



WESTERN UPPER PENINSULA

Community Health & Food Security



DOW SUSTAINABILITY FELLOWS
UNIVERSITY OF MICHIGAN

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

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Executive Summary

The 2019 Western Upper Peninsula Community Health and Food Security Dow Team completed a local food systems planning project in collaboration with the Western Upper Peninsula Planning and Development Region (WUPPDR) and the Western Upper Peninsula Food System Council. These organizations partnered with our team in an effort to advance sustainable food systems planning in the western Upper Peninsula. Communities in this region lack access to nutritious foods for a variety of reasons which this team worked to identify throughout the course of this project. The ultimate goal of WUPPDR was to develop a comprehensive food system plan for the region that enables equitable access to healthy foods for the western Upper Peninsula.

We accomplished our objective through the creation of individual community health profiles and the development of a food systems planning tool kit for local municipalities. The planning tool kit was created based on the results of a comprehensive analysis of local and national food planning and policy documents as well as interviews with city and regional planners across the state of Michigan. The profiles were completed for the six counties in the western Upper Peninsula. They consist of seven categories including demographics, public health, food resources, social services, institutional factors, the natural landscape and the built environment. These profiles will serve as a basis for helping WUPPDR understand gaps and community needs associated with access to adequate food resources. In addition, it serves as the foundation for future work to map available food resources in the western Upper Peninsula.

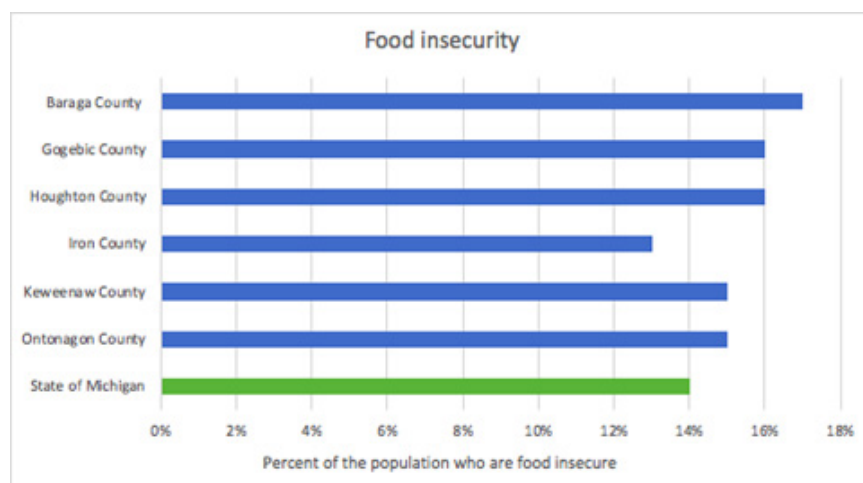
Progress on the project was supported by weekly team meetings, bimonthly client meetings, and an in-person visit to the Upper Peninsula. The community health profiles outline community attributes and highlight areas in need of further study in an effort to enable the Western Upper Peninsula Food System Council to secure future sustainable food grants.

Another key aspect of this project involved creating a policy language component to assist WUPPDR in supporting sustainable food systems planning in local municipalities. Finally, a food policy master planning catalog was developed through research, stakeholder conversations, and client engagement and will serve as a key resource for WUPPDR to inform opportunities to support local food systems planning.

We recommend that WUPPDR conduct a comprehensive survey of each county to gain a better understanding of the informal/undocumented methods through which community members produce and sell food. The survey should seek to understand the prevalence of small farms, local farmers markets, subsistence hunting and fishing as well as trading of goods and services.

Introduction & Background

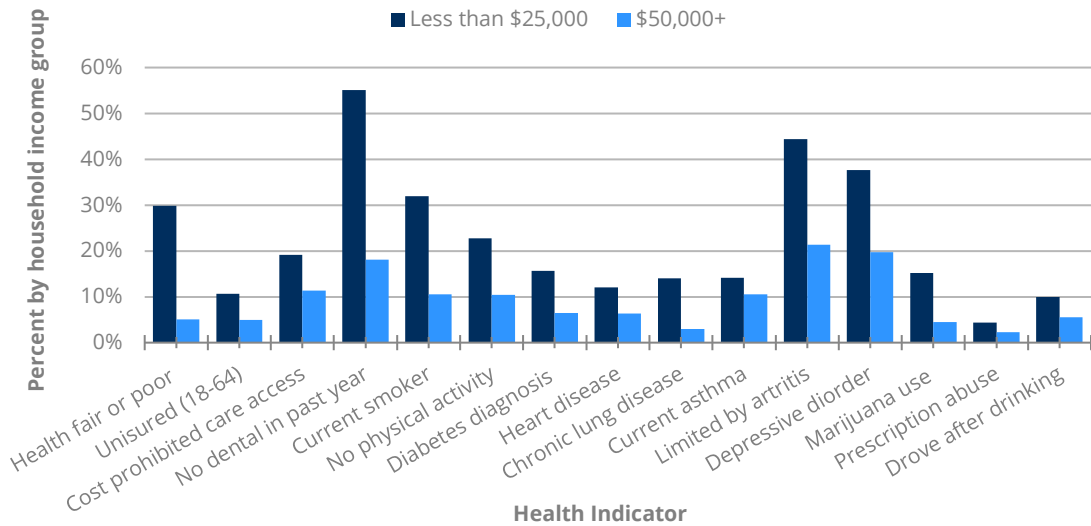
The Upper Peninsula is a vast rural landscape with food deserts and significant food insecurity. According to the U.S. Department of Agriculture, in the western Upper Peninsula, Houghton and Ontonagon Counties are classified as food deserts or low income communities where a significant share of residents live far from the nearest supermarket. There are several counties with food insecurity rates above the state average, as demonstrated in the table below. Only 10% of adults residing in the UP consume 5 or more servings of fruits and vegetables per day and there are 3,800 people in immediate need of food access, defined as people below the poverty line but not receiving food assistance in the six western most counties of the Upper Peninsula. This area relies heavily on imports of food from outside communities, which can be challenged by frequent severe weather. The western counties of the Upper Peninsula has seen a growing demand for local food production and a renaissance of small diversified farms. The western Upper Peninsula Food Systems Council, based in Houghton, is comprised of representatives of the Keweenaw Bay Indian Community, Michigan Technical University faculty, staff from the WUPPDR, the Western Upper Peninsula Health Department, local farmers, business owners, and civic leaders. This council works to advance local food systems planning with a vision to create an equitable food system that supports the wellbeing of humans and the planet.



After many conversations with this council, our Dow Team focused our efforts on providing materials to assist in policy and planning resources in local communities. The policy documents aim to assist the council and WUPPDR as they engage with local food systems planners to incorporate aspects of sustainability into their food systems. The policy catalog is divided based on the categories of Community Food System Model, providing a resource of municipalities regardless of their food system’s stage of development and can be searched based on key tags. Specifically, this resource provides advice for production, processing, preparation, distribution, retailing, eating and waste management. In addition to providing policy resources, the 2019 Dow Team was asked to create community health profiles for the six counties in the western Upper Peninsula by compiling data from various local, state and federal databases.

These profiles paint a holistic picture of each community highlighting demographics, social determinants of health, availability of food resources, the natural landscape, the built environment, and key institutional factors enabling the council to secure sustainable food grants in the future.

Health Indicator by Household Income Among UP Residents



Methods

The 2019 Dow Team moved the sustainable food systems planning project forward through regular meetings and commendable team communication. During regular meetings, the team divided work to ensure the community health profiles were compiled and submitted according to the project timeline. Here it is important to note that various local, state, and federal data sources were used to compile information to ensure profiles are representative of the western Upper Peninsula. The weekly meetings also gave teammates regular opportunities to troubleshoot challenges together and ensure that everyone felt confident moving forward with their individual tasks.

To advance the policy component of this project, the team conducted an intensive research process in June and July. Members collected and studied national and Michigan-specific examples of planning and policy documents that address food system issues. The team used its preliminary research to produce a policy catalog that contains food system policy language examples from these national and Michigan municipalities (See APPENDIX III). Further, members arranged phone conversations with city and regional planners across the state of Michigan (see Table 1 below) to learn more about the planning process. These professional planners shared insights about writing master plans, how to engage effectively with communities, and about different promising food systems policies around the state. These conversations served as the foundation for the Dow team's master planning addendum deliverable (See APPENDIX II). Table 2 (below) lists the main resources the team used to produce the community profiles, planning addendum, and policy catalog.

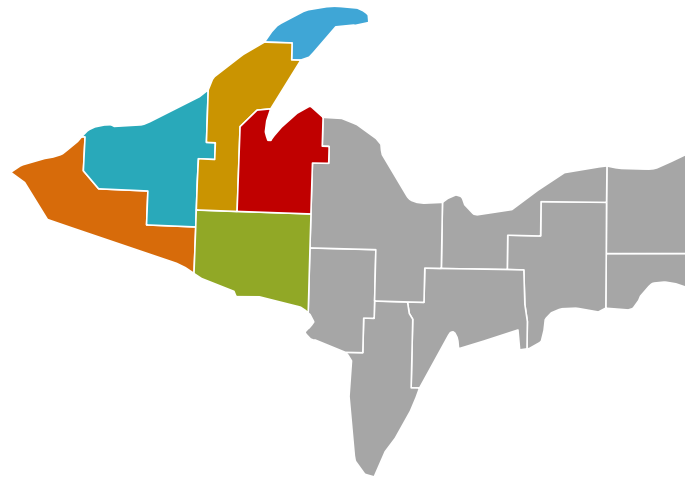
Table 1: Planning Professionals Consulted

Name	Title/Organization
Brad Neumann	Senior Policy Planner, MSU Extension
Megan Masson-Minock	Planner, Carlisle Wortman Associates Inc.
Christine Zuzga	Planning Manager, Battle Creek
Sarah Monte	Outreach Director, Marquette Food Co-Op

Table 2:

Primary Reference Resources
United States Census Bureau (2013-2017 American Community Survey 5-Year Estimates and Small Area Health Insurance Estimates)
United States Department of Agriculture (Economic Research Service and National Agricultural Statistics Service)
County Health Rankings and Roadmaps, Robert Wood Johnson Foundation
Upper Peninsula Community Health Needs Assessment 2018
State of Michigan Department of Health Services
Growing Food Connections Local Government Food Policy Database, University of Buffalo
Food Policy Networks Resource Database, Johns Hopkins University

Further, the team conducted bimonthly meetings with WUPPDR and members of the Western Upper Peninsula Food System Council to ensure final deliverables were beneficial to the project clients. In addition, a visit to the Western Upper Peninsula took place in August. During this visit, the team participated in the 2019 Community Manoomin (wild rice) Camp planned and facilitated by the Keweenaw Bay Indian Community (KBIC). This provided an opportunity to engage with members of the KBIC, clients from WUPPDR, key stakeholders from the Western UP Food Systems Council, and community members. As a part of this camp, the 2019 Dow Team learned about and planted wild rice and participated in traditional Anishinaabe ceremonies. Overall, this experience expanded the team's understanding of western the Upper Peninsula, the role of indigenous communities, the historical and cultural importance of local foods, and resulted in positive and productive engagement with the community.



Results & Recommendations

As a part of this project, the Dow team produced six profiles for the counties located in the western part of Michigan's Upper Peninsula that highlighted county demographics, public health indicators, food resources, the natural landscape, built environment and institutional factors.

It is recommended that WUPPDR and the Food Council use the detailed profiles for grant writing purposes. The documents were created specifically with the intent of securing a future sustainable food systems grants. The team also recommends that WUPPDR uses the profiles as stakeholder engagement tools for projects they work on in the future. The information in the profiles is applicable to a number of project types that WUPPDR might want data for in the future. We recommend that WUPPDR use the profiles as living documents and annually update the data it contains.

The team also produced a master planning addendum template for food systems planning that introduces the topic and describes its importance. As WUPPDR works with municipalities to incorporate food policy into their master planning documents, we recommend they use the planning addendum template as a starting point. The template was written as a general preamble to a food policy section of a master plan that WUPPDR can tailor to their specific client community's needs.

The final deliverable is the food systems planning policy catalog. It contains direct quotations of food systems-related policy language from the master plans of Michigan communities and other municipalities around the country. Whereas the master planning addendum template provides a general introduction to the benefits of food systems planning, the catalog is designed to document action-oriented food policy language from other master plans.

Anticipated Impact

The six county profiles will be a valuable resource for WUPPDR and the Western Upper Peninsula Food Systems Council. They provide a clear, concise, and easy to reference source of data to be used in future grants and planning documents. Information contained in the profiles encompass county demographics, public health indicators, food resources, the natural landscape, the built environment, and institutional factors, and therefore can be referenced for a wide range of grants. Extra attention was given to public health indicators and food resources, as the Western Upper Peninsula Food Systems Council is actively applying for food systems grants. Furthermore, as the profiles cite publicly available data from a variety of government sources, they will be easy to update each year as a snapshot of each county.

Together, the master planning addendum and policy catalog will be used by WUPPDR as they work with communities on food-systems planning. The narrative of the planning addendum was purposefully written broadly enough to be applicable to a wide variety of communities in the western Upper Peninsula, with the understanding that WUPPDR can tailor the specific text to account for the unique history, context, and conditions of the individual localities they work with. The action-oriented language in the policy catalog can be adapted or included as-is in planning documents that WUPPDR helps produce across the Western Upper Peninsula. It is intended to be a living document where new language can be added as further research is conducted.

The three deliverables—the Community Profiles, Planning Addendum, and Policy Catalog—are also designed to interact well together as WUPPDR works with its partner communities. For example, data from the Community Profiles can be used to highlight certain health or economic conditions in the area and entries in the Policy Catalog can be used to build the specific policy language of the master plan.



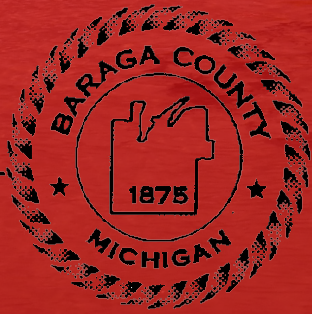
Acknowledgements

We would like to thank Dr. Margaret Wooldridge (University of Michigan), Rachael Pressley (WUPPDR), the Western Upper Peninsula Food Systems Council, and Mike Mazor (Dow Chemical) for their collaboration, support and guidance on this project. Photos from the 2019 Community Manoomin (wild rice) Camp are thanks to Todd Marsee, Senior Graphic Designer with the Michigan Sea Grant.

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APPENDIX I: Community Profiles



COMMUNITY PROFILE:

Baraga County

Updated: November 7, 2019

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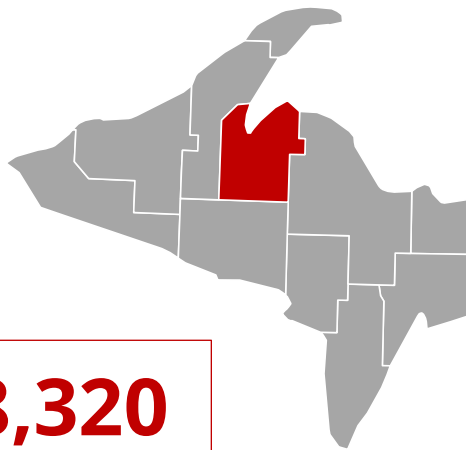
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Participants learn canoe water safety and push pole on the Keweenaw Bay by the Great Lakes Fish and Wildlife Commission
By Todd Marsee, Michigan Sea Grant



WESTERN UPPER PENINSULA FOOD SYSTEM COUNCIL



COMMUNITY PROFILE:

Baraga County



Demographics

Baraga County is a county in the Western Upper Peninsula with 8,302 residents, of whom 21.2% are over the age of 65 years.¹ The county seat is L'Anse, which had 2,011 residents as of the 2010 census. The median household income in Baraga is \$42,757. The county is home to 3,009 households within an average size of 2.23.

