15 minutes or less is an acceptable threshold for employment commuting transit use, with 10 minutes or less being ideal.

Commercial Corridors with High Traffic Count AADT (Over 10k, Over 25k)

Traffic Counts are a determinate of the retail site viability. Average Annual Daily Counts of 10,000 can augment a neighborhood or village store's business, making it sustainable for market areas with less than the required 800 to 1,000 households that are need to support them. Larger retailer site selection criteria typically require traffic counts from 20,000 to 40,000 depending on the specifics of the capture rate.

Infrastructure Criteria

Additional Water & Sewer Capacity

Municipal water and sewer expansions take a significant time to permit and build. If the municipal water and sewer capabilities are at their limits, businesses looking to expand or relocate to a new facility may not be in a position to wait for the completion of an expansion project. It is important that communities plan for sufficient capacity reserve to accommodate new service and provide for time to properly plan additional expansions.

Broadband Service over 1 Gbps Available

The next-generation of broadband service is providing speeds over 1 Gigabit per Second (Gbps) These speeds rely on fiber optic wires that run all the way to the premises referred to Fiber To The Home (FTTH) or Fiber To The Premises (FTTP). FTTH Consumers consistently rate it as the fastest and most reliable broadband technology. They also appreciate that fiber networks can deliver many unique broadband services for medicine, education, home-based businesses, home automation and entertainment. "There's growing evidence among economic development officials that fiber connectivity encourages businesses to stay, helps businesses grow and become more productive, and attracts new businesses, particularly in high-tech industries." (Broadband Communities 2013) In the United States, one of every five households is within reach of fiber, and nearly 10 million households are using FTTH services now.

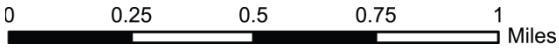
Municipal WiFi

Wireless services are important public amenities, especially for younger population demographics, and are highly desirable in targeted areas such as pedestrian friendly commercial corridors and public areas. The existence of Municipal WiFi is an indicator of support for new infrastructure development important for growth and investment.

Growth & Investment Area Maps Legend

North Directional

Mileage Scale



Corridor Identification

8 Commercial Corridor Identification Number Graphic

Community Defined Commercial Corridors

Map Area Key

Land

Bordering County

Bodies of Water

Municipal Boundary

Urban Cluster (as defined by the 2010 Census)

Municipal/Urban Cluster Overlap Area

Census Designated Place (CDP)

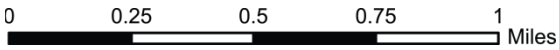
Commercial Corridor Maps Legend

Points of Interest

- Public Use Airport
- College
- Cultural Site
- Grocery Store
- Hospital
- Library
- School
- Theater/Entertainment Venue
- Transit

North Directional

Mileage Scale



Study Area Outline

The Study Area is delineated by the area within .25 miles of the community defined commercial corridor (red line) and is shaded in a transparent red. Area calculations are derived from the land area only. For the purposes of pulling Census information, any 2010 Census block that is fully or partially contained with the study area was utilized in the data summaries.

Map Area Key

- Land
- Bodies of Water
- Municipal Boundary
- Urban Cluster (as defined by the 2010 Census)

Growth & Investment Area Unit(s) of Government:

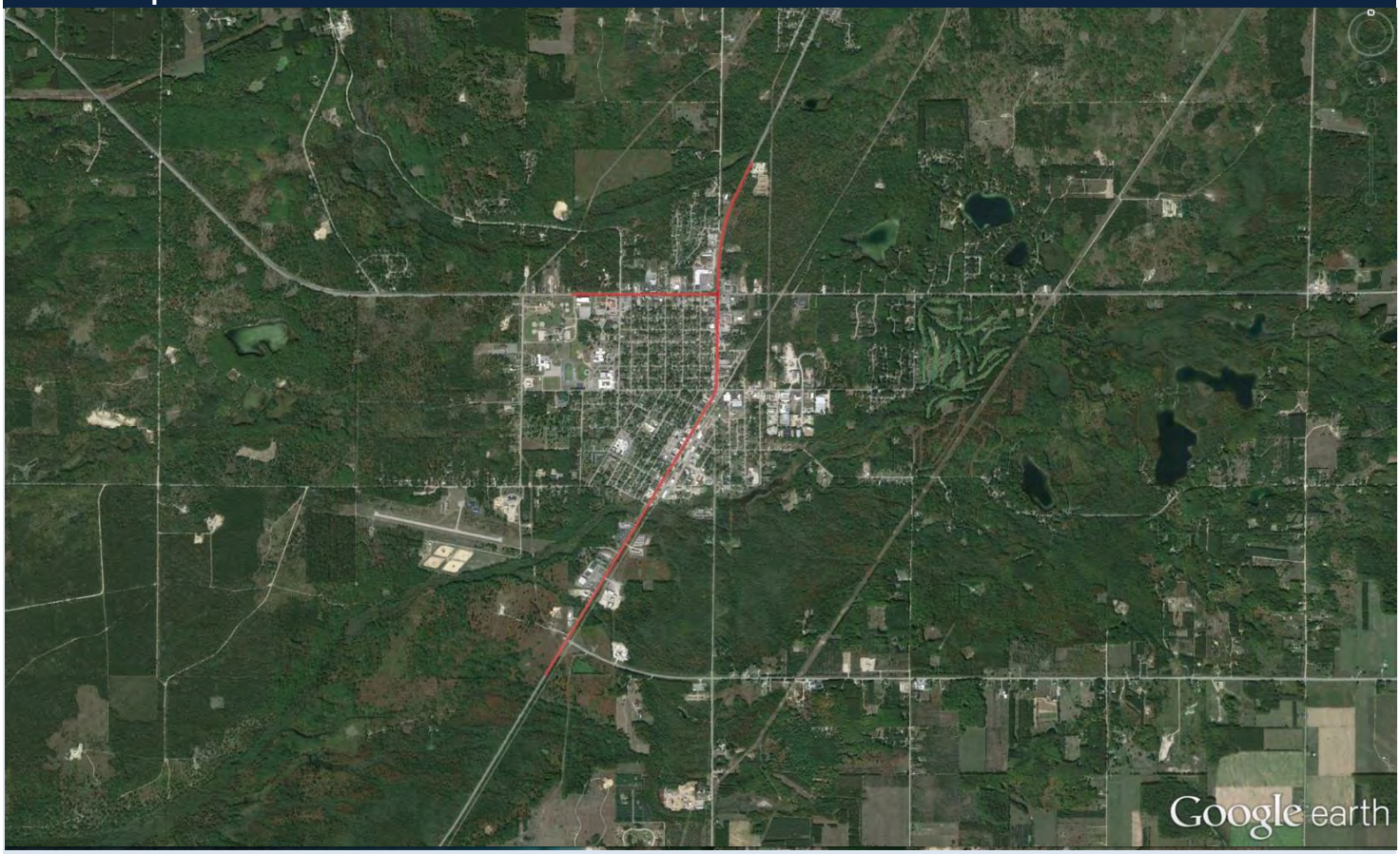
Village of Kalkaska, Kalkaska Township

Core Place Census Areas:

Village of Kalkaska

County	Census Class	Land Area	
Kalkaska	*Urban Cluster*	**G&I Area**	70.44 sq. miles
		Core Place	3.12 sq. miles

Aerial Map with Commercial Corridors



2 Commercial Corridors Identified

Highest Corridor Traffic Count (Annual Average Daily Traffic)	12,398	*2013 Data Year*
Population Density Range of G&I Area Corridors (per acre)	0.7 - 1.1	*Density calculations a derived from the area within a 1/4 mile of Corridor (Corridor Study Area)*
Gross Neighborhood Density Range of G&I Area Corridors (per acre)	1.5 - 2.5	
Job Density Range of G&I Area Corridors (per acre)	0.7 - 1.1	
Worker Density Range of G&I Area Corridors (per acre)	0.5 - 0.6	

Retail

Total Sales	$59,939,845	**Classification:**	Local Retail Hub
Potential Sales	$42,682,999		
Leakage	($17,256,846)	**Seasonal Housing:**	12.1% of G&I Area Housing

Sprawl

Percentage of Housing in the Core Place is Declining by -1.3%

Population

2000-2010: *Declining at -2.2% with the Core Place Declining at -9.3%*

Average Age: *38.9 [+6.6% change from 2000 Census]*

Demographic Shifts: *All target demographic groups declined; Millennial Generation had the largest % loss (down -17.6%)*

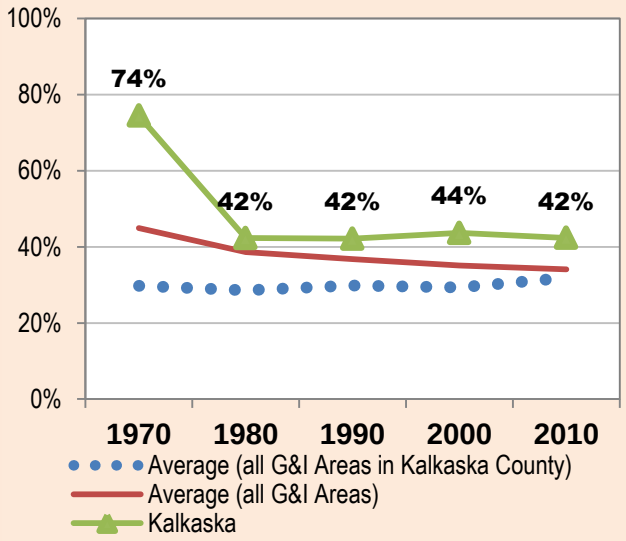
Jobshed

Worker Importer – Number of Jobs exceeds Resident Worker population by 82%

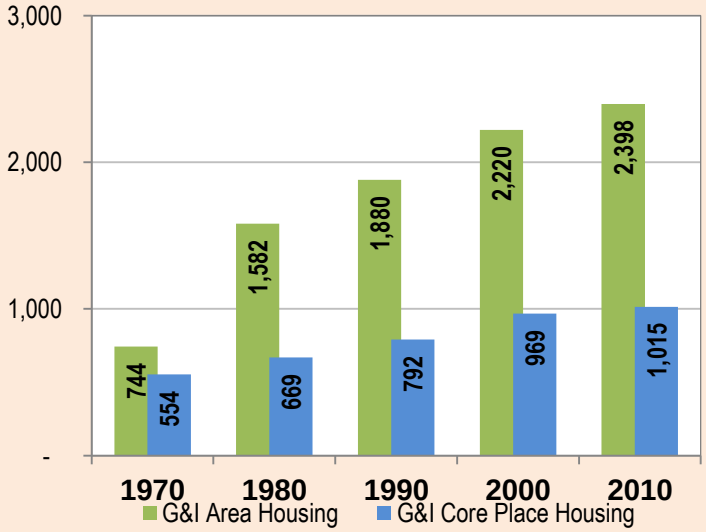
Population & Housing Trends

Census Data	Core Place Village of Kalkaska	G&I Area Village of Kalkaska, Kalkaska Township
Total Population (2010)	**2,020**	**4,722**
Percentage Change from 2000	**-9.3%**	**-2.2%**
People per Acre	1.01	0.10
People per Square Mile	647	67
Average Age [% Change from 2000]	**39.3 [+4.0%]**	**38.9 [+6.6%]**
Total Housing (2010)	**1,015**	**2,398**
Percentage Change from 2000	**4.7%**	**8.0%**
Gross Neighborhood Density (per acre)	0.51	0.05
Total Households (2010)	**871**	**1,891**
Percentage of Households without Children (under 18)	65%	64%
Study Area Size (Land Cover)		
Acres	1,996.80	45,081.60
Square Miles	3.12	70.44

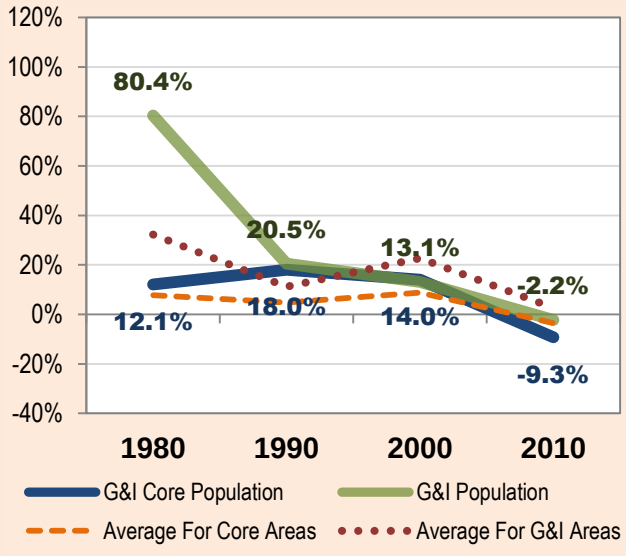
Housing in Core Place as a Percentage of Total Growth & Investment Area



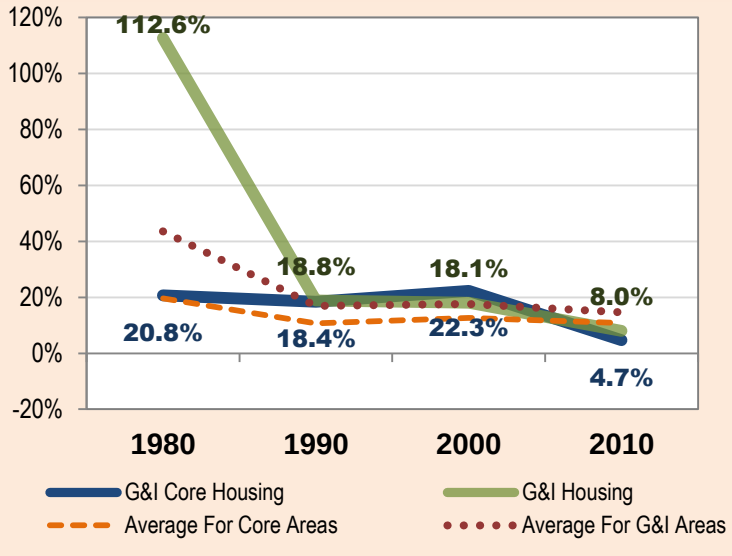
Housing Units in G&I Area and Core Place



Percentage Change in Population in G&I Area and Core Place



Percentage Change in Housing Units in G&I Area and Core Place



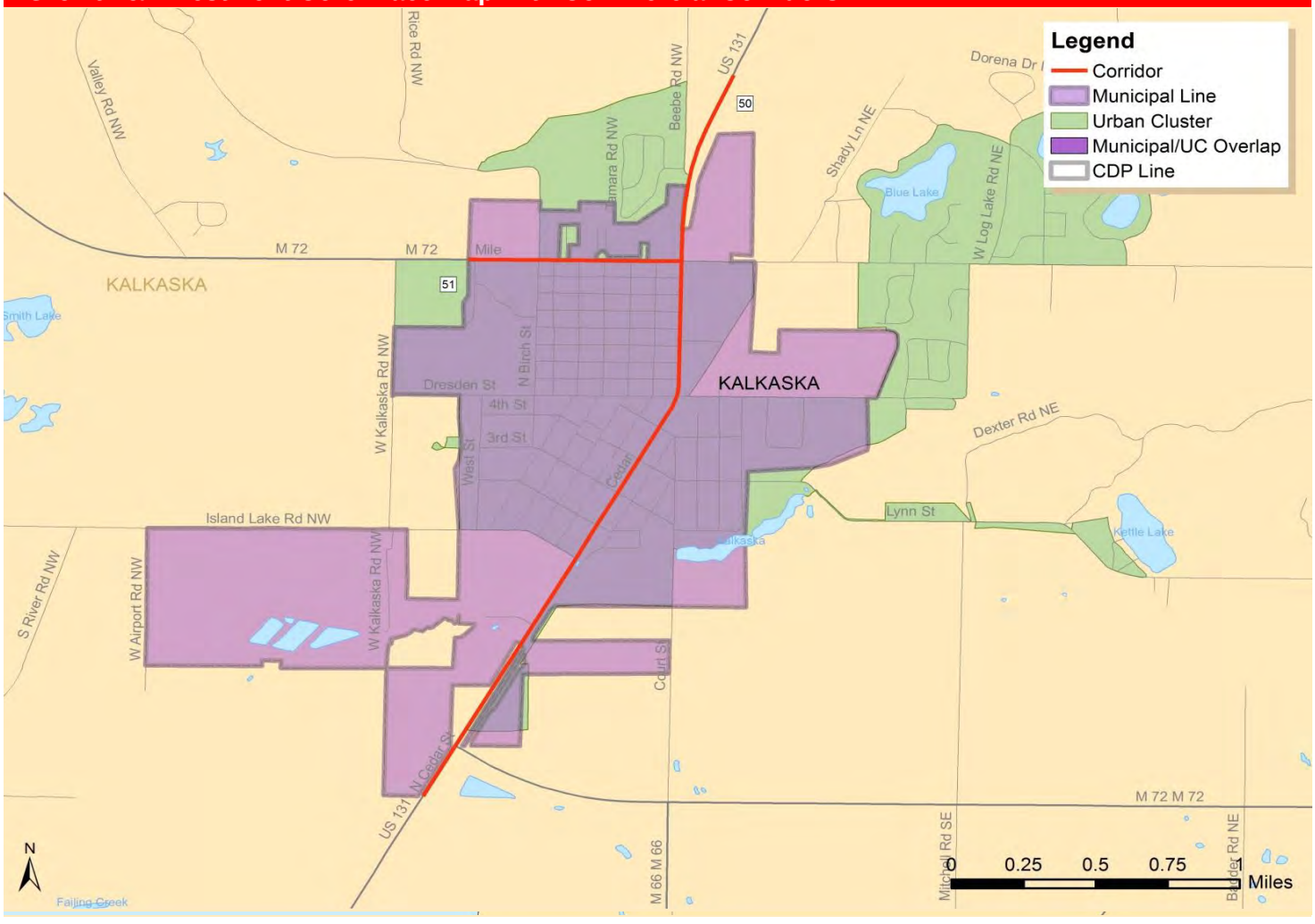
Growth & Investment Readiness Assessment

			Criteria Status
Initial Selection Criteria	1	Municipal Water	Yes
	2	Municipal Sewer	Yes
	3	Government Staff	Yes
	4	Master Plan Includes Higher Density Center	Yes
	5	Zoning Ordinance Supporting Master Plan Density Center	Yes
Census Data	6	Core Place Population Increasing	No
	7	Housing Growth Rate Over 15% (2000-2010 Census)	No
	8	Core Place Housing Growth Increasing Faster than Surrounding Area	No
	9	Census Class (Rural, Urban Cluster, Urbanized Area, MSA)	Urban Cluster
	10	Job Density Over 75 Jobs Per Acre in Commercial Corridors	No
	11	50% of Workers Living within 5 miles	No
Zoning Policy	12	Zoned Densities Greater Than 30 Dwellings/Acre in Commercial Corridors	No
	13	Zoning Allows Mixed-Use by Right in Commercial Corridors	Yes
	14	Zoning Allows Multi-Family Residential by Right in Commercial Corridors	Yes
	15	Building Height Limits Greater than 35 feet in Commercial Corridors	Yes
	16	No On Site Parking Requirement in Central Business District	No
	17	Density Bonuses Offered for Contributions Towards Public Policy Goals	No
Placemaking	18	4 Key Placemaking Elements in Corridors	No
	19	Retail Hub	Yes - Local
	20	Educational Institutions (Trade Schools, Community Colleges, Universities)	No
	21	Contain Medical Centers	Yes
	23	Walkable Density CBD or Commercial Corridors (20-30 Dwellings per Acre)	No
Opportunity	24	Community Identified Development Opportunities	Yes
	25	Marketing Redevelopment & Infill Sites	No
	22	Fixed Route Transit (Headways 15 mins or less)	No
	30	Commercial Corridors with High Traffic Count AADT (Over 10k, Over 25k)	Yes > 10,000
Infrastructure	26	Additional Water Capacity	Yes
	27	Additional Sewer Capacity	Yes
	28	Broadband Service over 1 Gbps Available	No
	29	Municipal WiFi	Yes

Commercial Corridors

ID	Name	Corridor Length (feet)	Population Density (People per acre)	Housing Density (Dwellings per acre)	Job Density (Jobs per acre)	Worker Density (Workers per acre)
50	*Kalkaska US131 & CBD*	*15,590*	*1.5*	*0.7*	*0.7*	*0.5*
51	*Kalkaska M72 Corridor*	*3,929*	*2.5*	*1.1*	*1.1*	*0.6*

Growth & Investment Core Place Map with Commercial Corridors



Housing Data

Census-ACS Data	Core Place: Village of Kalkaska	G&I Area: Village of Kalkaska, Kalkaska Township
Housing Efficiency Rating (Average HERS)	**275**	**251**
Efficiency compared to 2012 DOE Challenge Home (30 HERS)	245% Less Efficient	221% Less Efficient
Percentage Built by Year		
Before 1940	19%	13%
1940-1949	7%	3%
1950-1959	11%	8%
1960-1969	10%	9%
1970-1979	15%	19%
1980-1989	13%	16%
1990-1999	17%	22%
2000-2009	7%	10%
Later than 2010	0%	0%
Average Age	**1965**	**1972**
Median Value	**$81,300**	**$95,600**
Village of Kalkaska $81,300		
Kalkaska Township $95,600		
Home Heating Fuel		
Percent of Homes Natural Gas	71%	51%
Percent of Homes Using Propane	**8%**	**28%**
Percent of Homes Using Wood	1%	5%
Percent of Homes Using Solar Energy	0%	0%

Personal Income

Census-ACS Data (2008-2012 5 Year Summary File)

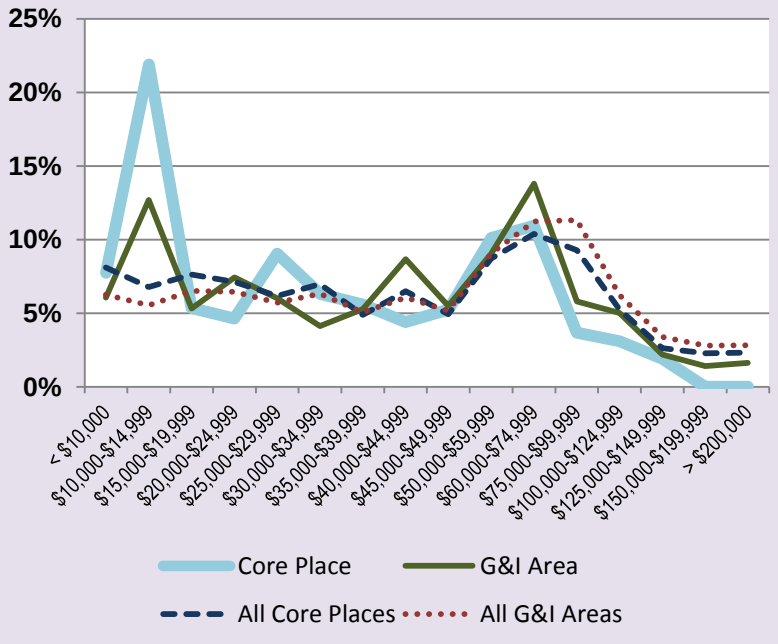
Median Household Income (2012 Dollars)

Core Place	**$30,764**
Village of Kalkaska	$30,764
G&I Area	**$41,976**
Village of Kalkaska	$30,764
Kalkaska Township	$41,976

Per Capita Annual Income (2012 Dollars)

Core Place	**$16,619**
G&I Area	**$19,923**

Household Income Distribution



Policy

Data Source: Commercial Corridor Inventory Interview	Core Place Units of Government Interviewed: Village of Kalkaska			
Year of Master Plan Approval	**2011**			
Master Plan Update	NA			
Community Economic Strategy	**Yes**			
Economic Strategy Coordinates with Regional Strategy	Yes			
Growth & Investment Strategy	**Yes**			
Identify Areas of Focus for Growth & Investment Strategy	Yes			
Active G&I Strategy Development Discussions	NA			
Planning Zoning Benchmarks	Yes			
Development Opportunities on Corridor	**Yes**			
Redevelopment Priorities Identified	Yes			
Redevelopment Resources Identified	Yes			
Market Potential Development Sites	No			
Guides and Resources				
Publish Development Guide	No			
Zoning Orientation Package Provided to Staff & Committees	Yes			
Zoning Training Funding	Yes			
Community Marketing Strategy	**Yes**			
Area Plans				
Downtown Plan	*Yes*			
Downtown Development Authority	DDA Established 1989			
Corridor Improvement Plan	*No*			
Corridor Improvement Authority				