8,320
RESIDENTS

21%
OVER 65 YEARS

Residents living below the federal poverty line²

	Baraga County	State of Michigan
Population (#)	8,320	9,995,915
Percentage living below the federal poverty line	14.4%	14.2%
Percentage of elderly (older than 65) living below FPL	7.8%	8.2%
Percentage of families living below FPL with children under 18 and 5, respectively	17.8%, 17.5%	18.4%, 20.6%

In 2018, it was estimated that 17% of residents in Baraga are food insecure compared with 15% in the state of Michigan.³ The food insecurity rate for children in 2017 was 19.20%. Food Insecurity estimates the percentage of the population who did not have access to a reliable source of food during the past year, based on information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey. In 2017, 11.8% of U.S. households were food insecure at some time during the year.⁴

¹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

² Ibid.

³ "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.

⁴ "Food Security and Nutrition Assistance - USDA ERS." <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed 22 Aug. 2019.



Public Health

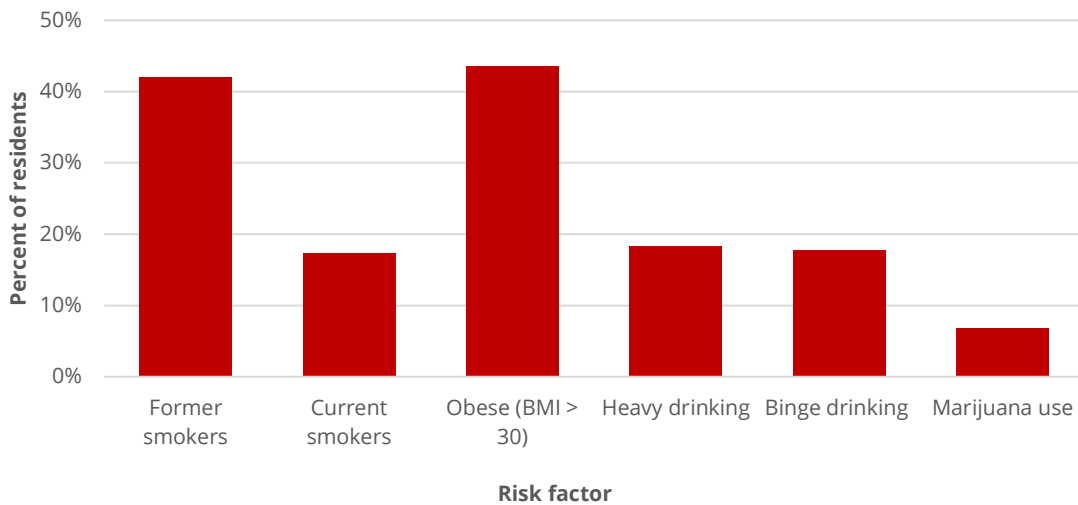
In 2019, Baraga County ranked 69 out of the 83 Michigan counties for health factors.⁵ This measure examines health behaviors, clinical care, social and economic factors and the physical environment. In terms of health outcomes, Baraga County ranked number 67 out of the 83 Michigan counties, a measure which considers length and quality of life.⁶

Health Factors:

Health Behaviors

In 2018, within Baraga County, 42.00% of the residents are former smokers, and 17.30% are current smokers.⁷ Only about half (51.00%) of the population in Baraga has access to exercise opportunities. Additionally, 43.50% of the population is obese with a BMI of 30 or above. This is higher than the state rate of 32.50%.⁸ The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Baraga County an index of 7.50.⁹ In terms of substance use, 18.30% of the population reported heavy drinking, 19.90% reported binge drinking, and 17.80% used marijuana in the past 30 days.¹⁰

Health Risk Factors in Baraga County



Within the Upper Peninsula, health indicators vary greatly based on income levels.¹¹ The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.¹²

⁵ "2019 County Health Rankings Key Findings Report | County Health Rankings" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

⁶ Ibid.

⁷ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

⁸ Ibid.

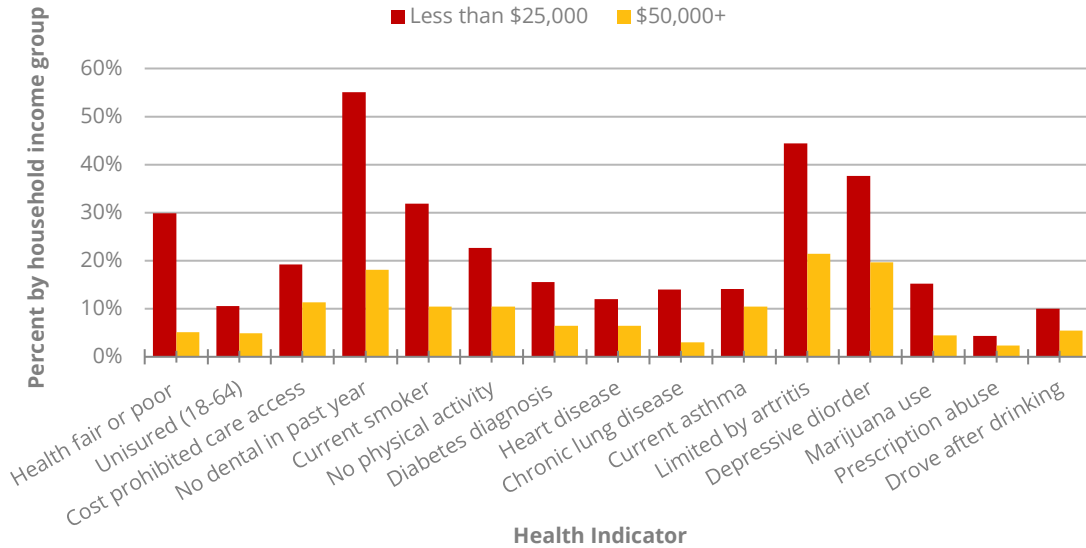
⁹ "2019 County Health Rankings Key Findings Report | County Health Rankings" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

¹⁰ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

¹¹ Ibid.

¹² Ibid.

Health Indicator by Household Income Among UP Residents



Clinical Care

Within Baraga County, as of 2016, 9.0% of the population under the age of 65 is uninsured.¹³ Residents of Baraga have a level of self-reported general health status similar to the state of Michigan at 18.6% and 18.0% respectively.¹⁴ Baraga county boasts more primary care physicians (PCP) per capita than the state of Michigan, but this does not translate to routine healthcare, as more than a third of the population (34.0%) has not received routine preventative services in the past year. This is higher than the state proportion of 26.9%.¹⁵

The Ratio of Population to Healthcare Providers¹⁶

	Baraga County	Michigan
Population to primary care physicians	940:1	1,260:1
Population to dentists	1,690:1	1,360:1
Population to mental health providers	940:1	400:1

¹³ "Small Area Health Insurance Estimates: 2016" <https://www.census.gov/library/publications/2018/demp/p30-03.html> Accessed 7 Nov. 2019

¹⁴ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

¹⁵ Ibid.

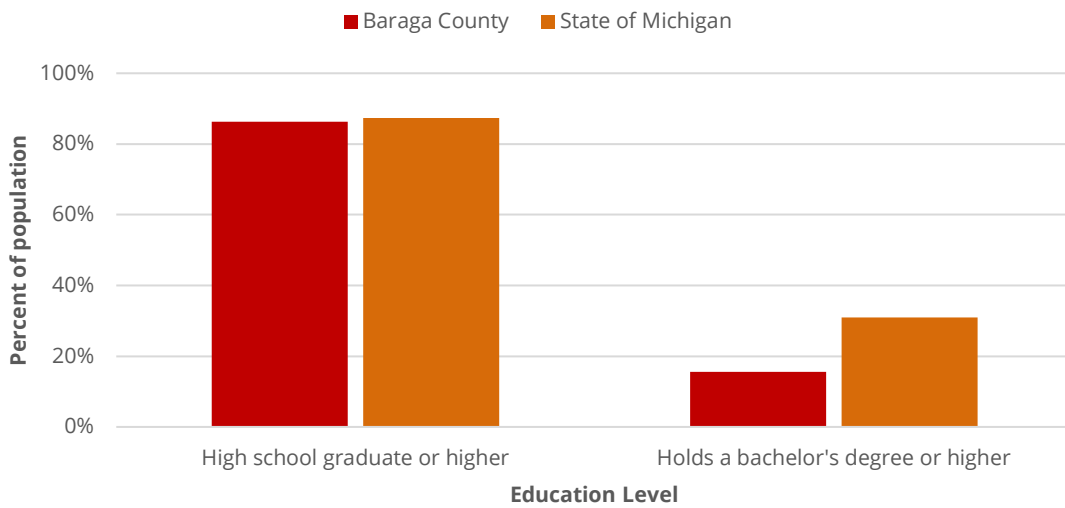
¹⁶ "Michigan Rankings Data | County Health Rankings & Roadmaps." <https://www.countyhealthrankings.org/rankings/data/MI>. Accessed 21 Oct. 2019.

However, Baraga county has good routine dental care, with 76.40% of the population of receiving dental care in the past year which is better than the state level of 70.10%.¹⁷ In 2018, 26.00% of the population received the influenza vaccine in Baraga County. Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide is on par with state percentages standing at 40.00%.

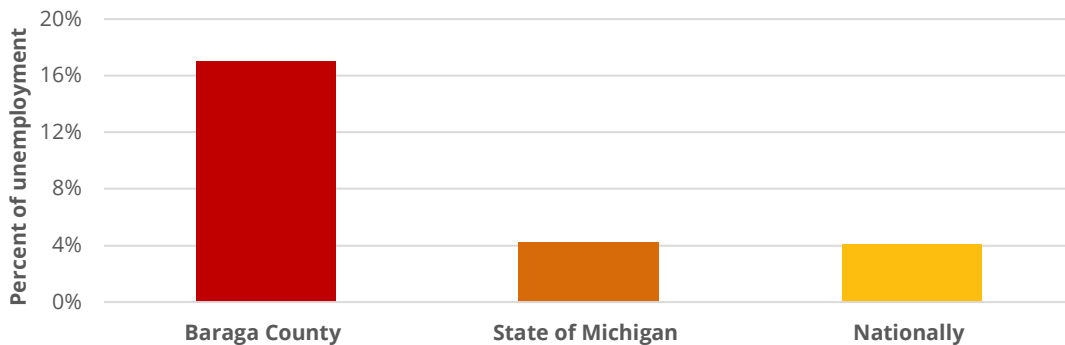
Social and Economic Factors

In Baraga County, 86.30% of the population, ages 25 and above, is a high school graduate or higher and 15.50% of the population, holds a bachelor’s degree or higher.¹⁸ The unemployment rate is high in Baraga County standing at 17.00% in 2017 compared with 4.20% in the state of Michigan.¹⁹

Education Among the Population (25 years of age and above)



Unemployment Rate in 2017



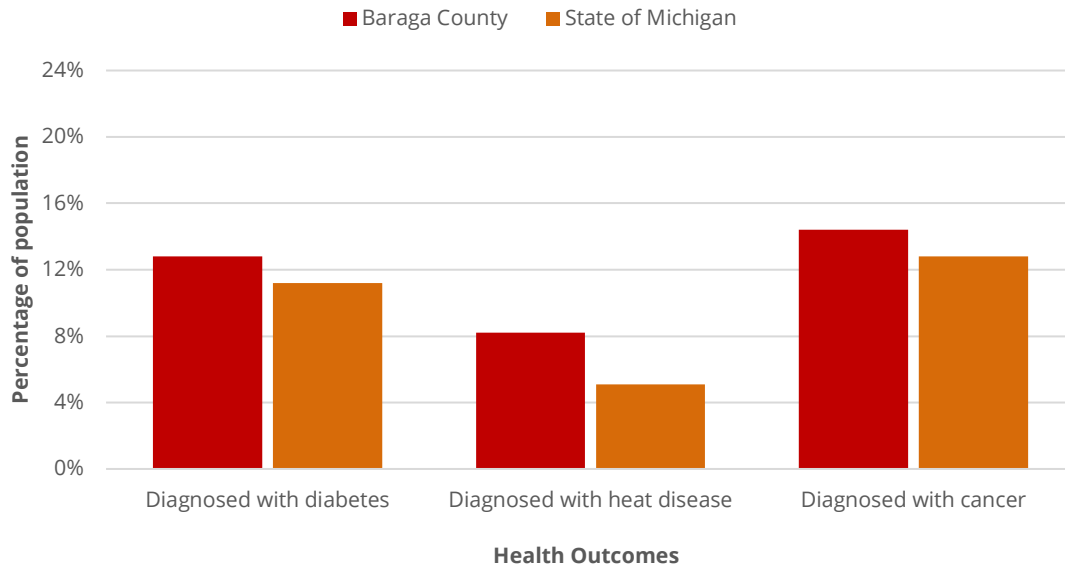
¹⁷ Ibid. All data in this paragraph came from the same source.
¹⁸ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates".
https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019
¹⁹ Ibid.

Physical Environment

**Further detailed below in Natural Landscapes and Built Environment*

Health Outcomes:

In 2018, countywide health outcomes indicate a need for further preventative care. Specifically, 12.80% of the population was diagnosed with diabetes (11.20% statewide), 8.20% diagnosed with heart disease (5.10% statewide), and 14.40% diagnosed with cancer (12.80% statewide).²⁰



Food Resources

Baraga County represents more than 917 square miles of land area, with 17,604 acres of farm-land (3.0% of the land area), representing 65 farms, as of 2017.²¹ Since 2012, Baraga County has seen a 1% reduction in acres of farmland, and as of 2017, the average farm size was 271 acres.²² In 2012, three farms were harvested for vegetables, potatoes and melons (acreage not reported in order to maintain the privacy of farms).²³ This was a decrease from 2007 when there were 4 farms totaling 20 acres.²¹ There were 4 reported orchards in 2012 covering 24 acres, which is a substantial decrease from 2007 when there were 5 orchards totaling 73 acres. Additionally, one farm was reported as producing fruit and nuts in 2017, with 2 farms reported in 2012.²⁴ Three farms reported 39 colonies of honey bees.²⁵ Baraga had 5 farms producing berries in 2017, an increase from no reported farms

20 "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

21 "Census of Agriculture - USDA - National Agricultural Statistics Service." <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

22 Ibid.

23 "Vegetables, Potatoes, and Melons Harvested for Sale: 2017 and 2012" Census of Agriculture, USDA, NASS. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Michigan/ Accessed 7 Nov. 2019

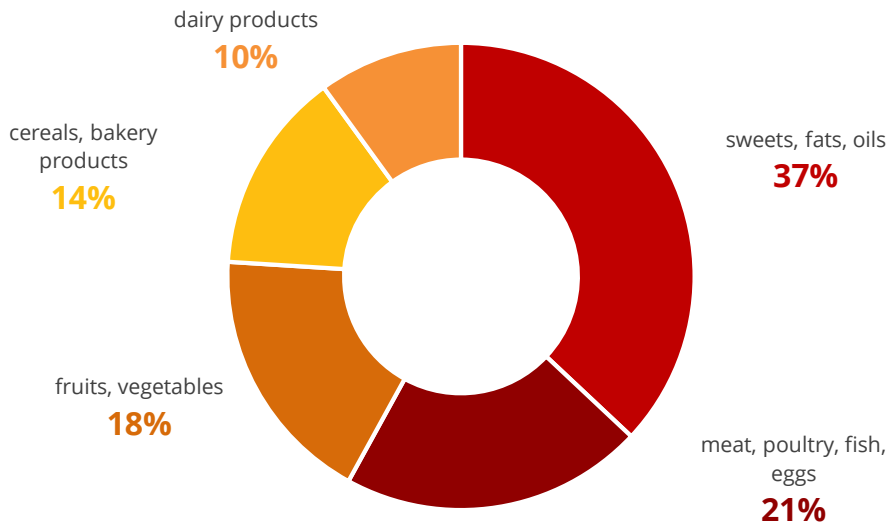
24 "Fruits and Nuts: 2017 and 2012" Census of Agriculture, USDA, NASS. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Michigan/ Accessed 7 Nov. 2019

25 "Colonies of Honey Bees, Inventory and Honey Sales: 2017 and 2012" Census of Agriculture, USDA, NASS. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Michigan/st26_2_0021_0021.pdf Accessed 7 Nov. 2019

in 2012.²⁶ Cattle and calves represent the majority of livestock in Baraga County, with more than 1,718 cattle and calves on 40 farms. Farmland in Baraga has a relatively low market value, at about \$2,189/acre, compared to the state average of \$5,000/acre.²⁷ Although, this is higher than in other counties in the Western Upper Peninsula including Ontonagon and Iron. Baraga county is the top producer of oats in the Western Upper Peninsula, producing 202,529 bushels, which is 6x more than Houghton and Iron counties.²⁸ Baraga county also produced a large share of the corn crop at 18,900 bushels.²⁹ Here it is important to note the limitation of the Department of Agriculture data is within this rural context. The census only collects data from farms which report a profit of more than \$1,000 a year. Also, there was no data available for foraged and hunted foods.