Zoning

Zoning Authority with Identified Commercial Corridors	Districts in Identified Commercial Corridors	Max Dwelling Density for Districts in Corridors	% of Districts in Corridors where Mixed Use is allowed by Right	% of Districts in Corridors where Multi-Family Use is allowed by Right	Max Building Height Allowed in Corridors
Village of Kalkaska	R-1 | R-4 | C | I	29	25%	50%	60 ft

Infrastructure

Data Source: Commercial Corridor Inventory Interviews	Units of Government Interviewed: Village of Kalkaska
Municipal Water Service	**Yes**
Additional Capacity	*Yes*
Water Reliability Study	*Yes*
Wellhead Protection Plan	*Yes*
Municipal Sewer Service	**Yes**
Additional Capacity	*Yes*
Waste Water Master Plan	*Yes*
Broadband	**Available In Core Place**
Available Technologies	
Fiber (non FTTH)	*Yes*
Cable	*Yes*
DSL	*Yes*
4G Wireless	*Yes*
Municipal WiFi	*Yes*
Fixed Wireless Broadband	*Yes*
Available Speeds	
Ultra - Greater that 1 Gigabit Per Second (Gbps)	*No*
High - 100 Mbps to less than 1 Gbps	*Yes*
Energy	**Available In Core Place**
Natural Gas	*Yes*
Underground Electric Service	*No*
Renewable Energy Generation	*No*

Commercial Corridor Placemaking Elements

ID	Name	Placemaking Elements Supporting Walkability: Theaters & Entertainment Venues	Grocery Stores	Parks & Pocket Parks	Pedestrian Connections	Job / Population Ratio
50	*Kalkaska US131 & CBD*	*No*	*Yes*	*Yes*	*Yes*	*0.450*
51	*Kalkaska M72 Corridor*	*No*	*Yes*	*Yes*	*Yes*	*0.442*

Talent Jobshed

Census Data	Core Place Village of Kalkaska	G&I Area Village of Kalkaska, Kalkaska Township
Workers Living within Study Area	**642**	**1,424**
Worker Density (per acre)	0.32	0.03
Worker's Earnings		
% with earnings $1250/month or less	31%	33%
% with earnings $1251/month to $3333/month	45%	44%
% with earnings greater than $3333/month	25%	24%
Jobs Located in Area	**1,032**	**2,587**
Job Density (per acre)	0.52	0.06

Commute Data for Workers Employed in Core Place

Commuting data for workers residing from 2 - 175 miles from G&I Area

Commuting Workers	**838**	**15% Commuting 5 Miles or Less**
Total Daily One Way Commute for all Commuters		
Route Distance (Miles)	28,022	
Commute Time (Minutes)	32,132	
Total Annual Commute for all Commuters		
Distance (Miles)	14,711,779	
Time (Hours)	**281,156**	
Annual Commuting Costs		
Total Fuel Cost	2,238,749	
Total Cost (IRS 2014 Standard Mileage Rate)	**$8,238,596**	

Average Per Worker Commute	**Daily (2-Way)**	**Annual**
Distance (Miles)	67	17,556
Time (Hours)	1.3	336
Cost (IRS Standard Mileage Rate)	**$37**	**$9,831**

Retail Activity

	Core Place Activity	G&I Area Activity	County Activity
Total Retail Sales	$47,544,610	**$59,939,845**	$93,120,214
Total Potential Retail Sales	$19,461,944	**$42,682,999**	$155,596,421
Leakage	($28,082,666)	**($17,256,846)**	$62,476,207

Classification: ***Local Retail Hub***

Kalkaska area businesses are capturing sales from the residents of Kalkaska as well as the surrounding area.

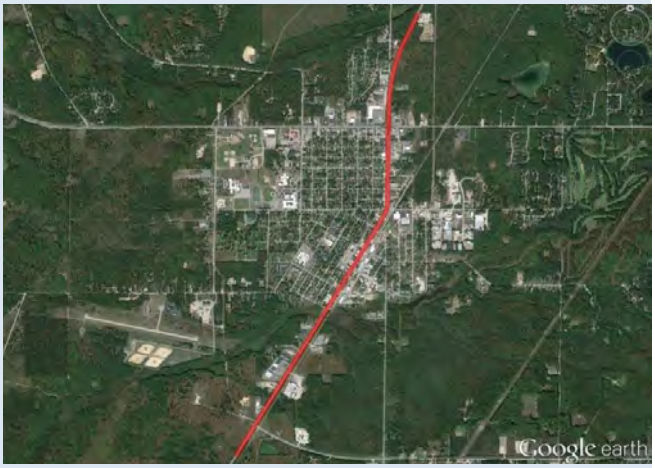
Sales by Retail Store Type	**Core Place Sales**	**Potential G&I Area Sales**	**Core Place Sales / Potential G&I Sales**
Food & Beverage Stores	$15,787,994	**$5,339,508**	296%
Health/Personal Care Stores	$427,922	**$3,388,594**	13%
Clothing & Accessories Stores	$117,608	**$2,044,151**	6%
Sport/Hobby/Book/Music Stores	$1,146,736	**$1,009,283**	114%
General Merchandise Stores	$935,327	**$8,958,664**	10%
Food & Beverage Establishments	$4,560,085	**$3,870,553**	118%
E-Shopping/Mail-Order	$0	**$2,113,342**	0%

Corridor Street Name(s): Cedar Street (US131) from N Village Limits to S Village Limits

Corridor Classification: Central Business District
Unit(s) of Government: Village of Kalkaska

Length: 2.95 miles
Street Classification: Principal Arterial - Other
2013 Traffic Volume(AADT): 12,398 Source: MDOT
Number of Traffic Lanes: 2-4, Bi-Directional Traffic with Turn/Passing Lanes

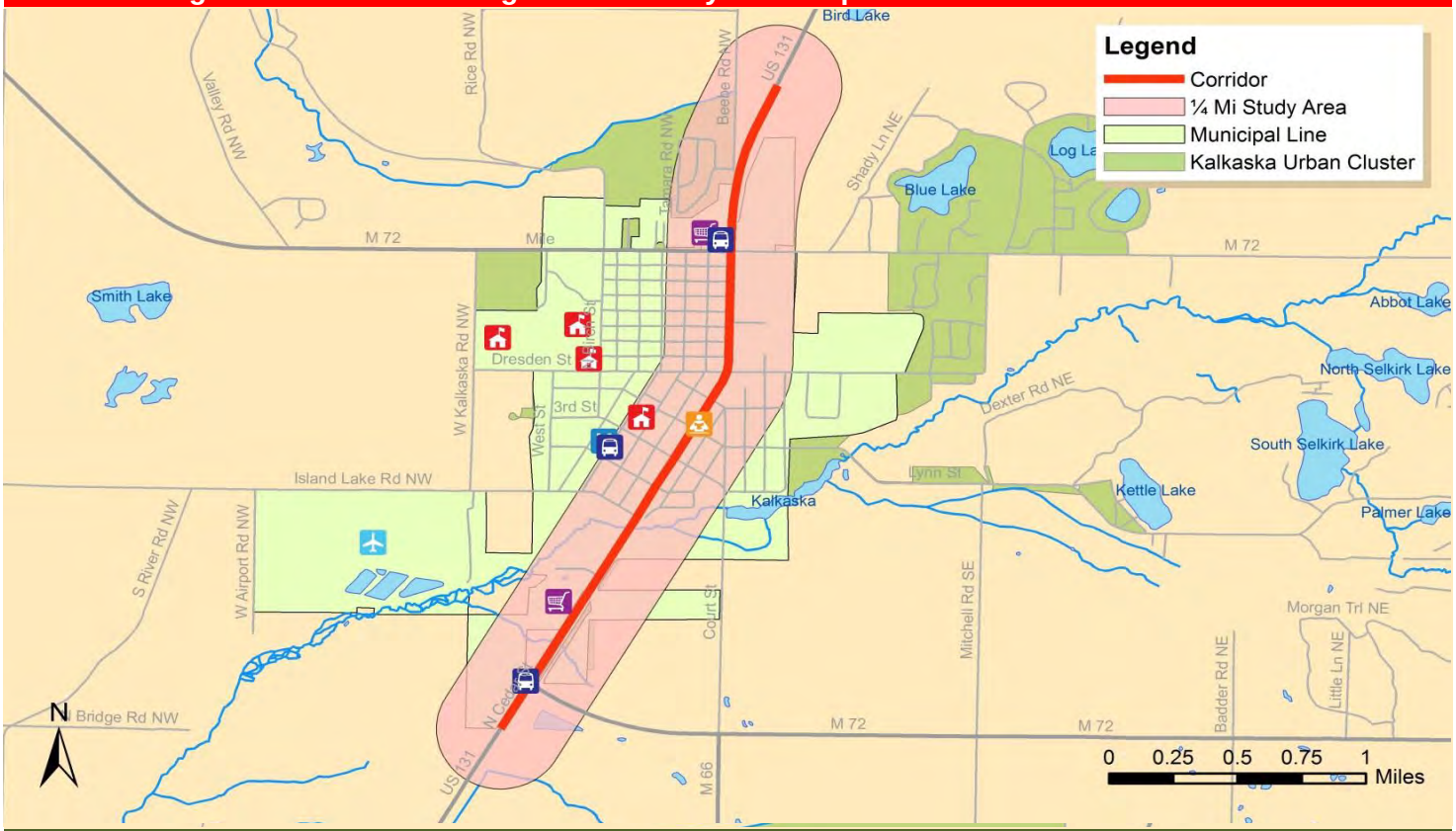
Parking Parallel
Transit Service: Kalkaska Area Transit - Dial-A-Ride
Bike Lane: No
Entertainment Venues: No
Pedestrian Amenities: Sidewalks, Crosswalks, Mid-Block Crosswalks
Walk Score **51**



Corridor Overview

The US-131 Corridor runs in a north-south direction through the Village of Kalkaska, providing direct connections with Boyne City and Petoskey to the north, and Cadillac and Grand Rapids to the south. The highway merges with M-72 and M-66 south of the Village, funneling a large volume of traffic through the Village's downtown. The downtown gives way to strip commercial development at both its northern and southern edges. Commercial establishments along US-131 include a variety of restaurants, offices, light industry, , gas stations, hotels/ motels, and other uses. Intensity is highest near the downtown, with density decreasing as US-131 reaches the Village limits.