Households in Baraga spend \$22 million annually on food purchases as of 2011; of which \$14 million represents food purchased for home consumption. Of these purchases, the largest majority were sweets, fats, and oils (36.76%), followed by meat, poultry, fish, eggs (20.59%), fruits and vegetables (18.38%), cereals and bakery products (13.97%), and dairy products (10.29%).³⁰ In 2018, 6.9% of the population in Baraga County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings.³¹ Statewide, 14.4% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables. Baraga residents believe a lack of affordable health foods, including year round fresh fruits and vegetables is a critical problem, with 37.50% of Baraga residents ranking this as a very important issue in a recent survey.³²

Baraga County Household Food Purchases (2011)



²⁶ "Land in Berries: 2017 and 2012" Census of Agriculture, USDA, NASS. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Michigan/

²⁷ "Census of Agriculture - USDA - National Agricultural Statistics Service." <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²⁸ "County Summary Highlights: 2017" Census of Agriculture, USDA, NASS. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_2_County_Level/Michigan/

²⁹ Ibid.

³⁰ Western Upper Peninsula (Michigan) local farm and food economy | Crossroads Resource Center. Ken Meters

³¹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

³² Ibid.

Local Food Purchasing

Baraga County has one farmer's market available and one retail business within the county selling local foods.³³ There are no u-pick farms or community supported agriculture farms (CSA) available in Baraga County.³⁴



Social Services

In Baraga County, residents have access to many federal social service programs including food assistance program, funding for child care, disability assistance, and cash assistance (family independence program). Baraga County is serviced by the Upper Peninsula's chapter of Little Brother's Friends of the Elderly, which is an organization that provides services for elderly including house visits, medical transportation, firewood delivery, and social activities. This chapter is housed in Houghton County.³⁵

Social Service Programs at the County and State Level ^{36 37}

	Baraga County	State of Michigan
Population (2017)	8,302	9,995,915
Food Assistance Program Recipients (monthly average for 2017)	627 (7.55%)	1,375,434 (13.75%)
Family Independence Program Recipients (monthly average for 2017)	34 (0.41%)	48,120 (0.48%)
Child Development and Care (monthly average for 2017)	21 (0.25%)	32,217 (0.32%)

Free and Reduced Lunch Eligibility in Baraga County Schools, 2018-2019 ³⁸

Free Lunch Eligible	Reduced Lunch Eligible
169 students (48.6%)	26 students (8.3%)

³³ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019.

³⁴ Ibid.

³⁵ "Little Brothers – Michigan Chapter." <https://houghton.littlebrothers.org/>. Accessed 21 Oct. 2019.

³⁶ "Food Assistance Program (FAP): Trend Information." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_24_269236_7.pdf. Accessed 20 Aug. 2019.

³⁷ "Total Cases, Recipients and Payments for FIP, FAP ... - State of Michigan." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_02_269209_7.pdf. Accessed 20 Aug. 2019.

³⁸ Michigan School Data, Free and Reduced Lunch Counts Data Table, 2018-2019. Accessed at <https://www.mischooldata.org/Other2/DataFiles/StudentCounts/HistoricalFreeAndReducedLunchCounts.aspx>.

CY 2017 Deduplicated Enrollment Count By Local Agency in Women, Infants and Children (WIC) Special Supplemental Nutrition Program ³⁹

Western Upper Peninsula			State of Michigan		
Infants and Children	Women	Total	Infants and Children	Women	Total
1,539	564	2,103	275,057	103,712	378,769

 **Institutional Factors**

Like other communities in the Upper Peninsula, residents of Baraga face electricity rates which are more than twice the state average (\$0.1128/kwh), ranging from \$0.1603-0.2441/kWh.⁴⁰ Just 51.3% of homes are heated by utility natural gas, below the Michigan average of 76.6%.

Overall, Baraga is a relatively safe place to live, with violent crimes below the state average. However, it has a slightly higher rate of injury deaths relative to the state of Michigan.

	Baraga County	Western Upper Peninsula	State of Michigan
Violent Crime⁴¹ (number of reports violent crime offenses per 100,000 population)	333	242	443
Injury Deaths⁴² (number of deaths due to injury per 100,000 population)	75	82	72

 **Natural Landscape**

Baraga county sits on Lake Superior and contains 900 acres of land with 70 miles of Lake Superior shoreline.⁴³ The county sees an average of 150 inches of snowfall per year.³¹ Baraga is a primarily rural county with extensive forests and water assets.³¹ They have acceptable levels of reported air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NO_x, and SO_x⁴⁴. Compared to other counties in the Western Upper Peninsula, Baraga has elevated levels of particulate matter, though these are much lower than levels across the state of Michigan. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from the Western Upper Peninsula.⁴⁵ In 2017, there were no reported drinking water violations

³⁹ "MDHHS - WIC Data & Reports - State of Michigan." https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910_60308_60309---,00.html. Accessed 23 Aug. 2019.

⁴⁰ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

⁴¹ "FBI, Crime in the U.S. Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

⁴² "About Underlying Cause of Death; 1999-2017" CDC Wonder. <https://wonder.cdc.gov/controller/saved/D76/D15F90Z>. Accessed 21 Aug. 2019.

⁴³ "Baraga County Recreation Plan 2018-2022 - WUPPDR." 12 Feb. 2018, <http://www.wuppdr.org/wp-content/uploads/2018/03/BaragaCoRecPlan2018-main-electronic-reduced.pdf>. Accessed 15 Oct. 2019.

⁴⁴ "MDEQ - Michigan Air Emissions Reporting System (MAERS) Annual Pollutant Totals Query" https://www.egle.state.mi.us/maers/emissions_query.asp

⁴⁵ "Michigan Air Quality - AirNow." https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23 Accessed 14 Aug 2019

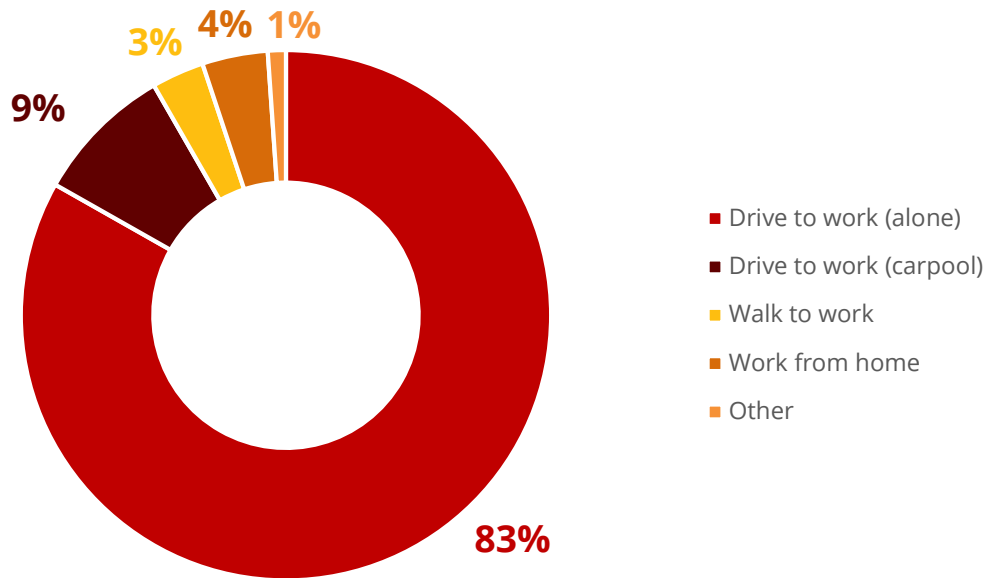
nor any reported toxic release events.^{46,47} As of 2019, Baraga County has an out of date FEMA approved hazard mitigation plan.⁴⁸ A new plan is currently in the process of being developed.



Built Environment

Of the 5,278 housing units in Baraga County, 57.0% are occupied.⁴⁹ Driving is the primary form of transportation in Baraga County, with 91.7% of employed persons driving to work (83.2% alone and 8.5% as part of a carpool). An additional 4.0% of people work from home, 3.2% walk to work, and 0.5% bike. As such, 94.0% of households have at least one car, and 60.0% of households have at least 2 cars.

Mode of Transport to Work Among Residents in Baraga County



⁴⁶ "Michigan Public Water Supply Program 2018 Maximum Contaminant Level and Treatment Technique Violations" https://www.michigan.gov/documents/egle/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

⁴⁷ "Toxics Release Inventory (TRI) Program" <https://www.epa.gov/toxics-release-inventory-tri-program> Accessed 14 Aug 2019.

⁴⁸ "Michigan Hazard Mitigation Plan - State of Michigan." https://www.michigan.gov/documents/msp/MHMP_480451_7.pdf Accessed 14 Aug 2019.

⁴⁹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from the same source.



COMMUNITY PROFILE:

Gogebic County

Updated: November 7, 2019



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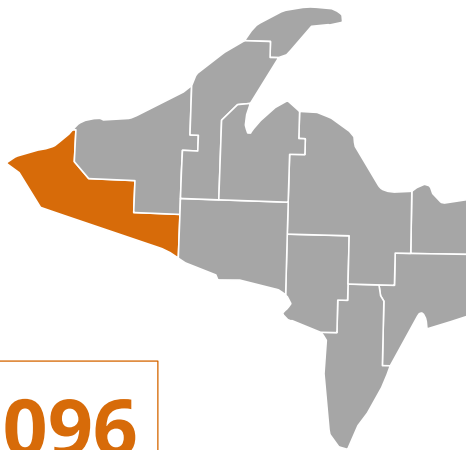
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Photo Description
By Todd Marsee, Michigan Sea Grant



WESTERN UPPER
PENINSULA FOOD
SYSTEM COUNCIL



COMMUNITY PROFILE:

Gogebic County



Demographics

Gogebic County is located in the western most part of Michigan's Upper Peninsula. Gogebic County is situated between Wisconsin to the west/southwest, Lake Superior to the north, and Ontonagon County to the east. This Upper Peninsula county is home to 15,096 residents.¹ Of these residents, 24.90% are over 65 years of age. The average household income in Gogebic County is \$36,689. The entire county is home to 6,660 households, with an average household size of 2.11.

15,096
RESIDENTS

25%
OVER 65 YEARS

Residents living below the federal poverty line²

	Gogebic County	State of Michigan
Population (#)	15,096	9,995,915
Percentage living below the federal poverty line	18.7%	14.20%
Percentage of elderly (older than 65) living below FPL	9.5%	8.20%
Percentage of families living below FPL with children under 18 and 5, respectively	29.7%, 23.0%	18.40%, 20.60%

In 2018, it was estimated that 16% of residents in Gogebic County are food insecure compared with 15% in the state of Michigan.³ The food insecurity rate for children in 2017 was 21.4%.⁴ Food Insecurity estimates the percentage of the population who did not have access to a reliable source of food during the past year, based on information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey.

¹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

² Ibid.

³ "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.

⁴ Map the Meal Gap 2019: Overall and Child Food Insecurity by County 2017. https://public.tableau.com/profile/feeding.america.research#!/vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic



Public Health

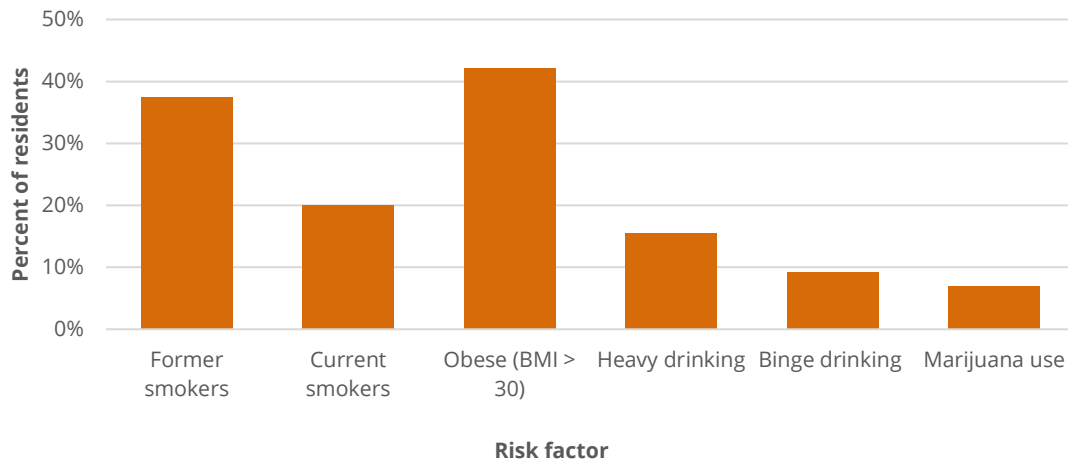
In 2019, health factors within Gogebic County ranked 45 out of the 83 Michigan counties.⁵ This measure examines health behaviors, clinical care, social and economic factors and the physical environment. In terms of health outcomes, Gogebic County ranked number 22 out of the 83 Michigan counties, a metric which considers two key measures: length and quality of life.⁶

Health Factors:

Health Behaviors

According to 2018 data, 37.4% of residents of Gogebic County are former smokers, and 20.1% are current smokers.⁷ The overwhelming majority (88.0%) of the population in Gogebic County has access to exercise opportunities; however, 42.10% of the population is obese with a BMI of 30 or above. This is higher than the state where 32.5% of the population has a BMI of 30 or above.⁸ The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Gogebic County an index of 7.70.⁹ In terms of substance use, 15.5% of the population reported heavy drinking, 9.2% reported binge drinking, and 7.0% used marijuana in the past 30 days.¹⁰

Health Risk Factors in Gogebic County



Within the Upper Peninsula, health indicators vary greatly based on income levels.¹¹ The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.¹²

5 "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

6 Ibid.

7 "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

8 Ibid.

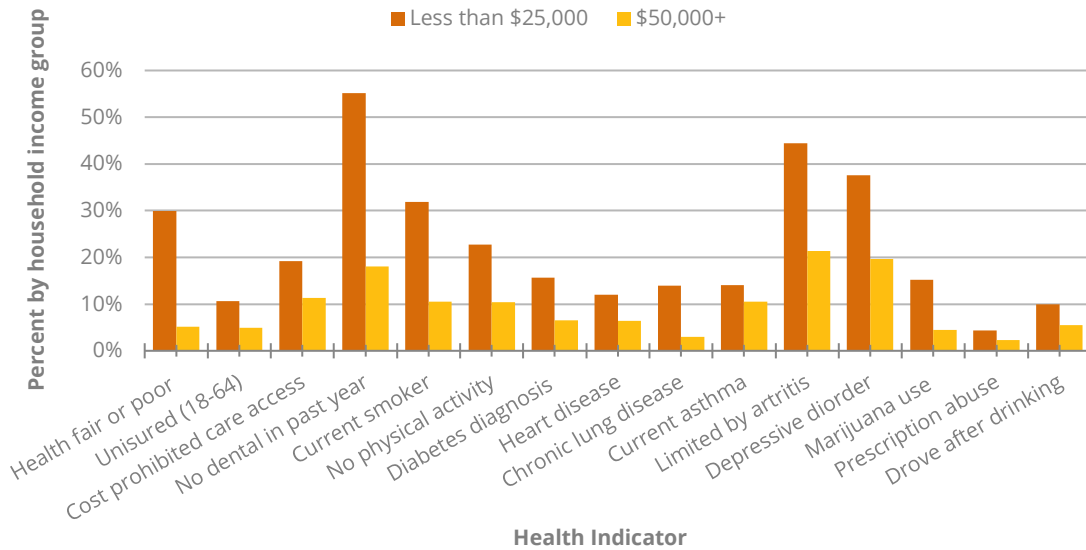
9 "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

10 "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

11 Ibid.

12 Ibid.

Health Indicator by Household Income Among UP Residents



Clinical Care

As of 2016, 7.00% of the population (under the age of 65 years) within Gogebic County is uninsured.¹³ Among the six western counties of Michigan’s Upper Peninsula, Gogebic county has the lowest ratio of population to primary healthcare providers.¹⁴ In fact, in Gogebic County, this ratio is lower than statewide. Specifically, the ratio of population to primary care physicians (PCP) stands at 1,020:1. In Michigan, the PCP is 1,260:1. The county ratio of population to dentists is 2,190:1 and stands at 1,360:1 statewide. The ratio of population to mental health providers is 610:1. In the state of Michigan, this ratio stands at 400:1.