Corridor Segment and Surrounding 1/4 Mile Study Area Map



Economic Development

Community policies or activities assisting economic development (Village of Kalkaska)

Growth & Investment Strategy	Yes	**Community Economic Strategy**	Yes
Identify Areas of Focus for G&I	Yes	**Community Marketing Strategy**	Yes
Development Opportunities	Yes	**Market Potential Development Sites**	No
Publish Development Guide	No	**Capital Improvement Plan**	Yes

Study Area Summary for 1/4 Mile Area Surrounding the Corridor

Census Data	Corridor Segment Kalkaska US131 & CBD	G&I Core Place Village of Kalkaska	G&I Area Kalkaska
Total Population (2010)	**1,554**	**2,020**	**4,722**
People per Acre	1.46	1.01	0.10
People per Square Mile	935	647	67
Total Housing (2010)	**741**	**1,015**	**2,398**
Gross Neighborhood Density (per acre)	0.70	0.51	0.05
Study Area Size (Land Cover)			
Acres	1,063.69	1,996.80	45,081.60
Square Miles	1.66	3.12	70.44
Workers Living within Study Area	**545**	**642**	**1,424**
% with earnings $1250/month or less	33%	31%	33%
% with earnings $1251/month to $3333/month	43%	45%	44%
% with earnings greater than $3333/month	24%	25%	24%
Jobs Located within Study Area	**700**	**1,032**	**2,587**
Job Density (per acre)	0.66	0.52	0.06

Zoning

District(s)	% of Districts That Allow Residential Use	% of Districts That Allow Multi-Family by Right	% of Districts That Allow Mixed Use By Right	Max Residential Site Density: Lowest Density District	Max Residential Site Density: Highest Density District	Max Building Height
C | I	50%	50%	50%	17.4	17.4	60 ft

Infrastructure

Public Utilities

Sewer	Yes	*Additional Capacity*
Water	Yes	*Additional Capacity*

Energy Utilities

Underground Electric	No
Renewable Energy Production	No
Natural Gas	Yes

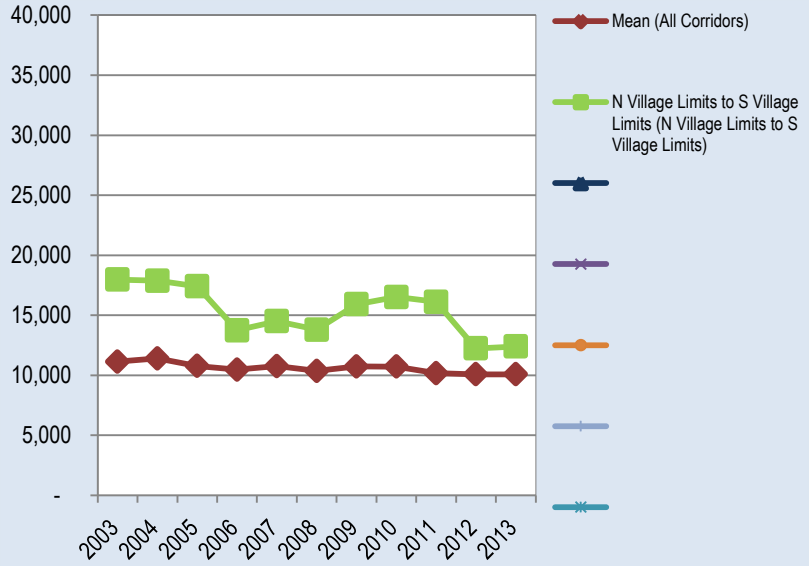
Broadband Yes - 6 Technologies
(Fiber, Cable, DSL, WiFi, 4G, Fixed Wireless)

Policy

Downtown Plan Yes

Corridor Improvement Plan No

Traffic Counts



Placemaking Elements

Theaters/Entertainment Venues	No	**Grocery Stores**	Yes
		Restaurants	Yes
		Sidewalk Cafés	No
		Parks	Yes
Iconic Buildings	No	**Pocket Parks**	Yes
		Public Art Installations	Yes
		Wayfinding	Yes
		Pedestrian Connections	Yes

Corridor Street Name(s): Mile Road (M72) from Fairgrounds Road to US131

Corridor Classification: Commercial
Unit(s) of Government: Village of Kalkaska

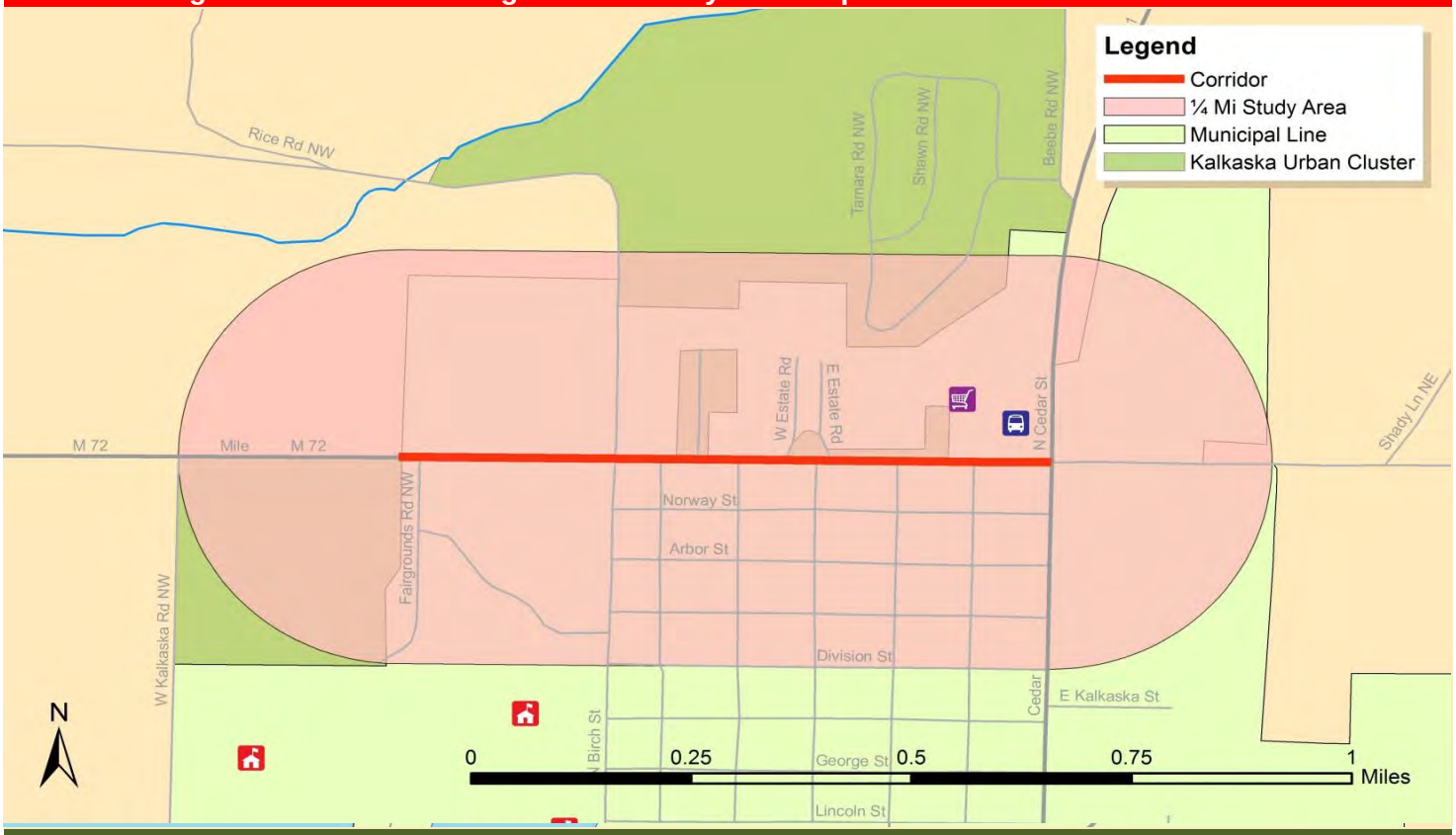
Length: 0.74 miles
Street Classification: Principal Arterial - Other
2013 Traffic Volume(AADT): 11,435 Source: MDOT
Number of Traffic Lanes: 2, Bi-Directional Traffic with Turn/Passing Lanes

Parking No Street Parking
Transit Service: Kalkaska Area Transit - Dial-A-Ride
Bike Lane: Yes
Entertainment Venues: No
Pedestrian Amenities: Crosswalks
Walk Score **43**

Corridor Overview

The Corridor contains M-72, which provides access to Traverse City to the west, and Grayling and Gaylord to the east. M-72 North serves as the western gateway to the Village, with commercial establishments increasing in number near the intersection of US-131. The Cherry Street Market, one of the Village's "destination shopping" establishments, is located in this area of the Village.

Corridor Segment and Surrounding 1/4 Mile Study Area Map



Economic Development

Community policies or activities assisting economic development (Village of Kalkaska)

Growth & Investment Strategy	Yes	**Community Economic Strategy**	Yes
Identify Areas of Focus for G&I	Yes	**Community Marketing Strategy**	Yes
Development Opportunities	Yes	**Market Potential Development Sites**	No
Publish Development Guide	No	**Capital Improvement Plan**	Yes

Study Area Summary for 1/4 Mile Area Surrounding the Corridor

Census Data	Corridor Segment Kalkaska M72 Corridor	G&I Core Place Village of Kalkaska	G&I Area Kalkaska
Total Population (2010)	**899**	**2,020**	**4,722**
People per Acre	2.48	1.01	0.10
People per Square Mile	1,587	647	67
Total Housing (2010)	**397**	**1,015**	**2,398**
Gross Neighborhood Density (per acre)	1.10	0.51	0.05
Study Area Size (Land Cover)			
Acres	362.54	1,996.80	45,081.60
Square Miles	0.57	3.12	70.44
Workers Living within Study Area	**226**	**642**	**1,424**
% with earnings $1250/month or less	28%	31%	33%
% with earnings $1251/month to $3333/month	45%	45%	44%
% with earnings greater than $3333/month	27%	25%	24%
Jobs Located within Study Area	**397**	**1,032**	**2,587**
Job Density (per acre)	1.10	0.52	0.06

Zoning

District(s)	% of Districts That Allow Residential Use	% of Districts That Allow Multi-Family by Right	% of Districts That Allow Mixed Use By Right	Max Residential Site Density		Max Building Height
				Lowest Density District	Highest Density District	
R-1 | R-4 | C	100%	67%	33%	4.5	17.4	40 ft

Infrastructure

Public Utilities

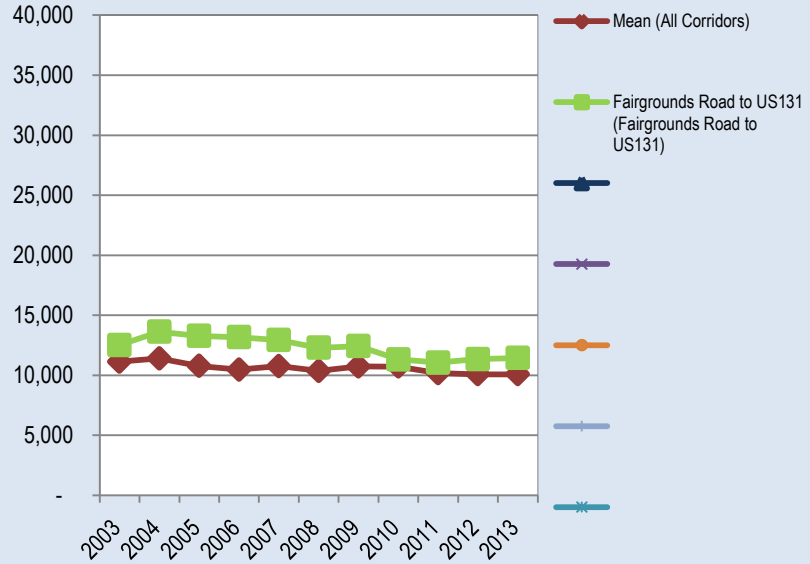
Sewer	Yes	*Additional Capacity*
Water	Yes	*Additional Capacity*

Energy Utilities

Underground Electric	No
Renewable Energy Production	No
Natural Gas	Yes

Broadband Yes - 5 Technologies
(Fiber, Cable, DSL, 4G, Fixed Wireless)

Traffic Counts



Policy

Downtown Plan	Yes
Corridor Improvement Plan	No

Placemaking Elements

Theaters/Entertainment Venues	No	**Grocery Stores**	Yes
		Restaurants	Yes
		Sidewalk Cafés	Yes
		Parks	Yes
Iconic Buildings	Yes	**Pocket Parks**	No
Kaliseum		**Public Art Installations**	No
		Wayfinding	Yes
		Pedestrian Connections	Yes

Growth & Investment Area Study

Census Class Definitions

2010 Census Urban and Rural Classification and Urban Area Criteria

The Census Bureau's urban-rural classification is fundamentally a delineation of geographical areas, identifying both individual urban areas and the rural areas of the nation. The Census Bureau's urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses.

For the 2010 Census, an urban area will comprise a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. To qualify as an urban area, the territory identified according to criteria must encompass at least 2,500 people, at least 1,500 of which reside outside institutional group quarters. The Census Bureau identifies two types of urban areas:

Urbanized Areas (UAs) of 50,000 or more people;

Urban Clusters (UCs) of at least 2,500 and less than 50,000 people.