The Ratio of Population to Healthcare Providers¹⁵

	Gogebic County	Michigan
Population to primary care physicians	1,020:1	1,260:1
Population to dentists	2,190:1	1,360:1
Population to mental health providers	610:1	400:1

Despite a lower than state ratio of population to primary care providers, in 2018, 32.90% of the population within Gogebic County did not have a routine check up with a general practitioner in the past year.¹⁶ Statewide, this percentage stands at 26.90%. Further, 29.60% of the population of

¹³ "Small Area Health Insurance Estimates" <https://www.census.gov/programs-surveys/sahie.html>. Accessed 7 Nov. 2019.

¹⁴ "2019 County Health Rankings Key Findings Report | County" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 7 Nov. 2019. All data in this paragraph came from the same source.

¹⁵ Ibid.

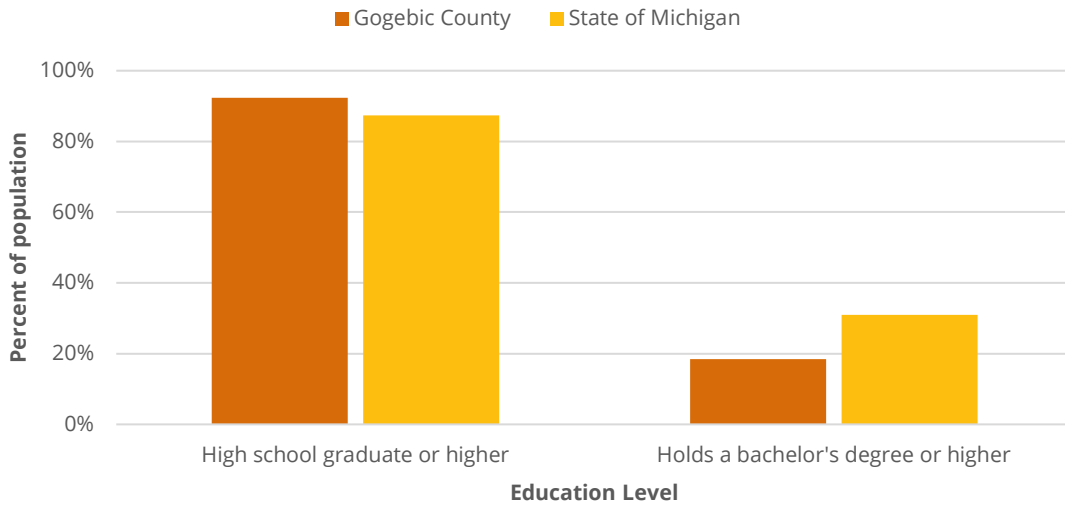
¹⁶ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 7 Nov. 2019. All data in this paragraph came from the same source.

Gogebic County have not received dental care in the past year. At a state level, 29.90% of the population has not received dental care in the past year. In 2018, 38.0% of the population received a flu shot in Gogebic County. Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide proves to be higher than state percentages standing at 46.0%.

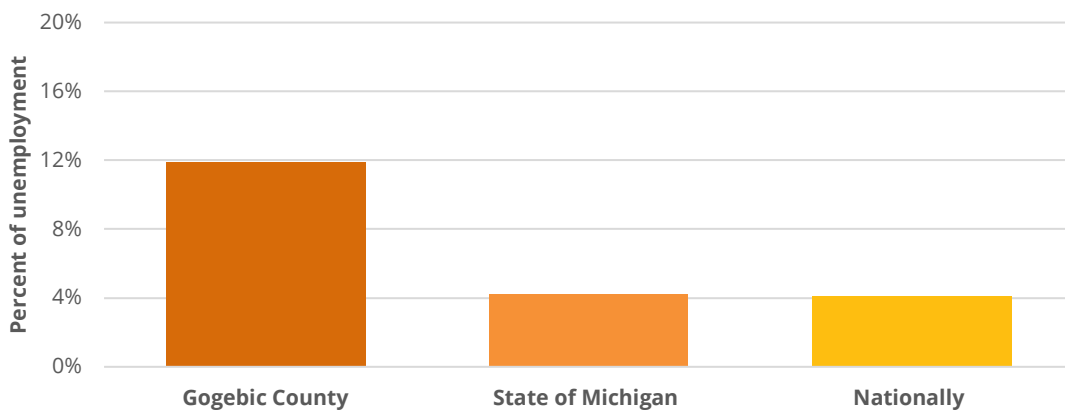
Social and Economic Factors

In Gogebic County, 92.30% of the population, ages 25 and above, is a high school graduate or higher, and 18.40% of the population, ages 25 and above, holds a bachelor’s degree or higher.¹⁷ Despite the high number of citizens with a high school diploma, the unemployment rate is extremely high. In 2017, the unemployment rate stood at 11.90%. At this time, the unemployment for the state of Michigan stood at 4.2%.

Education Among the Population (25 years of age and above)



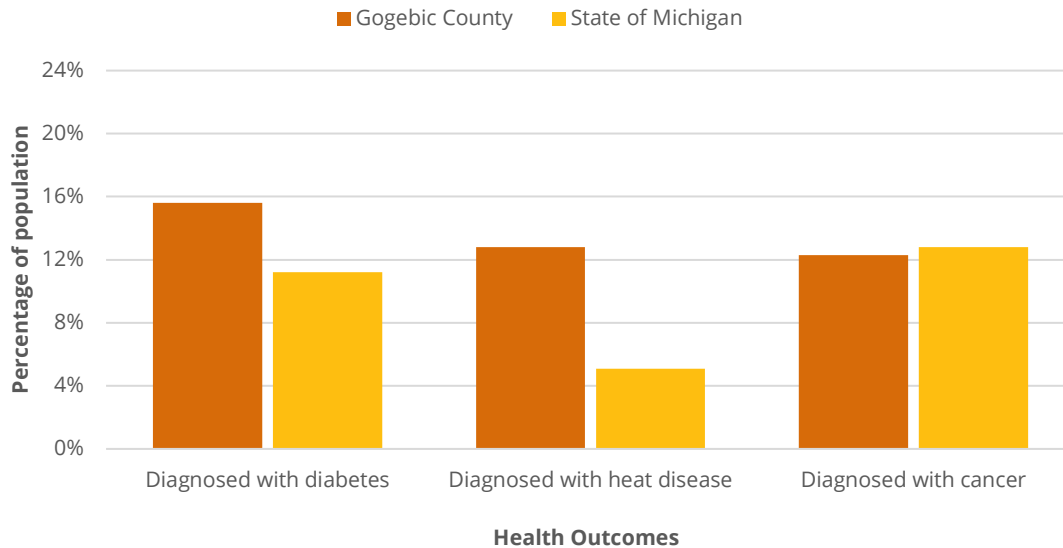
Unemployment Rate in 2017



¹⁷ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

Health Outcomes:

In 2018, countywide health outcomes indicate a need for further preventative care. Specifically, 15.6% of the population was diagnosed with diabetes (11.2% statewide), 12.8% diagnosed with heart disease (5.1% statewide), and 12.3% diagnosed with cancer (12.8% statewide).¹⁸ These outcomes display a need to assess barriers to accessing preventative care within Gogebic County.



Food Resources

Gogebic County represents more than 1,100 square miles of land area, with 5,535 acres of farm-land (0.78% of the land area), representing 54 farms, as of 2017.¹⁹ Since 2012, Gogebic County has seen a 9.00% reduction in acres of farmland, and as of 2017, the average farm was 103 acres.²⁰ There were also eight farms reported in 2017, which harvested corn for grain. From these eight farms, a total of 72,472 bushels of corn were harvested.²¹ Additionally, no farms producing barley, oats or wheat were reported in Gogebic County in 2017.²² Five farms reported selling a total of 1,056 pounds of honey from 28 honey bee colonies.²³ In 2017, the number of livestock proved to be the lowest among the six western counties in the Upper Peninsula. Specifically, 259 cattle and calves on 21 farms were reported in Gogebic County in 2017. Cattle and calves represent the majority of livestock in the county. The number of pigs and hogs reported were 95 on 6 different farms, and the county reported 280 sheep and lambs on 8 different farms.²⁴ Overall, farmland in Gogebic County has the highest market value when compared to the six counties in the western peninsula.

¹⁸ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 7 Nov. 2019.

¹⁹ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019. <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²⁰ Gogebic County Profile, 2017 Census of Agriculture. USDA Census of Agriculture. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Michigan/

²¹ "Data and Statistics - NASS.USDA.gov." 28 Sep. 2018. https://www.nass.usda.gov/Data_and_Statistics/. Accessed 19 Sep. 2019.

²² Ibid.

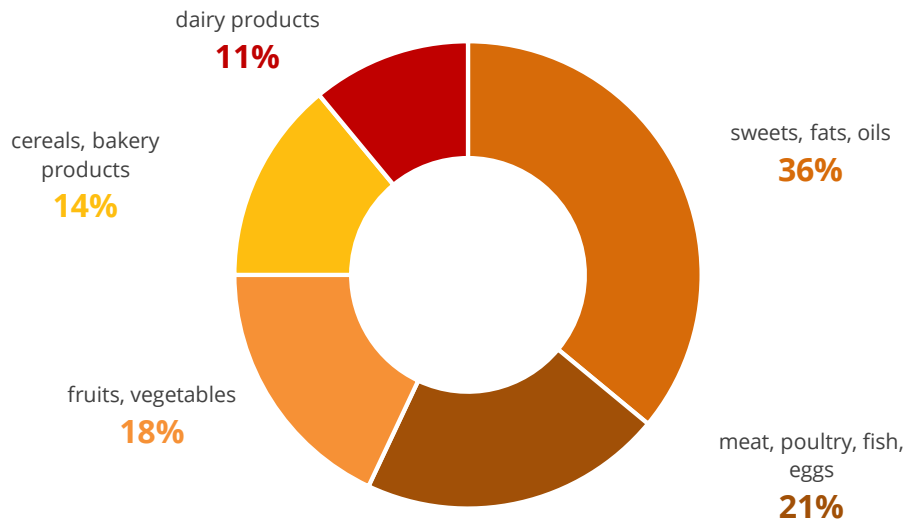
²³ Ibid.

²⁴ "Data and ... - USDA - National Agricultural Statistics Service." https://www.nass.usda.gov/Data_and_Statistics/County_Data_Files/Livestock_County_Estimates/index.php. Accessed 19 Sep. 2019.

The price per acre is about \$2,600, compared to the state average of \$5,000/acre.²⁵ Here it is important to note the limitation of the Department of Agriculture data is within this rural context. The census only collects data from farms which report a profit of more than \$1,000 a year. Also, there was no data available for foraged and hunted foods.²⁶

Households in Gogebic spend \$41 million annually on food purchases as of 2011; of which \$25 million represents food purchased for home consumption.²⁷ Of these purchases, 36.40% were sweets, fats, and oils, while the remainder was split between meat, poultry, fish, eggs (20.60%), fruits and vegetables (18.20%), cereals and bakery products (14.20%), and dairy products (10.70%). In 2018, 14.00% of the population in Gogebic County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings. Statewide, 14.4% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables.

Gogebic County Household Food Purchases (2011)



Local Food Purchasing

In Gogebic County, no u-pick farms are reported; however, two farmers markets are available and one community supported agriculture farm (CSA) present.²⁸ Further, there is one retail business within the county which sells local foods.²⁹

²⁵ "Farmland Value - USDA ERS." 20 Aug. 2019, <https://www.ers.usda.gov/topics/farm-economy/land-use-land-value-tenure/farmland-value/>. Accessed 19 Sep. 2019.

²⁶ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²⁷ Western Upper Peninsula (Michigan) local farm and food economy | Crossroads Resource Center. Ken Meters. All data in this paragraph came from the same source.

²⁸ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019.

²⁹ Ibid.



Social Services

The residents within Gogebic county have access to many federal social service programs including food assistance program, funding for child care, disability assistance, and cash assistance (family independence program).

Social Service Programs at the County and State Level^{30 31}

	Gogebic County	State of Michigan
Population (2017)	15,096	9,995,915
Food Assistance Program Recipients (monthly average for 2017)	2,504 (16.59%)	1,375,434 (13.75%)
Family Independence Program Recipients (monthly average for 2017)	44 (0.29%)	48,120 (0.48%)
Child Development and Care (monthly average for 2017)	31 (0.20%)	32,217 (0.32%)

Free and Reduced Lunch Eligibility in Gogebic County Schools, 2018-2019³²

Free Lunch Eligible	Reduced Lunch Eligible
466 students (53.4%)	61 students (7.0%)

CY 2017 Deduplicated Enrollment Count By Local Agency in Women, Infants and Children (WIC) Special Supplemental Nutrition Program ³³

Western Upper Peninsula			State of Michigan		
Infants and Children	Women	Total	Infants and Children	Women	Total
1,539	564	2,103	275,057	103,712	378,769

³⁰ "Food Assistance Program (FAP): Trend Information." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_24_269236_7.pdf. Accessed 20 Aug. 2019.

³¹ "Total Cases, Recipients and Payments for FIP, FAP ... - State of Michigan." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_02_269209_7.pdf. Accessed 20 Aug. 2019.

³² Michigan School Data, Free and Reduced Lunch Counts Data Table, 2018-2019. Accessed at <https://www.mischooldata.org/Other2/DataFiles/StudentCounts/HistoricalFreeAndReducedLunchCounts.aspx>.

³³ "MDHHS - WIC Data & Reports - State of Michigan." https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910_60308_60309---,00.html. Accessed 23 Aug. 2019.



Institutional Factors

Like other communities in the Upper Peninsula, the residents of Gogebic County face electricity rates which are higher than state average (\$0.11/kwh), at about \$0.16/kwh.³⁴ Although these rates are higher than the state average, Gogebic has the lowest electricity rates compared to its neighboring counties in the Upper Peninsula. Within Gogebic County, 62.40% of homes are heated by utility natural gas, below the Michigan average of 76.6%.

Public safety data, including statistics on violent crimes, injury deaths, homicides and firearm fatalities, specific to Gogebic County was not available.