"Rural" encompasses all population, housing, and territory not included within an urban area.

Source: https://www.census.gov/geo/reference/ua/urban-rural-2010.html

About Metropolitan and Micropolitan Statistical Areas

The United States Office of Management and Budget (OMB) delineates metropolitan and micropolitan statistical areas according to published standards that are applied to Census Bureau data. The general concept of a metropolitan or micropolitan statistical area is that of a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core. Currently delineated metropolitan and micropolitan statistical areas are based on application of 2010 standards [PDF] (which appeared in the Federal Register on June 2010) to 2010 Census and 2006-2010 American Community Survey data. Current metropolitan and micropolitan statistical area delineations were announced by OMB effective February 2013.

Standard delineations of metropolitan areas were first issued in 1949 by the then Bureau of the Budget (predecessor of OMB), under the designation "standard metropolitan area" (SMA). The term was changed to "standard metropolitan statistical area" (SMSA) in 1959, and to "metropolitan statistical area" (MSA) in 1983. The term "metropolitan area" (MA) was adopted in 1990 and referred collectively to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). The term "core based statistical area" (CBSA) became effective in 2000 and refers collectively to metropolitan and micropolitan statistical areas.

OMB has been responsible for the official metropolitan areas since they were first delineated, except for the period 1977 to 1981, when they were the responsibility of the Office of Federal Statistical Policy and Standards, Department of Commerce. The standards for delineating metropolitan areas were modified in 1958, 1971, 1975, 1980, 1990, 2000, and 2010.

Delineating Metropolitan and Micropolitan Statistical Areas

The 2010 standards provide that each CBSA must contain at least one urban area of 10,000 or more population. Each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. Each micropolitan statistical area must have at least one urban cluster of at least 10,000 but less than 50,000 population.

Under the standards, the county (or counties) in which at least 50 percent of the population resides within urban areas of 10,000 or more population, or that contain at least 5,000 people residing within a single urban area of 10,000 or more population, is identified as a "central county" (counties). Additional "outlying counties" are included in the CBSA if they meet specified requirements of commuting to or from the central counties. Counties or equiva-

lent entities form the geographic "building blocks" for metropolitan and micropolitan statistical areas throughout the United States and Puerto Rico.

If specified criteria are met, a metropolitan statistical area containing a single core with a population of 2.5 million or more may be subdivided to form smaller groupings of counties referred to as "metropolitan divisions."

As of February 2013, there are 381 metropolitan statistical areas and 536 micropolitan statistical areas in the United States. In addition, there are 7 metropolitan statistical areas and 5 micropolitan statistical areas in Puerto Rico.

Source: http://www.census.gov/population/metro/about/

Land Area

Data Source

2010 Census TIGER (Topologically Integrated Geographic Encoding and Referencing) File Data for County Subdivisions and Census Places.

Traffic Count Data

AADT Data sources

Traffic count data was sourced from the Michigan Department of Transportation's (MDOT) Traffic Monitoring Information System (TMIS) for state trunklines or from local municipalities if available. All counts utilize the Annual Average Daily Traffic (AADT) counts, which in most cases are an annual average estimate of daily traffic based on an adjustment of a sample conducted for a short period of time (short count). For short-count sites, counts are estimated by factoring a short count using seasonal and day-of-week adjustment factors. For continuous sites, counts are calculated by summing the Annual Average Days of the Week and dividing by seven.

For the purpose of this report, if the identified commercial corridor has more than one AADT count, the largest count was utilized.

Corridor Study Areas

Population Density

Population Density information contain in this report is based on the 2010 US Census and is calculated by taking the total number of individual as reported for the geographic area reported and dividing it by the number of miles or acres of land area.

Max Dwelling Density for Districts in Corridors

Max Dwelling Density for Districts in Corridors is based on parcel or site density. Used by builders/developers and controlled by the zoning ordinance within jurisdictions that have zoning, site density is determined by the total dwelling/housing units divided by the total parcel size. For determining Max Dwelling Density, the zoning ordinance was reviewed for current permitted maximum site density. In cases were no specific maximum dwelling limits is explicitly stated, a review of the ordinance was undertaken and a theoretical maximum was calculated taking into account maximum coverages, parking requirements, buffer areas, building height and story limits, and any other code restricting dwelling permitting. The actual permissible density would be based on the specific site constraints and determined by completion of a land use permit process conducted under the respected zoning authority. **The calculated theoretical maximums contained in this report should in no way be relied upon for the determination of actual permissible site dwelling density.**

Gross Neighborhood Density

Gross neighborhood Density is the total dwelling/housing unit count over the total land area being considered. Parcel or site density will in most cases be greater than gross neighborhood density because it does not include land uses such as streets, parks, and other public land uses that dilute gross neighborhood density. While parcel or site density is important for zoning, gross neighborhood density is important for determining public services, transportation infrastructure, transit, and economic activity potential.

Job & Worker Density

Job Density is based on 2012 data contained in the LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. Job count data by location is provided at the Census Block level by LODES, which is then used by culling the data based on which Census Blocks are contained by the geographical extent of the specific data being presented.

Worker Density is based on 2012 data contained in the LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. Worker count data (those individuals currently employed and residing in the area of study) is provided at the Census Block level by LODES, which is then used by culling the data based on which Census Blocks are contained by the geographical extent of the specific data being presented.

Retail Sales

Data Source

Retail data was sourced from Environmental Systems Research Institute, Inc. (Esri) by the purchase of a Complete State Retail MarketPlace Data License for the State of Michigan by all levels of geography.

Whitepaper Statement from Esri

Esri has combined the latest Consumer Expenditure Surveys (CEX), 2006–2007, from the Bureau of Labor Statistics (BLS) to estimate current spending patterns. The continuing surveys include a Diary Survey for daily purchases and an Interview Survey for general purchases. The Diary Survey represents record keeping by consumer units for two consecutive weeklong periods. This component of the CEX collects data on small, daily purchases that could be overlooked by the quarterly Interview Survey. The Interview Survey collects expenditure data from consumers in five interviews conducted every three months. Esri integrates data from both surveys to provide a comprehensive database on all consumer expenditures. To compensate for the relatively small CEX survey bases and the variability of single-year data, expenditures are averaged from the 2006–2007 surveys.

Esri computes Market Potential by combining 2011 Tapestry™ Segmentation data with Doublebase® 2009 data from GfK MRI. Doublebase 2009 is an integration of information from four consumer surveys. Each survey respondent can be identified by Tapestry segment, so a rate of consumption by Tapestry segment can be determined for a product or service for any area.

The Expected Number of Consumers (households or adults) for a product or service in an area is computed by applying the consumption rate for Tapestry market segment "n" to households or adults in the area belonging to Tapestry segment "n," and summing across 65 Tapestry segments.

$$Expected\ Number\ of\ Consumers = \sum_{n=1}^{65} (Count_n \times Consumption\ Rate_n)$$

The *Local Consumption Rate* for a product or service for an area is computed as the ratio of the expected number of consumers for a product or service in the area to the total households or adults in the area.

$$Local\ Consumption\ Rate = \frac{Expected\ Number\ of\ Consumers}{Base\ Count}$$

The *Market Potential Index* for a product or service for an area is the ratio of the local consumption rate for a product or service for the area to the US consumption rate for the product or service, multiplied by 100.

$$Market\ Potential\ Index\ = \frac{Local\ Consumption\ Rate}{US\ Consumption\ Rate} \times 100$$

Esri's Market Potential database includes data for more than 2,200 items, organized into 35 categories, representing goods, services, attitudes, and activities collected from GfK MRI surveys. Unless otherwise noted, each item refers to consumer spending or behavior in a 12-month period. The a or h following the five-digit product code denotes a consumer base of adults or households, respectively.

Products and services, such as apparel items, types of digital cameras, video game systems, financial accounts and services, health-related items, Internet activities, satellite TV providers, personal care services, and detailed information about cell phones/PDAs (brands, service providers, average monthly bills, and purchase locations), are included. A product description was revised since the last Market Potential update if a product change was made by GfK MRI, if ranges had to be collapsed, or if more clarification was required. A product was dropped since the last Market Potential update if it did not pass a sample size test, became outdated or unnecessary, or no longer exists in the GfK MRI database.

Retail Classification:

Leakage is defined as the Potential Sales less the Total Sales. All inputs are as reported by Esri.

For the purposes of determining the *Retail Classification,* Sales, Potential Sales, and Leakage are taken from the Growth & Investment Area. A Retail Hub is defined in this study as having a negative retail leakage. If the Retail Sales for the Growth & Investment Area are greater than Potential Sales in the county in which it is located and the county's leakage is negative, then the Retail Hub is classified as a Regional Hub. In the absence of these two conditions, then the Retail Hub is classified as a Local Hub.

Seasonal Housing:

The Seasonal Housing percentage is determined by the dividing the Data Dictionary Reference Name H0050006 "For seasonal, recreational, or occasional use" of the H5 Table "Vacancy Status, Universe: Vacant housing units Total:" of the 2010 Census Summary File 1 by the total number of Housing Units.

The U.S. Census Bureau's 2010 Census Summary File 1. Summary File 1 tables provide the most detailed counts available so far from the 2010 Census, including cross-tabulations of age, sex, households, families, relationship to householder, housing units, detailed race and Hispanic or Latino origin groups, and group quarters. The statistics are available for a variety of geographic areas, with most tables available down to the block or census tract level.

Summary File 1 (SF 1) contains the data compiled from the questions asked of all people and about every housing unit. Population items include sex, age, race, Hispanic or Latino origin, household relationship, household type, household size, family type, family size, and group quarters. Housing items include occupancy status, vacancy status, and tenure (whether a housing unit is owner-occupied or renter-occupied).

There are 177 population tables (identified with a ''P'') and 58 housing tables (identified with an ''H'') shown down to the block level; 82 population tables (identified with a ''PCT'') and 4 housing tables (identified with an "HCT") shown down to the census tract level; and 10 population tables (identified with a "PCO") shown down to the county level, for a total of 331 tables. The SF 1 Urban/Rural Update added 2 PCT tables, increasing the total number to 333 tables. There are 14 population tables and 4 housing tables shown down to the block level and 5 population tables shown down to the census tract level that are repeated by the major race and Hispanic or Latino groups.

SF 1 includes population and housing characteristics for the total population, population totals for an extensive list of race (American Indian and Alaska Native tribes, Asian, and Native Hawaiian and Other Pacific Islander) and Hispanic or Latino groups, and population and housing characteristics for a limited list of race and Hispanic or Latino groups. Population and housing items may be cross-tabulated. Selected aggregates and medians also are provided. A complete listing of subjects in this file is found in the "Subject Locator" chapter of the 2010 Census Summary File 1 Technical Documentation

Summary File 1 (SF 1) is released as individual files for each of the 50 states, the District of Columbia, and Puerto Rico, and for the United States. The tables (matrices) are identical for all files, but the geographic coverage differs. SF 1 for states was released from June–August 2011.

Sprawl

The Sprawl Assessment is based the ratio of Core Place Housing Units to the total Growth & Investment Area Housing Units as reported by the 2010 Census minus the ratio of Core Place Housing Units to the total Growth & Investment Area Housing Units as reported by the 2000 Census.

$$\frac{2010\ Core\ Place\ Housing\ Units}{2010\ Growth\ \&\ Invesment\ Housing\ Units} - \frac{2000\ Core\ Place\ Housing\ Units}{2000\ Growth\ \&\ Invesment\ Housing\ Units}$$

Other methods of quantifying sprawl such as using satellite spectral data to indicate changes in impervious surface over time, maybe investigated for future study. However, were beyond the scope of this project.

Population

2000-2010:

The P1 "TOTAL POPULATION" table of the 2000 and 2010 Census's Summary File 1 provided the data to calculate the Growth & Investment Area and Core Place population change.

Average Age:

PCT12 "SEX BY AGE" table of the 2000 and 2010 Census's Summary File 1 provided the data to calculate the average age for the Growth & Investment Area and Core Place populations and the percentage change from 2000-2010.