	Western Upper Peninsula	State of Michigan
Violent Crime³⁵ (number of reports violent crime offenses per 100,000 population)	242	443
Injury Deaths³⁶ (number of deaths due to injury per 100,000 population)	82	72



Natural Landscape

Gogebic County is seated on the southern shores of Lake Superior and bordered by Iron County and Ontonagon County.³⁷ It encompasses 1,105 square miles of which 90% is forested and 3% is surface water.³⁴ The county is home to the largest inland lake in the Upper Peninsula, Lake Gogebic.³⁴ 50,290 acres are under the county's forest management program of which 374 acres have assigned timber rights.³⁴ The county has a variety of soils ranging from loamy to clayey, lacustrine soils.³⁴ Gogebic county is crossed by four notable rivers, Montreal, Black, Presque Isle and Ontonagon rivers and is also home to multiple lakes including Lake Gogebic, Lac Vieux Desert, Black River Lake and the Cisco chain of lakes.³⁴ Most of the county's forests are northern hardwoods followed by aspen forests.³⁴ Gogebic County does not have any superfund sites or air quality monitoring sites.³⁸ They have acceptable levels of reported air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NOx, and SOx³⁹. Compared to the state of Michigan and other counties in the Western Upper Peninsula, Gogebic has very low levels of reported air pollutants. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from Gogebic County.⁴⁰ In 2017, there were no reported drinking water violations nor any

³⁴ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

³⁵ "FBI — Crime in the U.S. - Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

³⁶ "Saved Request: Underlying Cause of Death, 1999 ... - CDC Wonder." <https://wonder.cdc.gov/controller/saved/D76/D15F907>. Accessed 21 Aug. 2019.

³⁷ "Gogebic County - wuppr." http://www.wuppr.org/wp-content/uploads/2018/03/GoCoRec_2018-2022-FINAL-electronic.pdf. Accessed 15 Oct. 2019.

³⁸ "Superfund Sites in Reuse in Michigan - EPA." <https://www.epa.gov/superfund-redevelopment-initiative/superfund-sites-reuse-michigan>. Accessed 19 Sep. 2019.

³⁹ (n.d.). MDEQ - Michigan Air Emissions Reporting System (MAERS) - Annual Retrieved August 14, 2019, from https://www.eagle.state.mi.us/maers/emissions_query.asp

⁴⁰ (n.d.). Michigan Air Quality - AirNow. Retrieved August 14, 2019, from https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23

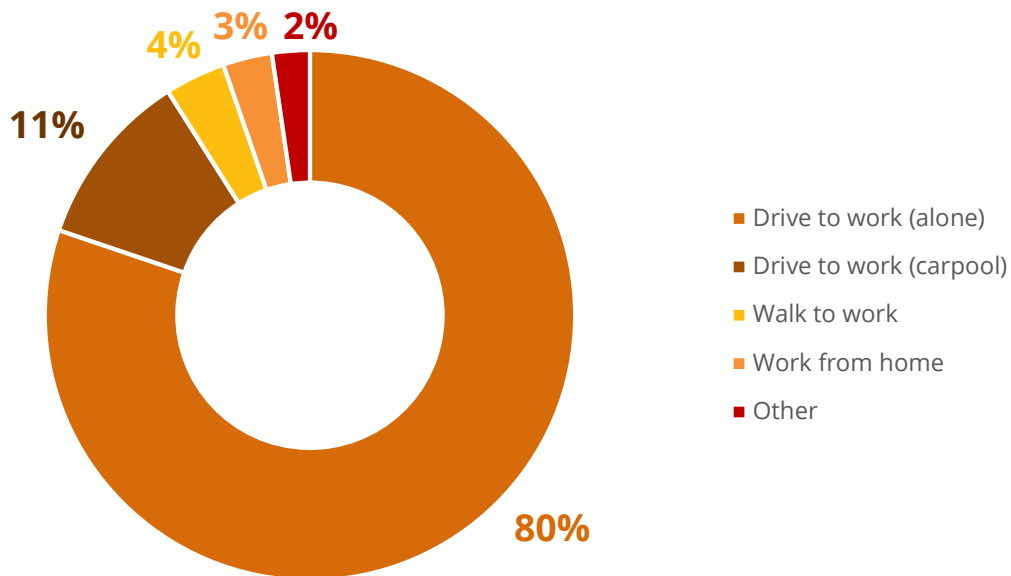
reported toxic release events.^{41,42} As of 2019, Gogebic County has an out of date FEMA approved hazard mitigation plan.⁴³ A new plan is in the process of being developed.



Built Environment

Of the 10,797 housing units in Gogebic County, 61.68% are occupied. Driving is the primary form of transportation in Gogebic County, with 91.00% of employed persons driving to work (80.20% alone and 10.80% as part of a carpool). An additional 3.00% of people work from home, and 3.70% walk to work.⁴⁴ As such, 89.90% of households have at least one car, and 53.60% of households have at least 2 cars.⁴⁵

Mode of Transport to Work Among Residents in Gogebic County



⁴¹ (2014, June 13). App D: Systems with 2018 MCL/TT Violations - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/egle/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

⁴² (n.d.). Toxics Release Inventory (TRI) Program Retrieved August 14, 2019, from <https://www.epa.gov/toxics-release-inventory-tri-program>

⁴³ (2019, April 22). Michigan Hazard Mitigation Plan - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/msp/MHMP_480451_7.pdf

⁴⁴ Commuting Characteristics by Sex - 2017 American Community Survey <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

⁴⁵ ibid



COMMUNITY PROFILE:

Keweenaw County

Updated: November 7, 2019



M | DOW SUSTAINABILITY FELLOWS
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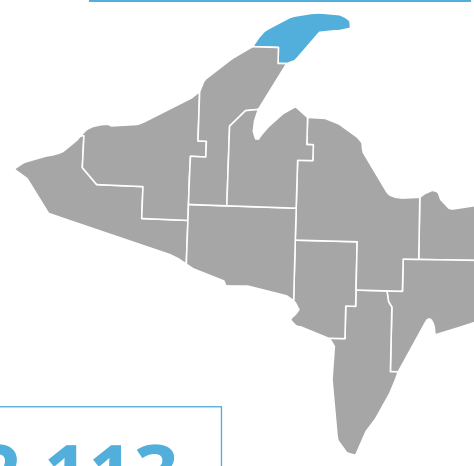
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Photo: Lake Superior surrounds Porter's Island at
Copper Harbor in Keweenaw Peninsula.



WESTERN UPPER
PENINSULA FOOD
SYSTEM COUNCIL



COMMUNITY PROFILE: Keweenaw County



Demographics

Keweenaw County is a community in the Western Upper Peninsula, home to 2,113 residents, of whom 35.10% are over the age of 65 years.¹ The county seat is the village of Eagle River, which had 71 residents, as of the 2010 census. The average household income in Keweenaw is \$41,118. The county is home to 1,013 households within an average size of 2.09.

2,113
RESIDENTS

35%
OVER 65 YEARS

Residents living below the federal poverty line²

	Keweenaw	State of Michigan
Population (#)	2,113	9,995,915
Percentage living below the federal poverty line	14.5%	14.2%
Percentage of elderly (older than 65) living below FPL	8.4%	8.2%
Percentage of families living below FPL with children under 18 and 5, respectively	25.6%, 33.3%	18.4%, 20.6%

15.0% of residents are food insecure compared with 15% in the state of Michigan.³ The food insecurity rate for children in 2017 was 19.8%.⁴ This food insecurity measure estimates the percentage of the population who did not have access to a reliable source of food during the past year, based on information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey.

¹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from the same source.
² Ibid.
³ "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.
⁴ Map the Meal Gap 2019: Overall and Child Food Insecurity by County 2017. https://public.tableau.com/profile/feeding.america.research#!/vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic

In 2017, 11.8% of U.S. households were food insecure at some time during the year.⁵ 12.2% of residents are below the federal poverty line, and the unemployment rate is 16.2%.⁶



Public Health

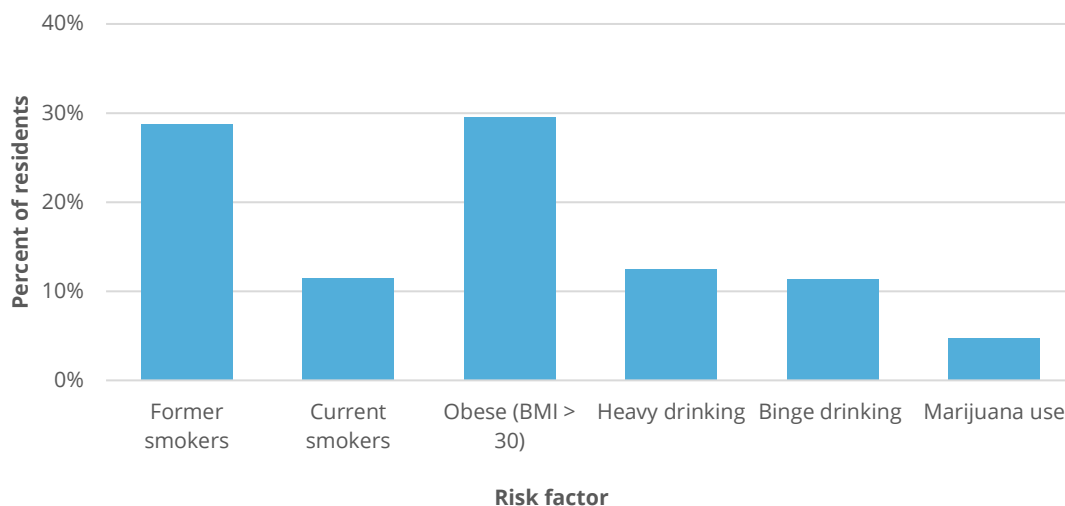
In 2019, Keweenaw County ranked 34 out of the 83 Michigan counties.⁷ This measure examines health behaviors, clinical care, social and economic factors and the physical environment. In terms of health outcomes, Keweenaw County ranked number 46 out of the 83 Michigan counties, a measure which considers length and quality of life.⁸

Health Factors:

Health Behaviors

In Keweenaw County, 28.8% of the county are former smokers, and 11.5% are current smokers (2018).⁹ Only a small percentage (10%) of the population in Keweenaw has access to exercise opportunities; however, 29.6% of the population is obese with a BMI of 30 or above. This is lower than the state where 32.5% of the population has a BMI of 30 or above. The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Keweenaw County an index of 7.60.¹⁰ In terms of substance use, 12.5% of the population reported heavy drinking, 11.4% reported binge drinking, and 4.70% used marijuana in the past 30 days. In 2018, there were 323 newly diagnosed chlamydia cases per 100,000 population.

Health Risk Factors in Keweenaw County



⁵ "Food Security and Nutrition Assistance - USDA ERS." <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed 22 Aug. 2019.

⁶ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

⁷ "Michigan Rankings Data | County Health Rankings & Roadmaps." <https://www.countyhealthrankings.org/rankings/data/MI>. Accessed 21 Oct. 2019.

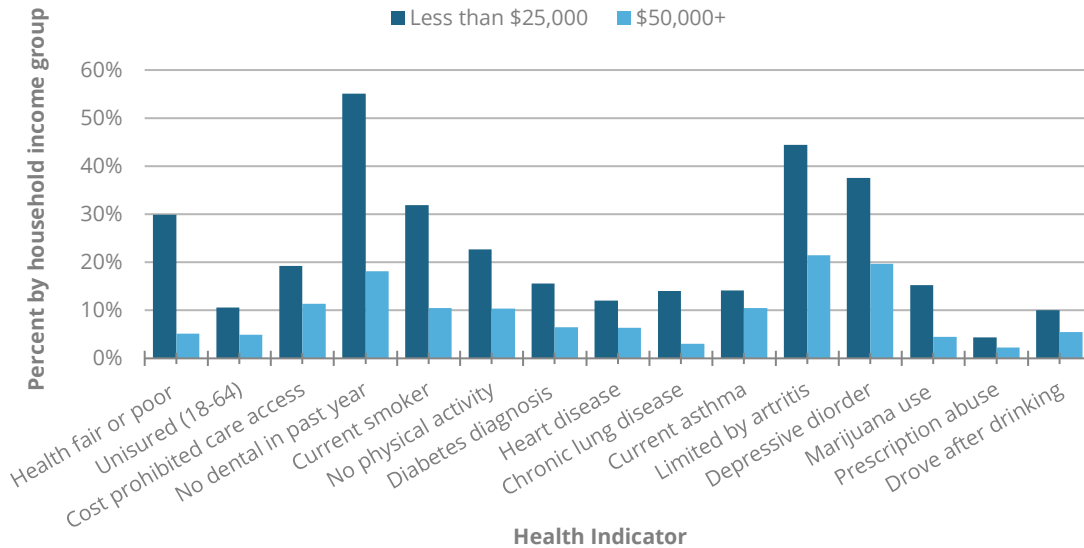
⁸ Ibid.

⁹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 21 Oct. 2019. Unless otherwise noted, all data in this paragraph came from the same source.

¹⁰ "Michigan Rankings Data | County Health Rankings & Roadmaps." <https://www.countyhealthrankings.org/rankings/data/MI>. Accessed 21 Oct. 2019.

Within the Upper Peninsula, health indicators vary greatly based on income levels.¹¹ The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.¹²

Health Indicator by Household Income Among UP Residents



Clinical Care

Within Keweenaw County, as of 2016, 7.0% of the population under the age of 65 is uninsured.¹³ The ratio of population to healthcare providers in Keweenaw County is not available. However, there are 3321 preventable hospital stays per 100,000 Medicare enrollees.¹⁴ In Michigan, this value is 5188.¹⁵ This ratio is critical to determine for Keweenaw County specifically as 35.1% of their population is over 65 years of age.¹⁶ Individuals over the age of 65 are twice as likely to seek primary care services.¹⁷ The county ratio of population to dentists is 2,110:1 and stands at 1,360:1 statewide.¹⁸ The ratio of population to mental health providers or the ratio of primary care physicians are not available. In the state of Michigan, this ratio stands at 1,260:1 and 400:1 respectively.¹⁹ These high ratios may contribute to residents having poor adoption of preventative health measures, including mammography screening and annual flu vaccination (detailed below).

¹¹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 23 Sep. 2019.
¹² Ibid.
¹³ "Small Area Health Insurance Estimates: 2016" <https://www.census.gov/library/publications/2018/demo/p30-03.html> Accessed 7 Nov. 2019
¹⁴ "Mapping Medicare Disparities | CMS Data" 17 Jun. 2019 <https://data.cms.gov/mapping-medicare-disparities>. Accessed 21 Oct. 2019.
¹⁵ Ibid.
¹⁶ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019.
¹⁷ "The Evolving Health Workforce: The Impacts of the Affordable Care" <https://www.ncbi.nlm.nih.gov/books/NBK241393/> Accessed 7 Nov. 2019.
¹⁸ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 21 Oct. 2019.
¹⁹ Ibid.

The Ratio of Population to Healthcare Providers²⁰

	Keweenaw County	Michigan
Population to primary care physicians	–	1,260:1
Population to dentists	2,110:1	1,360:1
Population to mental health providers	–	400:1

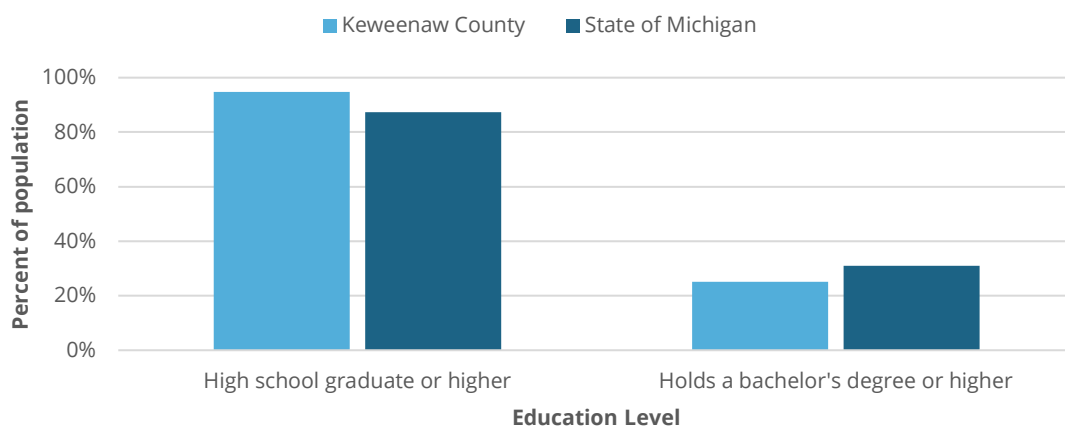
In terms of preventative care, in 2018, 21.4% of the population within Keweenaw County did not have a routine check up with a general practitioner in the past year.²¹ Statewide, this percentage stands at 26.90%. Further, 32.9% of the population of Keweenaw County have not received dental care in the past year. At a state level, 29.9% of the population has not received dental care in the past year. In 2018, 25.0% of the population received a flu shot in Keweenaw County. Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide is on par with state percentages standing at 43.0%.

Research shows that physicians born in rural areas are 2.4 times more likely to practice in rural areas, however only 25.00% of Michigan physicians are from rural areas.²²

Social and Economic Factors

In Keweenaw County, 94.7% of the population, ages 25 and above, is a high school graduate or higher.²³ 25.1% of the population, ages 25 and above, holds a bachelor’s degree or higher. Despite the high number of citizens with a high school diploma, the unemployment rate is extremely high. In 2017, the unemployment rate stood at 16.2% and at 4.2% in the state of Michigan.

Education Among the Population (25 years of age and above)



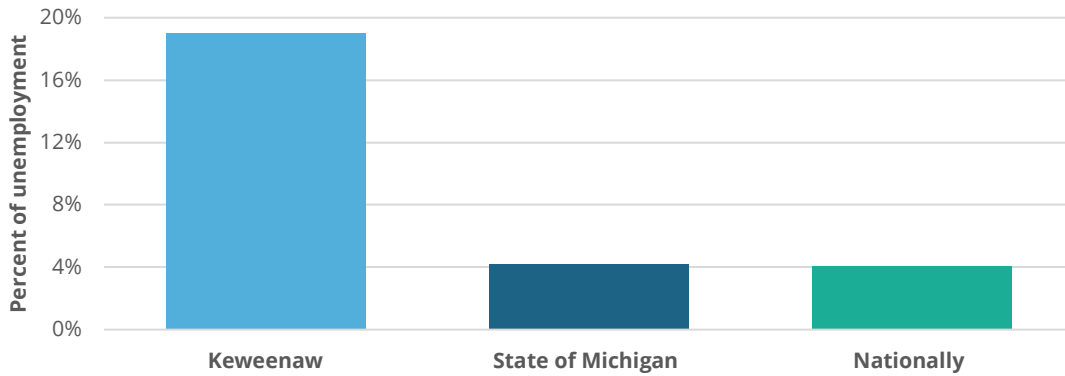
²⁰ "Michigan Rankings Data | County Health Rankings & Roadmaps." <https://www.countyhealthrankings.org/rankings/data/MI>. Accessed 21 Oct. 2019.

²¹ Ibid. All data in this paragraph came from the same source.

²² "Where are the Primary Care Doctors?" https://crcmich.org/PUBLICAT/2010s/2015/primary_care_physician_shortage-2015.pdf Accessed Aug 14 2019.

²³ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

Unemployment Rate in 2017

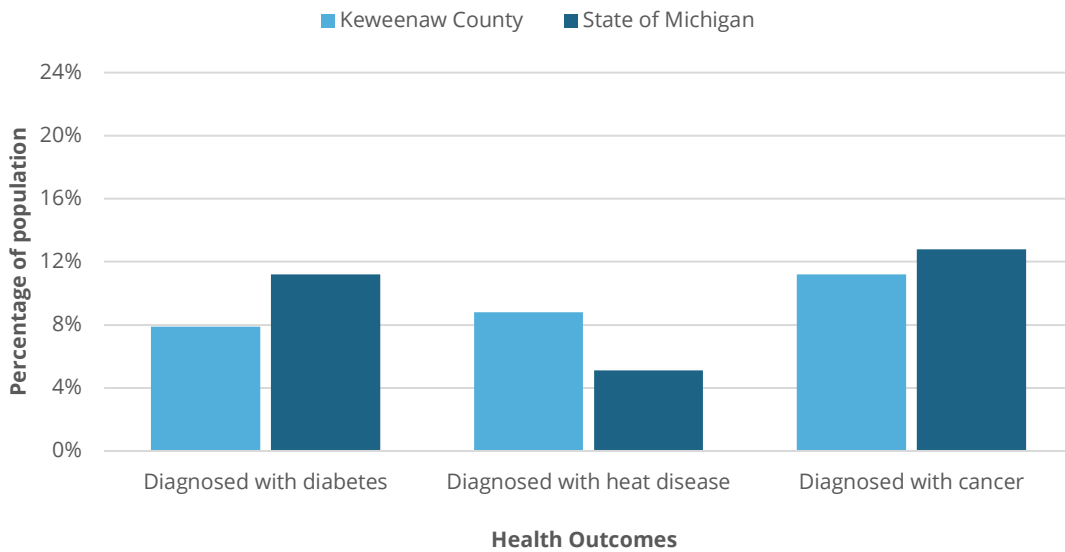


Physical Environment

**Further detailed below in Natural Landscapes and Built Environment*

Health Outcomes:

In 2018, countywide health outcomes indicate a need for further preventative care. Specifically, 7.9% of the population was diagnosed with diabetes (11.2% statewide), 8.8% diagnosed with heart disease (5.1% statewide), and 11.2% diagnosed with cancer (12.8% statewide).²⁴ These outcomes display a need to increase public health outreach and education.



²⁴ "CDC Global Noncommunicable Diseases (NCDs) | Division of Global Health Protection" <https://www.cdc.gov/globalhealth/healthprotection/ncd/index.html>. Accessed 21 Oct. 2019.

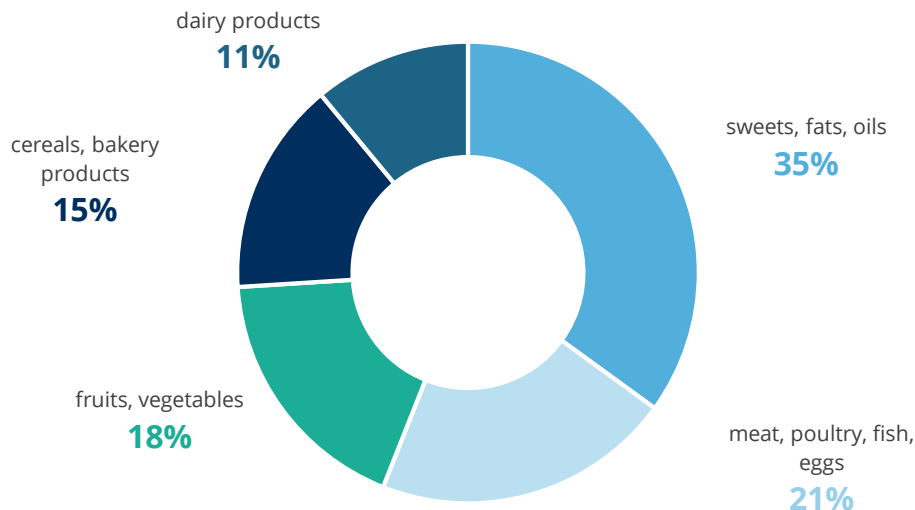


Food Resources

Keweenaw County represents more than 541 square miles of land area, with 240 acres of farm-land (44.0% of the land area), representing nine farms, as of 2017.²⁵ Since 2012, Keweenaw County has seen a 25.0% reduction in acres of farm-land. The majority of farms range in size from 10-50 acres. There is no reported data on livestock for Keweenaw county. Farm-land in Keweenaw has a moderate market value, at about \$3,375 /acre, compared to the state average of \$5,000/acre. This places Keweenaw as having the highest market value per acre of any of the six counties in the Western Upper Peninsula. There is no reported data on the type of crops harvested in Keweenaw.

Households in Keweenaw spend \$5.4 million annually on food purchases as of 2011; of which \$3.3 million represents food purchased for home consumption.²⁶ Of these purchases, 35.0% were sweets, fats, and oils, while the remainder was split between meat, poultry, fish, eggs (21.0%), fruits and vegetables (18.0%), cereals and bakery products (15.0%), and dairy products (11.0%). In 2018, 10.7% of the population in Keweenaw County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings.²⁷ Statewide, 14.4% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables.²⁸

Keweenaw County Household Food Purchases (2011)



Local Food Purchasing

In Keweenaw County, no farmers markets, community supported agriculture farms (CSA), u-pick farms or local retail businesses selling local foods have been reported.²⁹

²⁵ "Census of Agriculture, USDA, National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

²⁶ Western Upper Peninsula (Michigan) local farm and food economy | Crossroads Resource Center. Ken Meters. All data in this paragraph came from this source.

²⁷ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 21 Oct. 2019.

²⁸ Ibid.

²⁹ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019.



Social Services

In Keweenaw, residents have access to many federal social service programs including food assistance program, funding for child care, disability assistance, and cash assistance (family independence program). Keweenaw County is serviced by the Upper Peninsula's chapter of Little Brother's Friends of the Elderly, which is an organization that provides services for elderly including house visits, medical transportation, firewood delivery, and social activities. This chapter is housed in Houghton County.³⁰



Institutional Factors

Like other communities in the Upper Peninsula, residents of Keweenaw face electricity rates which more than twice the state average (\$0.1128/kwh), at about \$0.23/kWh.³¹ Just 32.5% of homes are heated by utility natural gas, below the Michigan average of 76.6%.

Overall, Keweenaw County is a relatively safe place to live, with violent crimes and injury deaths below the state average.³²



Natural Landscape

Keweenaw County is characterized by its northernmost placement in Michigan's Upper Peninsula. This county boasts stunning natural beauty featuring unique landscapes, a plethora of outdoor activities, and large areas of corporate-owned forest land. The county is home to almost 100 miles of Lake Superior coastline, over 374 lakes and ponds, and countless miles of creeks and streams.³³ Further, Keweenaw County is home to Isle Royale National Park. This stunning park is located in Lake Superior approximately 45 miles of the Keweenaw Peninsula and covers a total of 218 square miles. This national park is comprised of a main island and 200 smaller islands.

They have no reported data on air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NO_x, and SO_x.³⁴ Compared to the state of Michigan and other counties in the Western Upper Peninsula, Keweenaw has very low levels of reported air pollutants. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from Keweenaw County.³⁵ In 2017, there were no reported drinking water violations nor any reported toxic release events.^{36,37} As of 2019, Keweenaw County has an out of date FEMA approved hazard mitigation plan but work is in progress to update the plan.³⁸ A new plan is currently in the process of being developed.

³⁰ "Little Brothers – Michigan Chapter." <https://houghton.littlebrothers.org/>. Accessed 21 Oct. 2019.

³¹ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

³² "FBI, Crime in the U.S. Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

³³ "Keweenaw County Recreation Plan - WUPDDR." <http://www.wupddr.org/pdf/2011-2015KeweenawRecreationPlan.pdf>. Accessed 15 Oct. 2019. All data in this paragraph came from the same source.

³⁴ "MDEQ - Michigan Air Emissions Reporting System (MAERS)" https://www.egle.state.mi.us/maers/emissions_query.asp Accessed 14 Aug. 2019.

³⁵ "Michigan Air Quality - AirNow." https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23 Accessed 14 Aug 2019

³⁶ "Michigan Public Water Supply Program 2018 Maximum Contaminant Level and Treatment Technique Violations" https://www.michigan.gov/documents/egle/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

³⁷ "Toxics Release Inventory (TRI) Program" <https://www.epa.gov/toxics-release-inventory-tri-program> Accessed 14 Aug 2019.

³⁸ "Michigan Hazard Mitigation Plan - State of Michigan." https://www.michigan.gov/documents/msp/MHMP_480451_7.pdf Accessed 14 Aug 2019.

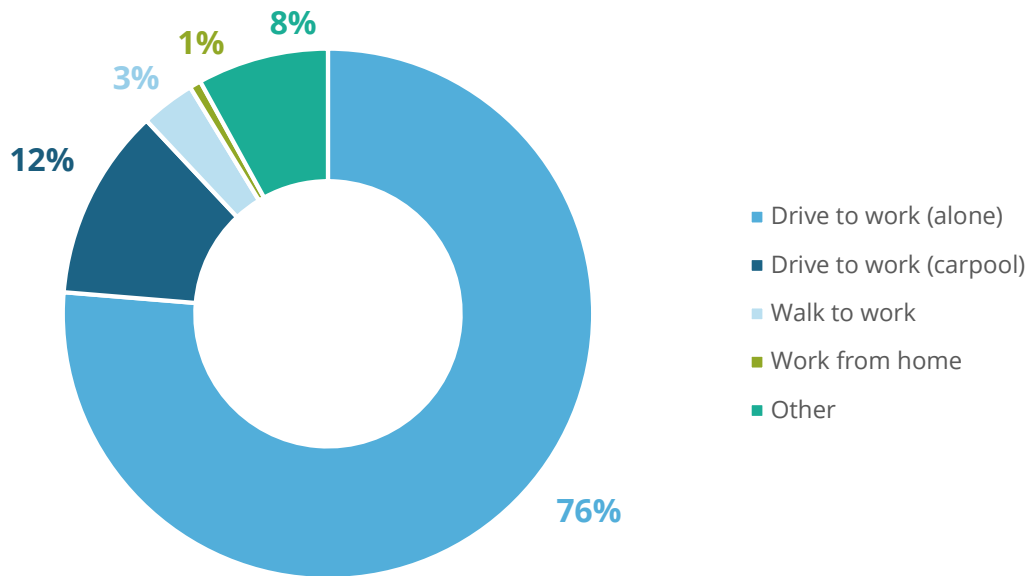


Built Environment

Of the 2,483 housing units in Keweenaw County, 40.8% are occupied, with an average of 2.09 people per housing unit.³⁹

Driving is the primary form of transportation in Keweenaw County, with 91.3 percent of employed persons driving to work (82.5% alone and 8.8% as part of a carpool).⁴⁰ An additional 3.8% of people work from home, and 2.2% walk to work. As such, 34.2% of households have at least one car, and 38.7% of households have at least 2 cars.

Mode of Transport to Work Among Residents in Keweenaw County



³⁹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019.

⁴⁰ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from this source.



COMMUNITY PROFILE:

Houghton County



Updated: November 7, 2019

M | DOW SUSTAINABILITY FELLOWS
UNIVERSITY OF MICHIGAN

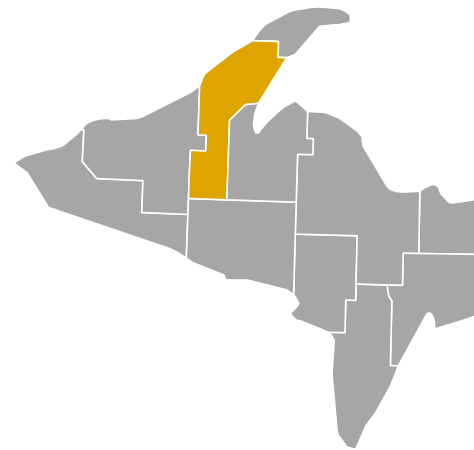
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Photo: Coastal highway at sunset over
the Keweenaw Bay



WESTERN UPPER
PENINSULA FOOD
SYSTEM COUNCIL



COMMUNITY PROFILE: Houghton County



Demographics

Houghton County is located in the center of the Western Upper Peninsula. This county is situated at the base of the Keweenaw Peninsula, with Keweenaw County to the North, and Lake Superior to the East and West. Bordering Houghton County to the West is Ontonagon County, to the East is Baraga County, and to the South is Iron County. Houghton County is home to 36,219 residents, which is more than double the population of any other county in the Western Upper Peninsula.¹ Of these residents, 20.20% are under 18, which is the highest rate in the Western Upper Peninsula while 17.00% are over the age of 65 years, the lowest rate in the Western Upper Peninsula. The county seat is the City of Houghton, which had 7,708 residents, as of the 2010 census, and is the 5th largest city in the Upper Peninsula. The average household income in Houghton County is \$41,379. The county is home to 13,157 households within an average size of 2.58 people per household.