Demographic Shifts:

Demographic Shifts used the PCT12 "SEX BY AGE" table of the 2000 and 2010 Census's Summary File 1 to determine the population of the six current generational cohorts (living at the time of the 2010 census) for both 2000 and 2010 and then calculating the percentage change in each generational cohorts population. Generational cohorts' birth by year range can fluctuate depending on the source. Table 1 lists the generational cohort and the corresponding range for the year of birth used for this study. (Novak n.d.)

Table 1

Generational Cohorts	Born Between	
GI Generation (Greatest)	1901	1926
Silent Generation	1927	1945
Baby Boomers	1946	1964
Generation X	1965	1980
Millennial Generation	1981	2000
Generation Z	2001	Present

The study targeted the Silent Generation, Baby Boomers, Generation X, and the Millennial Generation for changes in cohort population. The Generation Z was not alive at the time of the 2000 census and the percentage change could not be calculated and the GI Generation population was less the 3% for the total 2010 Northwest Michigan population and was not included in the targeted cohorts.

Talent Jobshed

Data Source

All Jobshed information utilized data from LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. Data files are state-based and organized into three types: Origin-Destination (OD), Residence Area Characteristics (RAC), and Workplace Area Characteristics (WAC), all at census block geographic detail. Data is available for most states for the years 2002–2011.

Workers Living within Study Area, *Worker's Earnings*, and *Jobs Located in Area* and their resultant density calculations utilized data from the Michigan RAC and WAC databases. The Origin-Destination database file for Michigan was not available at the time the *Commuting Data* was analyzed, so the OnTheMap application was used to download data sets for each of the Census Places and County Subdivisions that comprise the Growth & Investment Areas. The available data from OnTheMap locates the worker's residence within a 2010 Census Block. The centroid, as established by the Census Tiger Files, was used to calculate the start location of the commute route distance and time. Without the individual employment locations within the Growth & Investment being contained in the OnTheMap datasets, the end location for the commute route distance and time was determined by using a point along a major commercial corridor of the Census Places and County Subdivisions that comprise the Growth

& Investment Areas. The data was filtered to utilize only workers living in Michigan as workers living out of the state would have low propensity for daily commutes. The start and end locations for filtered worker commutes was then processed by a Visual Basic for Applications routine that used the Google Distance Matrix API to calculate route distance and time for 35,524 pairs.

The Google Distance Matrix API is a service that provides travel distance and time for a matrix of origins and destinations. The information returned is based on the recommended route between start and end points, as calculated by the Google Maps API, and consists of rows containing duration and distance values for each pair.

LEHD Origin-Destination Employment Statistics (LODES)1 are the job data that are delivered in the OnTheMap application. This document describes the contents of the LODES Version 7 dataset in the context of the OnTheMap application.

U.S. Census Bureau. 2013. LODES Data. Longitudinal-Employer Household Dynamics Program. http://lehd.ces.census.gov/applications/help/onthemap.html

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Overview

As with previous versions of data released in OnTheMap, LODES Version 7 is a partially synthetic dataset that describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. These data and marginal summaries are tabulated by several categorical variables. More detailed information on the variables and scope of the data follows.

Job Definition

In the context of LODES and OnTheMap, a job is counted if a worker is employed with positive earnings during the reference quarter as well as in the quarter prior to the reference quarter. This is called a “beginning of quarter” job because the assumption is that the worker was employed on the first day of the reference quarter.

Years

LODES Version 7 includes data for 2002-2011, for which Quarter 2 (April – June) is the reference period in each year. Not all states have data available for each year and not every variable is available in each year.

Geographical Vintage

LODES Version 7 and OnTheMap use 2010 census blocks, defined for the 2010 Decennial Census, as their base geography. Data released in previous versions of LODES and OnTheMap used 2000 census blocks as the geographical base. For data previously released in 2000 census blocks, the LODES data has been “crosswalked” or “transformed” into the base of 2010 census blocks. Further information on how OnTheMap and LODES implement the 2010 census blocks can be found in OnTheMap: Updating the Base Geography

Data Structure

The overall file structure of LODES Version 7 remains similar to that of previous versions. The origin-destination (OD) matrix is made available by 10 different “labor market segments.” The area characteristic (AC) data – summary margins by residence block and workplace block – contain additional variables including age, earnings, and industry plus the newer variables outlined below.

In OnTheMap, the OD data are used to produce the Destination, Distance/Direction, Inflow/Outflow, and Paired Area analyses. The AC data are used to produce the Area Profile and Area Comparison analyses.

Population & Housing Trends

Data Source

Population and Housing Data: *The 2000 and 2010 Census Summary File 1 data tables provide the most detailed information available so far from the 2000 Census and 2010 Census about a community's entire population, including cross-tabulations of age, sex, households, families, relationship to householder, housing units, detailed race and Hispanic or Latino origin groups, and group quarters. For Census Designated Places (CDPs) that were first established in 2010, the 2010 Census Block Relationship files were utilized to process the 2000 Census Summary File 1 block data to calculate the 2000 data for these CDPs.*

The 2010 Census Block Relationship files are provided as a tool to help data users compare the universe of Census 2000 blocks to the universe of 2010 Census blocks. From these files, data users may determine how 2000 blocks now relate to 2010 Census blocks and vice versa.

Geographic Areas: *2010 Census TIGER (Topologically Integrated Geographic Encoding and Referencing) File Data for County Subdivisions and Census Places.*

Core Place and G&I Area Geographic Extents

The Core Place and G&I Area geographic extents were determined to provide the maximum continuity across differing datasets from governmental and private sources. In cases where CDPs were utilized, data years of predating the establishment of the CDP were unavailable causing gaps in total counts and percentage changes.

Gross Neighborhood Density

Gross neighborhood Density is the total dwelling/housing unit count over the total land area being considered. Parcel or site density will in most cases be greater than gross neighborhood density because it does not include land uses such as streets, parks, and other public land uses that dilute gross neighborhood density. While parcel or site density is important for zoning, gross neighborhood density is important for determining public services, transportation infrastructure, transit, and economic activity potential.

Total Households

The Percentage of Households without Children (under 18) was calculated by adding “Nonfamily households:” Table P0180007 together with “2-or-more-person household: Family households: Husband-wife family: No own children under 18 years” Table P0190009 from the 2010 Census Summary File 1 and then dividing by the total number of households.

Commercial Corridors

Corridor Length

Corridor Lengths were determined by plotting the described commercial corridor from the Commercial Corridor Inventory Interviews with local units of government into the Google Earth desktop application, exporting the KML files for import to ArcMAP and projecting them to calculate the linear extent of the defined corridor in feet.

Population & Housing Density

To calculate Population and Housing density, the TIGER/Line® with Selected Demographic and Economic Data Shapefiles for the 2010 Census were used for Census Block level data. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull population and housing data for any Census Block either fully or partially contained within the buffer.

Job & Worker Density

To calculate Job and Worker density, All Job and Worker information utilized data from LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. The 2011 (latest year available) Residence Area Characteristics (RAC) and Workplace Area Characteristics (WAC) data files were used at the Census Block level. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull job and worker data for any Census Block either fully or partially contained within the buffer.

Growth & Investment Core Place Map with Commercial Corridors

The map of commercial corridors were defined by entering public road center points (latitude and longitude coordinates) along the extent provided by the Commercial Corridor Inventory Interviews into Google Earth with the Add Path tool. A sufficient number of points were used to maintain road radius conformity. The full 10 county commercial corridors studies contained 1,722 individual latitude and longitude coordinates. The Google Earth paths were then exported into a KML file for import into ArcMap. The corridors where combined with data from the 2010 TIGER/Line® Shapefiles of Census Places and Counties and road geographic features data from the Michigan Department of Technology, Management, & Budget's Geographic Data Library Catalog.

Housing Data

Housing data, other than counts provided by the 2010 Census, is sourced from the US Census Bureau's American Community Survey (ACS) 2008-2012 5 Year Detailed Tables.

The American Community Survey (ACS) is a part of the U.S. Census Bureau's Decennial Census Program and is designed to provide more current demographic, social, economic, and housing estimates throughout the decade. The ACS provides information on more than 40 topics, including education, language ability, the foreign-born, marital status, migration and many more. Each year the survey randomly samples around 3.5 million addresses and produces statistics that cover 1-year, 3-year, and 5-year periods for geographic areas in the United States and Puerto Rico. The 5-year estimates are available for many distinct geographies including the nation, all 50 states, DC, Puerto Rico, counties, places, census tracts, and block groups. ACS tables are published on the Census Bureau's American FactFinder (AFF) website, factfinder2.census.gov, and are available for download in several forms. (US Census Bureau 2014)

Since the Detailed Tables contain a large number of cells, the tables are stored in a series of files with only the data from the tables, without such information as the title of the tables, the description of the rows, and the names of the geographic areas. That information is in other files that the user must merge with the data files to reproduce the tables. This study created a data search tool to pull detailed table data from the assembly of the Michigan ASCII data files for each sequence number files containing the subject data (Sequences: 58, 62, 63, 64, 104, 105, 106, 107, 108).

The ACS estimates are based on data from a sample of housing units and people in the population, not the full population. For this reason, ACS estimates have a degree of uncertainty associated with them, called sampling error. This study does not list the sampling error for each data point due to the statistical complexity of combining margins of error in Growth & Investment Areas containing multiple municipalities.

Housing Efficiency Rating (Average HERS)

The Home Energy Rating System (HERS) Index is the industry standard by which a home's energy efficiency is measured. It's also the nationally recognized system for inspecting and calculating a home's energy performance. It was developed by the Residential Energy Services Network (RESNET) an independent, non-profit organization to help homeowners reduce the cost of their utility bills by making their homes more energy efficient. To calculate a home's HERS Index Score, a certified RESNET HERS Rater does an energy rating on your home and compares the data against a 'reference home'– a designed-model home of the same size and shape as the actual home, so your score is always relative to the size, shape and type of house you live in.

To calculate the Average HERS score for homes in the specified geography the Total Built by Year was used together with an average HERS rating for the respective vintage of home construction to calculate an overall Average HERS score. (Hodgson 2008)

$$Average\ HERS\ = \frac{\sum_{i=1}^{9} Number\ of\ Vintage\ Homes \times Average\ HERS\ Rating\ by\ Vintage}{Total\ Homes}$$

Percentage Built by Year & Average Year

Sequence file 104 of the ACS 2008-2012 5 Year Detailed Table was used to provide total counts of housing units by vintage year. The housing counts were then combined in cases of multiple municipalities or used separately to calculate the *Percentage Built by Year*.

Median Value

Sequence file 106 of the ACS 2008-2012 5 Year Detailed Table was used to provide median value for each of the municipalities comprising the Growth & Investment Area. If the Core Place or G&I Area consists of a single municipality, then a Median Value is given for these geographies.

Home Heating Fuel

Sequence file 104 of the ACS 2008-2012 5 Year Detailed Table was used to provide total counts of housing units by fuel used in heating. The counts were then combined in cases of multiple municipalities or used separately to calculate the *Percentage of Homes Using Natural Gas, Percentage of Homes Using Propane, Percentage of Homes Using Wood, and Percentage of Homes Using Solar Energy*.

Personal Income

Personal Income data is sourced from the US Census Bureau's American Community Survey (ACS) 2008-2012 5 Year Detailed Tables.

Median Household Income (2012 Dollars)

Sequence file 63 of the ACS 2008-2012 5 Year Detailed Table was used to provide *Median Household Income* value for each of the municipalities comprising the Growth & Investment Area. If the Core Place or G&I Area consists of a single municipality, then a Median Value is given for these geographies.

Per Capital Annual Income (2012 Dollars)

Sequence file 64 of the ACS 2008-2012 5 Year Detailed Table was used to provide Per Capita Annual Income and Aggregate Annual Income values for each of the municipalities comprising the Growth & Investment Area. Total Calculate the Core Place and G&I Area Per Capita Annual Incomes the Aggregate Annual Income was divided by the Per Capita Annual Income to derive the population number used in the Per Capita calculation. The Aggregate Annual Income for each unit of government was then summed together and divided by the sum of the Per Capita populations to provide the Per Capita Annual Income.

$$Per\ Capita\ Income = \frac{\sum_{i=1}^{n} Aggregate\ Annual\ Income_i}{\sum_{i=1}^{n} \frac{Aggregate\ Annual\ Income_i}{Per\ Capita\ Annual\ Income\ _i}}$$

$$i = the\ data\ for\ each\ unit\ of\ government\ contained\ in\ the\ geographic\ extent$$

$$n = to\ the\ total\ number\ of\ units\ of\ government\ in\ the\ geographic\ extent$$

Household Income Distribution Chart

Sequence file 58 of the ACS 2008-2012 5 Year Detailed Table was used to provide number of households falling in each of the distribution segments for each of the municipalities comprising the Growth & Investment Area. If the Core Place or G&I Area consists of a single municipality, then the municipal household distribution is used to determine the percentage falling in each income segment. If there are multiple municipalities, then the household income segment counts are summed for all municipalities then divided by the sum of all the households to determine the percentage distribution.

Policy

All policy data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Zoning

Zoning data was sourced from the respective municipality's Zoning Ordinances and Maps. Commercial Corridor extents were used to pull which Districts were bisected or bordered by the corridor. The respective District standards were then used to determine maximum dwelling densities, permitted uses and review criteria, and district standards for heights, parking requirements, maximum lot coverages, and setbacks. In cases where explicit dwelling densities were not contained in the zoning ordinance, a theoretical maximum was calculated taking into ac-

count lot coverages, parking requirement, minimum unit counts and standard assumptions for building envelope ratios (specific formulas for each included district are available upon request). **These maximums are theoretical and are not based on specific site constraints. As such they should not be relied upon for site planning or determinations of value. Contact the applicable Zoning Administrator for inquiries about any specific determinations. For a list of contacts please see the municipality's website or the Networks Northwest County Guides to Permitting and Zoning.**

(http://www.nwm.org/planning/resources/publications/permitting-and-zoning-guides.html)

Infrastructure

Municipal Water Service

All Municipal Water Service data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Municipal Sewer Service

All Municipal Sewer Service data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Broadband

All data on Broadband available was sourced from Connect Michigan's technology service maps. Connect Michigan is a subsidiary of Connected Nation and operates as a non-profit in the state of Michigan. Connect Michigan partnered with the Michigan Public Service Commission to engage in a comprehensive broadband planning and technology initiative as part of National effort to map and expand broadband. The program began by gathering provider data to form a statewide broadband map and performing statewide business and residential technology assessments, but has since progressed to working with communities on community plans. (Connect Michigan 2014) Ultra fiber service over 1 Gbps (Gigabits per Second) was sourced from the National Broadband Map (http://www.broadbandmap.gov/technology) as updated on 12/31/2013. (National Telecommunications & Information Administration 2013)

Energy

All Energy Infrastructure data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Placemaking Elements

Select Placemaking Elements

All data for the *Parks and Pocket Parks* and *Pedestrian Connections* was sourced from data provided during the Commercial Corridor Inventory Interviews with representatives of local units of government. The *Theaters & Entertainment Venues* and *Grocery Store* data was sourced by a search of business listings from several sources including Google, Yellow Pages, and Fandango.com.

Job Population Ratio

The rationale for including the ration of *Jobs to Population Ratio* in Commercial Corridors is based on research that finds that in mixed-use developments external vehicle trips decline substantially as the number of jobs and the resident population become more balanced. (Reid Ewing 2013) Ratios approaching 1 indicated balance jobs and population. The ration was calculated by dividing the job density by the population density. Ratios of less than 1 have higher resident populations than the number of jobs. Ratios greater than 1 have a higher number of jobs to the resident population.

To calculate Job density, Job information utilized data from LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. The 2011 (latest year available) Workplace Area Characteristics (WAC) data files were used at the Census Block level. A ¼ mile circumference

buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull job data for any Census Block either fully or partially contained within the buffer.

To calculate Population density, the TIGER/Line® with Selected Demographic and Economic Data Shapefiles for the 2010 Census were used for Census Block level data. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull population data for any Census Block either fully or partially contained within the buffer.

Talent Jobshed

All Jobshed information utilized 2011 data from LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) from the US Census Bureau. Data files are state-based and organized into three types: Origin-Destination (OD), Residence Area Characteristics (RAC), and Workplace Area Characteristics (WAC), all at census block geographic detail. Data is available for most states for the years 2002–2011.

Workers Living within Study Area, *Worker's Earnings*, and *Jobs Located in Area* and their resultant density calculations utilized data from the Michigan RAC and WAC databases. The Origin-Destination database file for Michigan was not available at the time the *Commuting Data* was analyzed, so the OnTheMap application was used to download data sets for each of the Census Places and County Subdivisions that comprise the Growth & Investment Areas. The available data from OnTheMap locates the worker's residence within a 2010 Census Block. The centroid, as established by the Census Tiger Files, was used to calculate the start location of the commute route distance and time. Without the individual employment locations within the Growth & Investment being contained in the OnTheMap datasets, the end location for the commute route distance and time was determined by using a point along a major commercial corridor of the Census Places and County Subdivisions that comprise the Growth & Investment Areas. The data was filtered to utilize only workers living in Michigan as workers living out of the state would have low propensity for daily commutes. The start and end locations for filtered worker commutes was then processed by a Visual Basic for Applications routine that used the Google Distance Matrix API to calculate route distance and time for 35,524 pairs.

The Google Distance Matrix API is a service that provides travel distance and time for a matrix of origins and destinations. The information returned is based on the recommended route between start and end points, as calculated by the Google Maps API, and consists of rows containing duration and distance values for each pair.

LEHD Origin-Destination Employment Statistics (LODES)1 are the job data that are delivered in the OnTheMap application. This document describes the contents of the LODES Version 7 dataset in the context of the OnTheMap application.

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Overview

As with previous versions of data released in OnTheMap, LODES Version 7 is a partially synthetic dataset that describes geographic patterns of jobs by their employment locations and residential locations as well as the connections between the two locations. These data and marginal summaries are tabulated by several categorical variables. More detailed information on the variables and scope of the data follows.

Job Definition

In the context of LODES and OnTheMap, a job is counted if a worker is employed with positive earnings during the reference quarter as well as in the quarter prior to the reference quarter. This is called a "beginning of quarter" job because the assumption is that the worker was employed on the first day of the reference quarter.

Years

LODES Version 7 includes data for 2002-2011, for which Quarter 2 (April – June) is the reference period in each year. Not all states have data available for each year and not every variable is available in each year.

Geographical Vintage

LODES Version 7 and OnTheMap use 2010 census blocks, defined for the 2010 Decennial Census, as their base geography. Data released in previous versions of LODES and OnTheMap used 2000 census blocks as the geographical base. For data previously released in 2000 census blocks, the LODES data has been "crosswalked" or "transformed" into the base of 2010 census blocks. Further information on how OnTheMap and LODES implement the 2010 census blocks can be found in OnTheMap: Updating the Base Geography

Data Structure

The overall file structure of LODES Version 7 remains similar to that of previous versions. The origin-destination (OD) matrix is made available by 10 different "labor market segments." The area characteristic (AC) data – summary margins by residence block and workplace block – contain additional variables including age, earnings, and industry plus the newer variables outlined below.

In OnTheMap, the OD data are used to produce the Destination, Distance/Direction, Inflow/Outflow, and Paired Area analyses. The AC data are used to produce the Area Profile and Area Comparison analyses.

Commuting Workers

Commuting Workers is the subset of *Jobs Located in Area* that is defined by those jobs were the commute route is from 2 to 175 miles. This LODES data does not sample for weekly commutes. As a result, this study chose to filter job commuting data based on these assumptions for plausible commute distances.

Total Daily One Way Commute for all Commuters

The *Total Daily One Way Commute for all Commuters* (TDOWC) is computed by taking all commuters as filtered by the 2 to 175 mile assumption and calculating the total daily one-way route distance in miles and time in minutes.

Total Annual Commute for all Commuters

The *Total Annual Commute for all Commuters Distance (TACD)* is computed by taking all commuters as filtered by the 2 to 175 mile assumption and multiplying the total daily one-way route distance in miles by two for the daily commute distance then by 5.25 for the weekly distance then by 50 for the annual distance. The *Total Annual Commute for all Commuters Time (TACT)* is computed by taking all commuters as filtered by the 2 to 175 mile assumption and multiplying the total daily one-way route time in minutes by two for the daily commute time, then by 5.25 for the weekly time, then by 50 for the annual time, then dividing by 60 to arrive at the total annual time in hours.

$$TACD = TDOWCD \times Round\ Trip\ Commute\ (2) \times Days\ in\ Work\ Week\ (5.25) \times Work\ Weeks\ in\ Year\ (50)$$

$$TACT = TDOWCT \times Round\ Trip\ Commute\ (2) \times Days\ in\ Work\ Week\ (5.25) \times Work\ Weeks\ in\ Year\ (50) \div 60$$

Annual Commuting Costs

The *Total Fuel Cost* is computed by taking the Total Annual Commute for all Commuters Distance and multiplying it by the cost of fuel per gallon ($3.15) and dividing by the fleet average from the 2003 CAFÉ Standards (20.7 Miles Per Gallon).

$$Total\ Annual\ Fuel\ Cost = TDOWCD \times Fuel\ Price\ (\$3.15) \div FleetAverage\ MPH(20.7)$$

The *Total Cost (IRS 2014 Standard Mileage Rate)* is computed by taking the Total Annual Commute for all Commuters Distance and multiplying it by the cost per mile from the 2014 Internal Revenue Service Standard Mileage Rate ($.56).

$$Total\ Commuting\ Cost\ Total\ Cost\ (IRS) = TDOWCD \times 2014\ IRS\ Standard\ Mileage\ Rate(\$.56)$$

Average Annual Per Worker Commute

The *Average Annual Per Worker Commute Distance* is computed by dividing the *Total Annual Commute for all Commuters* by the number of *Commuting Workers*.

$$Average\ Annual\ Per\ Worker\ Commute\ Distance = TACD \div Commuting\ Workers$$

The *Average Annual Per Worker Commute Time* is computed by dividing the *Total Annual Commute for all Commuters* by the number of *Commuting Workers*.

$$Average\ Annual\ Per\ Worker\ Commute\ Distance = TACT \div Commuting\ Workers$$

The *Average Annual Per Worker Commute Total Cost* is computed by dividing the *Annual Commuting Cost Total Cost (IRS 2014 Standard Mileage Rate)* by the number of *Commuting Workers*.

$$Average\ Annual\ Per\ Worker\ Commute\ Distance = TACD \div Commuting\ Workers$$

Retail Activity

Retail data was sourced from Environmental Systems Research Institute, Inc. (Esri) by the purchase of a Complete State Retail MarketPlace Data License for the State of Michigan by all levels of geography.

Total Retail Sales

Whitepaper Statement from Esri: Esri has combined the latest Consumer Expenditure Surveys (CEX), 2006–2007, from the Bureau of Labor Statistics (BLS) to estimate current spending patterns. The continuing surveys include a Diary Survey for daily purchases and an Interview Survey for general purchases. The Diary Survey represents record keeping by consumer units for two consecutive weeklong periods. This component of the CEX collects data on small, daily purchases that could be overlooked by the quarterly Interview Survey. The Interview Survey collects expenditure data from consumers in five interviews conducted every three months. Esri integrates data from both surveys to provide a comprehensive database on all consumer expenditures. To compensate for the relatively small CEX survey bases and the variability of single-year data, expenditures are averaged from the 2006–2007 surveys.

Products and services, such as apparel items, types of digital cameras, video game systems, financial accounts and services, health-related items, Internet activities, satellite TV providers, personal care services, and detailed information about cell phones/PDAs (brands, service providers, average monthly bills, and purchase locations), are included. A product description was revised since the last Market Potential update if a product change was made by GfK MRI, if ranges had to be collapsed, or if more clarification was required. A product was dropped since the last Market Potential update if it did not pass a sample size test, became outdated or unnecessary, or no longer exists in the GfK MRI database.