36,219
RESIDENTS

17%
OVER 65 YEARS

Residents living below the federal poverty line

	Houghton County	State of Michigan
Population (#)	36,219	9,995,915
Percentage living below the federal poverty line	14.9%	14.2%
Percentage of elderly (older than 65) living below FPL	9.5%	8.2%
Percentage of families living below FPL with children under 18 and 5, respectively	15.0%, 17.8%	18.4%, 20.6%

¹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates." https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from one source.

In 2018, it was estimated that 16.0% of residents in Houghton County are food insecure compared with 15.0% in the state of Michigan.² The food insecurity rate for children in 2017 was 15.7%.³ Food Insecurity estimates the percentage of the population who did not have access to a reliable source of food during the previous year, based on information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey. In 2017, 11.8% of U.S. households were food insecure at some time during the year.⁴



Public Health

In 2019, the health factors within Houghton County ranked 19th out of the 83 Michigan counties.⁵ This measure examines health behaviors, clinical care, social and economic factors and the physical environment. In terms of health outcomes, Houghton County ranked 28th out of the 83 Michigan counties, a measure which considers length and quality of life.⁶

Health Factors:

Health Behaviors

In 2018, within Houghton County, 28.8% of the residents are former smokers, and 11.5% are current smokers.⁷ The majority (76.0%) of the population in Houghton has access to exercise opportunities; however, 29.6% of the population is obese with a BMI of 30 or higher. This is below the state average, where 32.5% of the population has a BMI of 30 or higher.⁸ The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Houghton County an index of 7.60.⁹ In terms of substance use, 12.5% of the population reported heavy drinking, 11.4% reported binge drinking, and 4.7% used marijuana in the past 30 days.¹⁰

² "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.

³ Map the Meal Gap 2019: Overall and Child Food Insecurity by County 2017. https://public.tableau.com/profile/feeding.america.research#:/vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic

⁴ "Food Security and Nutrition Assistance - USDA ERS." <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed 22 Aug. 2019.

⁵ "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

⁶ IBID

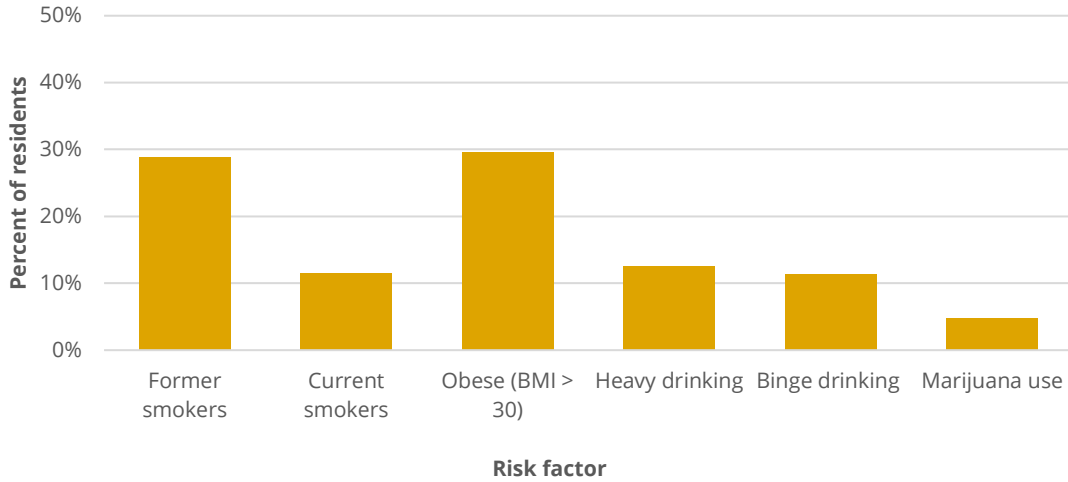
⁷ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

⁸ IBID

⁹ "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

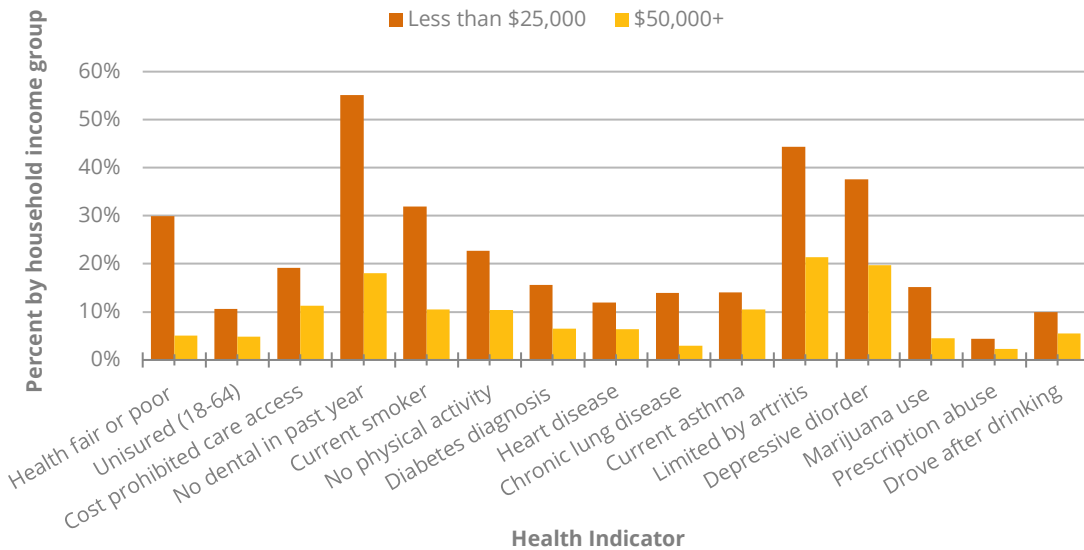
¹⁰ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

Health Risk Factors in Houghton County



Within the Upper Peninsula, health indicators vary greatly based on income levels.¹¹ The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.

Health Indicator by Household Income Among UP Residents



Clinical Care Within Houghton County, as of 2016, 7.00% of the population under the age of 65 is uninsured.¹² The ratio of population to healthcare providers in Houghton County is slightly higher than the state average as demonstrated in the table below.

¹¹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 23 Sep. 2019.

¹² "Small Area Health Insurance Estimates: 2016" <https://www.census.gov/library/publications/2018/demo/p30-03.html> Accessed 7 Nov. 2019

The Ratio of Population to Healthcare Providers¹³

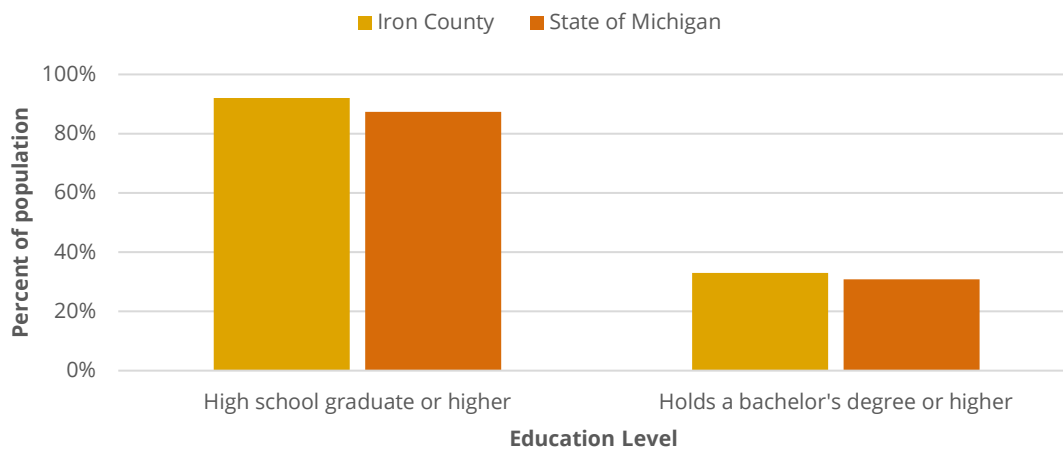
	Houghton County	Michigan
Population to primary care physicians	1,460:1	1,260:1
Population to dentists	1,580:1	1,360:1
Population to mental health providers	550:1	400:1

In terms of preventative care, in 2018, 21.40% of the population within Houghton County did not have a routine check up with a general practitioner in the past year. Statewide, this percentage stands at 26.90%.¹⁴ Further, 32.90% of the population of Houghton County has not received dental care in the past year.¹⁵ At a state level, 29.90% of the population has not received dental care in the past year.¹⁶ In 2018, 29.00% of the population received a flu shot in Houghton County.¹⁷ Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide is slightly above the state average at 47.00%.¹⁸

Social and Economic Factors

In Houghton County, 92.00% of the population, ages 25 and above, is a high school graduate or higher.¹⁹ 32.90% of the population, ages 25 and above, holds a bachelor's degree or higher. This makes Houghton the only county in the Western Upper Peninsula to exceed state averages (28.10%) in this metric. This may be due, in part, to the fact that Michigan Technological University is located in Houghton County. Houghton has the lowest unemployment rate in the Western Upper Peninsula at 9.70%. However, this is still significantly higher than the statewide unemployment rate of 4.20%.

Education Among the Population (25 years of age and above)



¹³ Ibid

¹⁴ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

¹⁵ Ibid

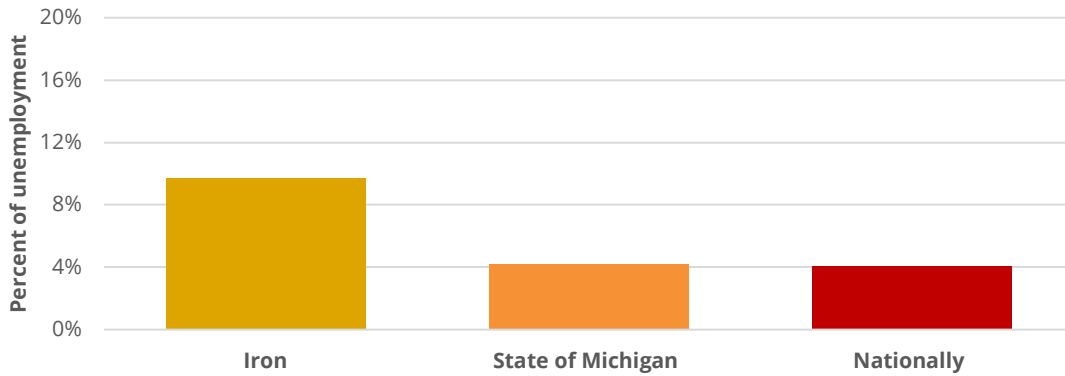
¹⁶ Ibid

¹⁷ Ibid

¹⁸ Ibid

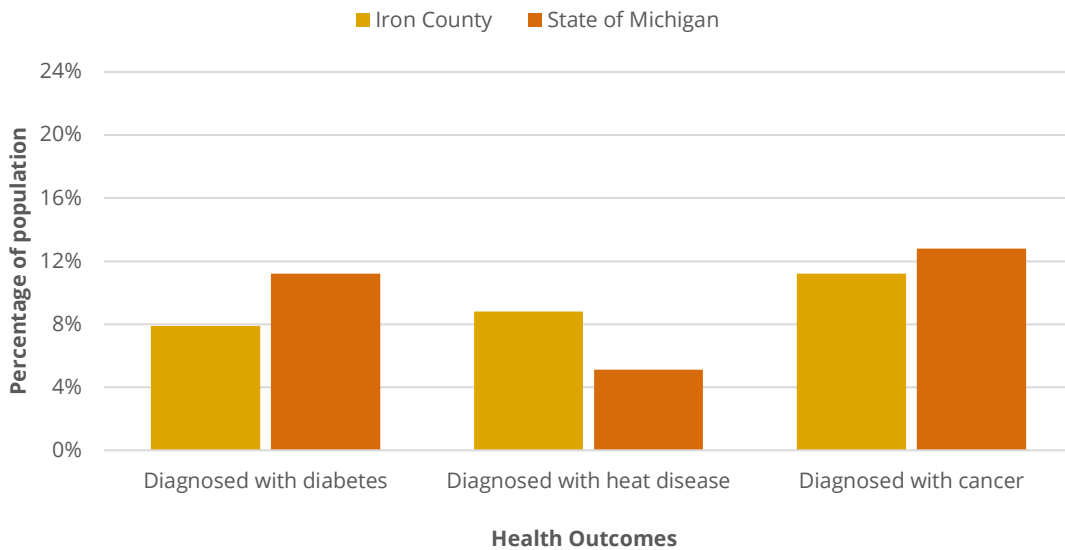
¹⁹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from one source.

Unemployment Rate in 2017



Health Outcomes:

In 2018, countywide health outcomes indicate reflect statewide averages. Specifically, 7.90% of the population has a diagnosis of diabetes (11.20% statewide), 8.80% diagnosed with heart disease (5.10% statewide), and 11.20% diagnosed with cancer (12.80% statewide).²⁰



Food Resources

Houghton County represents 1,012 square miles of land area, with 26,016 acres of farm-land (4.00% of the land area), representing 208 farms, as of 2017.²¹ Since 2012, Houghton County has seen a 4% reduction in acres of farmland, though the total number of farms has increased by 18.00%. As of 2017, the average farm size was 125 acres.²² In 2017, 23 farms totalling 77 acres were harvested totalling for vegetables, potatoes and melons.²³ This was an increase from 2012 when there were 23

²⁰ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

²¹ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²² Houghton County Profile, 2017 Census of Agriculture. USDA Census of Agriculture. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Michigan/

²³ "National Agricultural Statistics Service - 2012 Census of ... - USDA NASS." 4 Feb. 2019, https://www.nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1_Chapter_2_County_Level/. Accessed 21 Aug. 2019.

farms totaling 49 acres.²⁴ There were also 13 reported orchards in 2017, less than the 19 reported orchards in 2012.²⁵ Additionally, 13 farms were reported as producing fruit and nuts in 2017, a decrease from 19 in 2012.²⁶ Houghton had 28 farms producing berries in 2017, an increase from the 24 reported berry farms in 2012.²⁷ Seven farms produced a total of 1,030 pounds of honey from 22 honey bee colonies.²⁸ Cattle and calves are the most common livestock in Houghton County, with more than 1,200 cattle and calves on 64 farms.²⁹ The number of beef cows and milk cows are roughly even. Next most common is chickens with over 1,100 laying hens on 38 farms.³⁰ There are also approximately 675 sheep and lambs on 28 farms, and 70 pigs and hogs on 18 farms.³¹

Farmland in Houghton has a relatively low market value, at about \$2,350/acre, compared to the state average of \$5,000/acre.³² Relatively few crops are grown in Houghton County, with only corn grown for grain as the dominant crop. There are 8 farms totalling 560 acres that produced 72,472 bushels of corn for grain in 2017. There are also 19 farms producing oats, with 32,363 bushels produced on 856 acres. There are 3 farms producing grain and one farm producing wheat. Total production of these crops is withheld for privacy reasons. It is important to note the limitation of the Department of Agriculture data within this rural context, as the census only collects data from farms which report a profit of more than \$1,000 a year. Additionally, there was no data available for foraged and hunted foods.