Total Potential Retail Sales

Esri computes Market Potential by combining 2011 Tapestry™ Segmentation data with Doublebase® 2009 data from GfK MRI. Doublebase 2009 is an integration of information from four consumer surveys. Each survey respondent can be identified by Tapestry segment, so a rate of consumption by Tapestry segment can be determined for a product or service for any area.

The Expected Number of Consumers (households or adults) for a product or service in an area is computed by applying the consumption rate for Tapestry market segment "n" to households or adults in the area belonging to Tapestry segment "n," and summing across 65 Tapestry segments.

$$Expected\ Number\ of\ Consumers = \sum_{n=1}^{65} (Count_n \times Consumption\ Rate_n)$$

The *Local Consumption Rate* for a product or service for an area is computed as the ratio of the expected number of consumers for a product or service in the area to the total households or adults in the area.

$$Local\ Consumption\ Rate = \frac{Expected\ Number\ of\ Consumers}{Base\ Count}$$

The *Market Potential Index* for a product or service for an area is the ratio of the local consumption rate for a product or service for the area to the US consumption rate for the product or service, multiplied by 100.

$$Market\ Potential\ Index\ = \frac{Local\ Consumption\ Rate}{US\ Consumption\ Rate} \times 100$$

Esri's Market Potential database includes data for more than 2,200 items, organized into 35 categories, representing goods, services, attitudes, and activities collected from GfK MRI surveys. Unless otherwise noted, each item refers to consumer spending or behavior in a 12-month period. The *a* or *h* following the five-digit product code denotes a consumer base of adults or households, respectively.

Leakage

Leakage is defined as the Potential Sales less the Total Sales. All inputs are as reported by Esri.

Classification:

For the purposes of determining the *Classification,* Sales, Potential Sales, and Leakage are used for the Growth & Investment Area and County to determine whether it is a Retail Hub and if its classified as a Local Hub or Regional Hub for the purpose of this study. A Retail Hub is defined in this study as having a negative retail leakage. If the Retail Sales for the Growth & Investment Area are greater than Potential Sales in the county in which it is located and the county's leakage is negative, then the Retail Hub is classified as a Regional Hub. In the absence of these two conditions, then the Retail Hub is classified as a Local Hub.

Sales by Retail Store Type

Ersi in the Retail MarketPlace Dataset contains 44 different types of retail store data. The sample of retail activity by store type included in this section represents approximately two-thirds of potential retail sales depending on the geographic area. This sample of store types is indicative of a diverse set of shopping type that would support a walkable mixed use environment.

Commercial Corridor Datasheets

Corridor Length

Corridor Lengths were determined by plotting the described commercial corridor from the Commercial Corridor Inventory Interviews with local units of government into the Google Earth desktop application, exporting the KML files for import to ArcMAP and projecting them to calculate the linear extent of the defined corridor in feet.

Street Classification

National Functional Classification (**NFC**) is a planning tool which federal, state and local transportation agencies have used since the late 1960's. The Federal Highway Administration (**FHWA**) developed this system of classifying all streets, roads and highways according to their function. The FHWA publication, **Highway Functional Classification: Concepts, Criteria and Procedures**, provides the basis for much of the following information.

Principal Arterials are at the top of the NFC hierarchial system. Principal arterials generally carry long distance, through-travel movements. They also provide access to important traffic generators, such as major airports or regional shopping centers. *Examples:* Interstate and other freeways; other state routes between large cities; important surface streets in large cities.

Minor Arterials are similar in function to principal arterials, except they carry trips of shorter distance and to lesser traffic generators. *Examples:* State routes between smaller cities; surface streets of medium importance in large cities; important surface streets in smaller cities.

Collectors tend to provide more access to property than do arterials. Collectors also funnel traffic from residential or rural areas to arterials. *Examples:* County, farm-to-market roads; various connecting streets in large and small cities.

Local roads primarily provide access to property. *Examples:* Residential streets; lightly-traveled county roads.

The following MDOT classifications for this study's Commercial Corridor Inventory are source rom the MDOT's National Functional Classification Maps. The classifications are as follows:

Principal Arterial - Other
Minor Arterial
Major Collector
Minor Collector
Local

If a Corridor has multiple classifications along one of its segments, then the highest classification is used. Corridors with multiple segments may contain multiple classifications.

2013 Traffic Volume (AADT)

Traffic count data was sourced from the Michigan Department of Transportation's (MDOT) Traffic Monitoring Information System (TMIS) for state trunklines or from local municipalities if available. All counts utilize the Annual Average Daily Traffic (AADT) counts, which in most cases are an annual average estimate of daily traffic based on an adjustment of a sample conducted for a short period of time (short count). For short-count sites, counts are estimated by factoring a short count using seasonal and day-of-week adjustment factors. For continuous sites, counts are calculated by summing the Annual Average Days of the Week and dividing by seven.

For the purpose of this report, if the identified commercial corridor has more than one AADT count, the largest count was utilized.

Number of Traffic Lanes

Traffic Lane counts were sourced from Google Earth aerial imagery. On corridors with sections of varying amounts of traffic lanes, the count from the section with highest number of lanes was utilized.

Parking

The presence of Parallel, Diagonal, or Parking Structures in commercial corridors was sourced from Google Earth aerial imagery.

Transit Service

Transit Service was determined from data contained on the respective Transit Agency websites.

Bike Lane

The presence of *Bike Lakes* available in commercial corridors was sourced from Google Earth aerial and street view imagery. Accuracy may vary based on the level of quality of the imagery.

Entertainment Venues

The *Theaters & Entertainment Venues* data was sourced by a search of business listings from several sources including Google, Yellow Pages, and Fandango.com.

Pedestrian Amenities

Pedestrian Amenities consist of Sidewalks, Crosswalks, and Mid-Block Crosswalks. The presence of these Pedestrian Amenities in commercial corridors was sourced from Google Earth aerial imagery.

Walk Score

Walk Score® measures the walkability of any address using a patented methodology that analyzes walking routes to nearby amenities and awards points based on the distance to amenities in each category with end results ranging between 0-100, 100 being a "Walker's Paradise". (Walk Score 2014)

Corridor Overview

The Corridor Overview was source from Master Plans, Zoning Ordinances, Regional Transportation Plans, and other public source documents. Content has been edited.

Corridor Segment and Surrounding 1/4 Mile Study Area Map

The map of commercial corridors were defined by entering public road center points (latitude and longitude coordinates) along the extent provided by the Commercial Corridor Inventory Interviews into Google Earth with the Add Path tool. A sufficient number of points were used to maintain road radius conformity. The full 10 county commercial corridors studies contained 1,722 individual latitude and longitude coordinates. The Google Earth paths were then exported into a KML file for import into ArcMap. The corridors where combined with data from the 2010 TIGER/Line® Shapefiles of Census Places and Counties and road geographic features data from the Michigan Department of Technology, Management, & Budget's Geographic Data Library Catalog. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to query data from various databases used in this study.

Additionally 317 Points of Interest in the 10 county Northwest Michigan region consisting of public use airports, colleges, cultural sites, grocery stores, hospitals, libraries, schools, and theaters & entertainment venues were located for inclusion into the corridor maps.

Economic Development

All corridor specific *Economic Development* policy data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Additional information on specific community policies can be found in the Michigan Economic Development Corporations Redevelopment Ready Communities' Best Practices guide.

http://www.michiganbusiness.org/cm/Files/Redevelopment_Ready_Communities/RRC-Best-Practices.pdf

Study Area Summary for 1/4 Mile Area Surrounding the Corridor

Population & Housing Data

To calculate Population and Housing density, the TIGER/Line® with Selected Demographic and Economic Data Shapefiles for the 2010 Census were used for Census Block level data. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull population and housing data for any Census Block either fully or partially contained within the buffer for determining data for the Corridor Segment geography. To determine calculations for the G&I Core Places and G&I Areas, the 2010 Census TIGER (Topologically Integrated Geographic Encoding and Referencing) File Data for County Subdivisions, Census Places, and Census Blocks was imputed into to ArcMap software and used to create a database of Census Blocks contained in the respective geographic extents. The Census Block database was then queried for the applicable population and housing data.

Study Area Size Data

A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation in ArcMap then used to calculate the land area contained within. To determine calculations for the G&I Core Places and G&I Areas, the 2010 Census TIGER (Topologically Integrated Geographic Encoding and Referencing) File Data for County Subdivisions, Census Places used to query the land area information.

Worker & Job Data

To calculate *Workers Living within Study Area* and *Jobs Located within Study Area*, data from the US Census Bureau's LEHD (Longitudinal Employer-Household Dynamics) Origin-Destination Employment Statistics (LODES) was utilized. The 2011 (latest year available) Workplace Area Characteristics (WAC) and Residence Area Characteristics (RAC) data files were used at the Census Block level. A ¼ mile circumference buffer was created from the KML defined Commercial Corridor delineation. The buffer was then used to pull job data for any Census Block either fully or partially contained within the buffer for determining data for the Corridor Segment geography. To determine calculations for the *G&I Core Places* and *G&I Areas*, the 2010 Census TIGER (Topologically Integrated Geographic Encoding and Referencing) File Data for County Subdivisions, Census Places, and Census Blocks

was imputed into to ArcMap software and used to create a database of Census Blocks contained in the respective geographic extents. The Census Block database was then queried for the applicable Worker and Job data.

Zoning

Zoning data was sourced from the respective municipality's Zoning Ordinances and Maps. Commercial Corridor extents were used to pull which Districts were bisected or bordered by the corridor. The respective District standards were then used to determine maximum dwelling densities, permitted uses and review criteria, and district standards for heights, parking requirements, maximum lot coverages, and setbacks. In cases where explicit dwelling densities were not contained in the zoning ordinance, a theoretical maximum was calculated taking into account lot coverages, parking requirements, minimum unit counts and standard assumptions for building envelope ratios (specific formulas for each included district are available upon request). **These maximums are theoretical and are not based on specific site constraints. As such they should not be relied upon for site planning or determinations of value. Contact the applicable Zoning Administrator for inquiries about any specific determinations. For a list of contacts please see the municipality's website or the Networks Northwest County Guides to Permitting and Zoning.**

(http://www.networksnorthwest.org/planning/planning-policy/land-use/growth-and-investment.html)

Infrastructure

Public Utilities

All Municipal Water and Sewer Service data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Energy

All Energy Infrastructure data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Broadband

All data on Broadband available was sourced from both the Commercial Corridor Inventory Interviews with representatives of local units of government and Connect Michigan's technology service maps. Connect Michigan is a subsidiary of Connected Nation and operates as a non-profit in the state of Michigan. Connect Michigan partnered with the Michigan Public Service Commission to engage in a comprehensive broadband planning and technology initiative as part of National effort to map and expand broadband. The program began by gathering provider data to form a statewide broadband map and performing statewide business and residential technology assessments, but has since progressed to working with communities on community plans. (Connect Michigan 2014)

Policy

All corridor specific policy data was provided during the Commercial Corridor Inventory Interviews with representatives of local units of government or a search of documentation contained on the respective municipal website.

Traffic Counts

Traffic count data was sourced from the Michigan Department of Transportation's (MDOT) Traffic Monitoring Information System (TMIS) for state trunklines or from local municipalities if available. All counts utilize the Annual Average Daily Traffic (AADT) counts, which in most cases are an annual average estimate of daily traffic based on an adjustment of a sample conducted for a short period of time (short count). For short-count sites, counts are estimated by factoring a short count using seasonal and day-of-week adjustment factors. For continuous sites, counts are calculated by summing the Annual Average Days of the Week and dividing by seven.

The Traffic Count Chart contains AADT counts for the described corridor segment. For the purpose of this chart, if the identified commercial corridor segment has more than one AADT count, the largest count was utilized.

Placemaking Elements

All data for the *Placemaking Elements* was sourced from information provided during the Commercial Corridor Inventory Interviews with representatives of local units of government. The *Theaters & Entertainment Venues*, *Grocery Store, and Restaurant* data was sourced by a search of business listings from several sources including Google, Yellow Pages, and Fandango.com.

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Release Notes

1. If any information is in error or incomplete or if a community not currently participating would like to request a commercial corridor interview, please contact Scott Gest, Regional Planner at Networks Northwest.

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