Households in Houghton spend \$92 million annually on food purchases as of 2011; of which \$56 million represents food purchased for home consumption.³³ Of these purchases, 38.00% were sweets, fats, and oils, while the remainder was split between meat, poultry, fish, eggs (21.00%), fruits and vegetables (18.00%), cereals and bakery products (14.00%), and dairy products (11.00%). In 2018, 10.70% of the population in Houghton County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings. Statewide, 14.40% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables.

²⁴ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

²⁵ Ibid

²⁶ Ibid

²⁷ Ibid

²⁸ Census of Agriculture: County Data. https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_2_County_Level/Michigan/st26_2_0021_0021.pdf. Accessed 22 Aug. 2019.

²⁹ Ibid

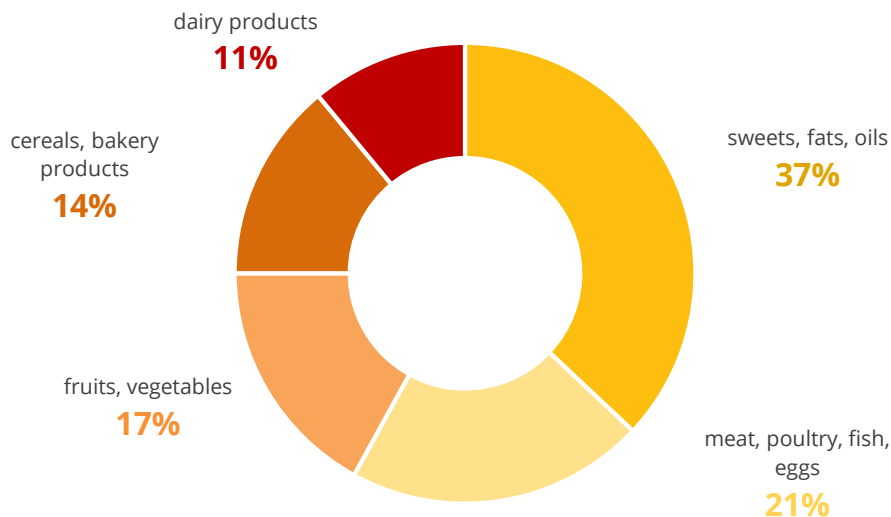
³⁰ Ibid

³¹ Ibid

³² "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019. All data in this paragraph came from one source.

³³ Houghton County, 2018 Upper Peninsula Community Health Needs Assessment (CHNA) County Dashboard. Available at www.wuphd.org/upchna. All data in this paragraph came from one source.

Houghton County Household Food Purchases (2011)



Local Food Purchasing

In Houghton County, there are 3 reported farmers markets and 1 reported u-pick farm. There are two community supported agriculture farms (CSA) present.³⁴ Further, there is one retail business within the county which sells local foods.³⁵



Social Services

In Houghton County, residents have access to many federal social service programs including food assistance program, funding for child care, disability assistance, and cash assistance (family independence program). Further, Houghton County houses the Upper Peninsula's chapter of Little Brother's Friends of the Elderly, which is an organization that provides services for elderly including house visits, medical transportation, firewood delivery, and social activities. This chapter serves several counties in the western Upper Peninsula including Houghton, Baraga, Ontonagon, and Keweenaw.³⁶

³⁴ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019.

³⁵ Ibid

³⁶ "Little Brothers – Michigan Chapter." <https://houghton.littlebrothers.org/>. Accessed 21 Oct. 2019.

Social Service Programs at the County and State Level^{37 38}

	Houghton County	State of Michigan
Population (2017)	36,219	9,995,915
Food Assistance Program Recipients (monthly average for 2017)	3,511 (9.69%)	1,375,434 (13.75%)
Family Independence Program Recipients (monthly average for 2017)	77 (0.21%)	48,120 (0.48%)
Child Development and Care (monthly average for 2017)	48 (0.13%)	32,217 (0.32%)

Free and Reduced Lunch Eligibility in Houghton County Schools, 2018-2019³⁹

Free Lunch Eligible	Reduced Lunch Eligible
2031 students (37.7%)	471 students (8.8%)

CY 2017 Deduplicated Enrollment Count By Local Agency in Women, Infants and Children (WIC) Special Supplemental Nutrition Program⁴⁰

Western Upper Peninsula			State of Michigan		
Infants and Children	Women	Total	Infants and Children	Women	Total
1,539	564	2,103	275,057	103,712	378,769

³⁷ "Food Assistance Program (FAP): Trend Information." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_24_269236_7.pdf. Accessed 20 Aug. 2019.

³⁸ "Total Cases, Recipients and Payments for FIP, FAP ... - State of Michigan." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_02_269209_7.pdf. Accessed 20 Aug. 2019.

³⁹ Michigan School Data, Free and Reduced Lunch Counts Data Table, 2018-2019. Accessed at <https://www.mischooldata.org/Other2/DataFiles/StudentCounts/HistoricalFreeAndReducedLunchCounts.aspx>.

⁴⁰ "MDHHS - WIC Data & Reports - State of Michigan." https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910_60308_60309---,00.html. Accessed 23 Aug. 2019.



Institutional Factors

Like other communities in the Upper Peninsula, residents of Houghton face electricity rates which are approximately twice the state average (\$0.1128/kwh), at about \$0.20-0.235/kWh.⁴¹ Just 59.90% of homes are heated by utility natural gas, below the Michigan average of 76.60%.

Overall, Houghton County is a relatively safe place to live, with violent crimes and injury deaths below both the state average, and the average in the Western Upper Peninsula.

	Houghton County	Western Upper Peninsula	State of Michigan
Violent Crime⁴² (number of reports violent crime offenses per 100,000 population)	156	242	443
Injury Deaths⁴³ (number of deaths due to injury per 100,000 population)	63	82	72



Natural Landscape

Houghton County is home to a diverse and expansive natural area featuring a network of trails, lush forests, pristine inland lakes, and Lake Superior lake front. Although the landscape offers a great deal of diversity within the county, approximately 50.00% of the predominant forest cover is characterized by northern hardwoods. Outdoor recreation including boating, fishing, hunting, mountain biking, hiking and skiing is key to residents' way of life in this part of the Upper Peninsula. Houghton County is comprised of 1,044 square miles and is home to 139 inland lakes. 51 miles of Lake Superior shoreline are housed in this county.⁴⁴

Houghton County has acceptable levels of reported air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NO_x, and SO_x⁴⁵. Compared to the state of Michigan, Houghton has very low levels of reported air pollutants. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from the Houghton County.⁴⁶ In 2017, there were no reported drinking water violations nor any reported toxic release events.^{47,48} As of 2019, Houghton County has an out of date FEMA approved hazard mitigation plan.⁴⁹ A new plan is in the process of being developed.

⁴¹ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

⁴² "FBI — Crime in the U.S. - Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

⁴³ "Saved Request: Underlying Cause of Death, 1999 ... - CDC Wonder." <https://wonder.cdc.gov/controller/saved/D76/D15F907>. Accessed 21 Aug. 2019.

⁴⁴ "Houghton County Recreation Plan 2019 - 2023." <https://www.wupdr.org/>. Accessed 15 Oct. 2019.

⁴⁵ (n.d.). MDEQ - Michigan Air Emissions Reporting System (MAERS) - Annual Retrieved August 14, 2019, from https://www.eagle.state.mi.us/maers/emissions_query.asp

⁴⁶ (n.d.). Michigan Air Quality - AirNow. Retrieved August 14, 2019, from https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23

⁴⁷ (2014, June 13). App D: Systems with 2018 MCL/TT Violations - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/eagle/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

⁴⁸ (n.d.). Toxics Release Inventory (TRI) Program Retrieved August 14, 2019, from <https://www.epa.gov/toxics-release-inventory-tri-program>

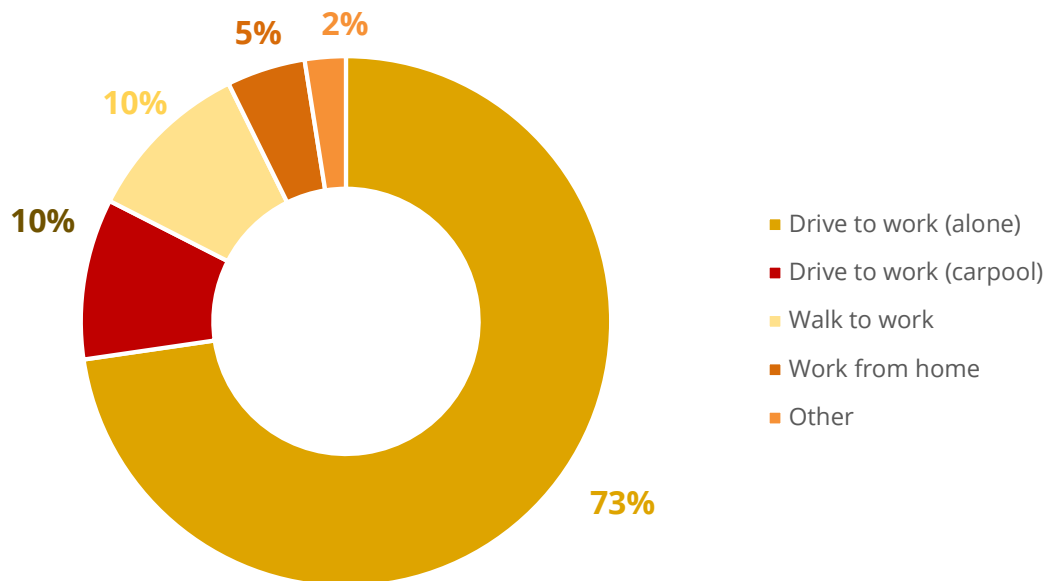
⁴⁹ (2019, April 22). Michigan Hazard Mitigation Plan - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/msp/MHMP_480451_7.pdf



Built Environment

Of the 18,724 housing units in Houghton County, 70.30% are occupied.⁵⁰ This is by far the highest in the Western Upper Peninsula, but still well below the state average of 85.10%. Driving is the primary form of transportation in Houghton County, with 82.50 percent of employed persons driving to work (72.70% alone and 9.80% as part of a carpool). An additional 4.80% of people work from home, and 10.20% walk to work (significantly higher than elsewhere in the Western Upper Peninsula, and well above state averages). As such, 91.10% of households have at least one car, and 56.50% of households have at least 2 cars.

Mode of Transport to Work Among Residents in Houghton County



⁵⁰ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.



COMMUNITY PROFILE:

Iron County

Updated: November 7, 2019

M | DOW SUSTAINABILITY FELLOWS
UNIVERSITY OF MICHIGAN

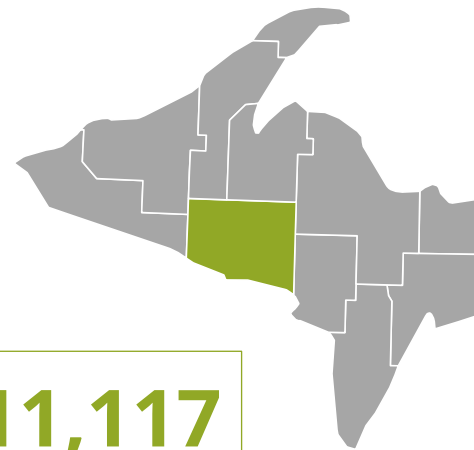
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Chicagon Falls tumbles over granite bedrock ledge in Iron County



WESTERN UPPER
PENINSULA FOOD
SYSTEM COUNCIL



COMMUNITY PROFILE: Iron County



Demographics

Iron County is located in the southwest of Michigan's Upper Peninsula. It is bordered by Dickenson and Marquette Counties to the east, Baraga and Houghton Counties to the north, Ontonagon and Gogebic Counties to the west, and Florence and Forest Counties (both of Wisconsin) to the south. Iron is one of only two counties in the Upper Peninsula that does not border a great lake. According to the 2017 US Census, 11,117 residents live in Iron County.¹ 15.5% of residents are below 18 years of age, and 35.1% are over 65. The County Seat is the city of Crystal Falls, with an estimated population of 1,377 as of 2017. The median household income in Iron County is \$36,773. The county is home to 5,315 households within an average size of 2.06.

11,117
RESIDENTS

35%
OVER 65 YEARS

Residents living below the federal poverty line²

	Iron County	State of Michigan
Population (#)	11,117	9,995,915
Percentage living below the federal poverty line	14.2%	14.2%
Percentage of elderly (older than 65) living below FPL	8.0%	8.20%
Percentage of families living below FPL with children under 18 and 5, respectively	24.2%, 38.6%	18.40%, 20.60%

In 2018, it was estimated that 13% of residents in Iron County are food insecure compared with 15% in the state of Michigan.³ The food insecurity rate for children in 2017 was 18.3%.⁴ In this context, food insecurity estimates the percentage of the population who did not have access to a reliable source of food during the past year, based on information from the Community Population Survey,

¹ "Community Facts - American FactFinder - Census Bureau." https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 7 Nov. 2019. All data in this paragraph came from the same source.

² Ibid.

³ "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.

⁴ Map the Meal Gap 2019: Overall and Child Food Insecurity by County 2017. https://public.tableau.com/profile/feeding.america.research#/?vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic

Bureau of Labor Statistics, and American Community Survey. In 2017, 11.8% of U.S. households were food insecure at some time during the year.⁵



Public Health

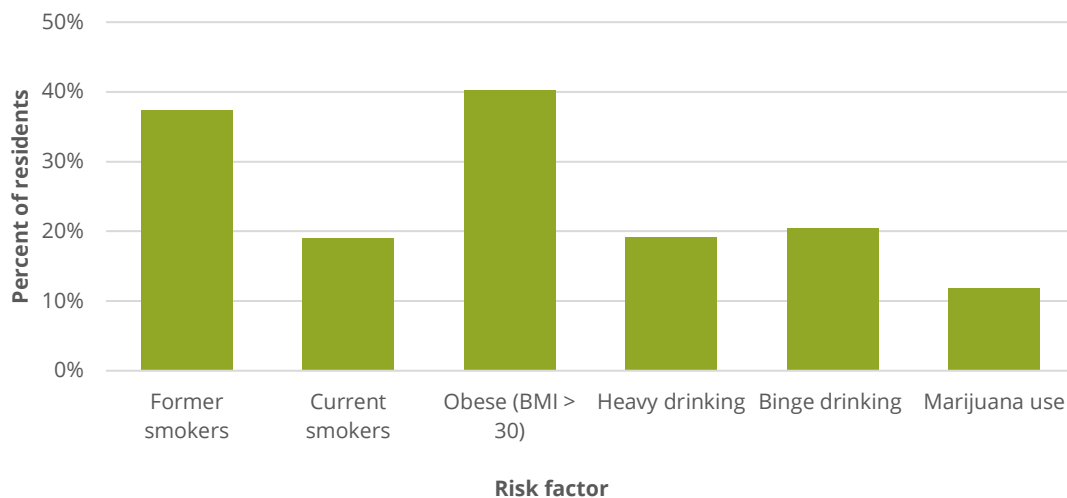
In 2019, County Health Rankings indicated that health factors within Iron County ranked 36th out of the 83 counties in Michigan.⁶ This ranking measures health behaviors, clinical care, social and economic factors and the physical environment. According to the same measure, Iron County's health outcomes ranked 69th out of the 83 Michigan counties, a measure which considers length and quality of life.⁷

Health Factors:

Health Behaviors

In 2018, within Iron County, 37.3% of the residents are former smokers, and 19.0% are current smokers.⁸ The majority (70%) of the population in Iron County has access to exercise opportunities; however, 40.3% of the population is obese with a BMI of 30 or above. This is higher than the state where 32.5% of the population has a BMI of 30 or above.⁹ The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Iron County an index of 7.9, slightly above the Michigan average of 7.1.¹⁰ In terms of substance use, 19.2% of the population reported heavy drinking, 20.5% reported binge drinking, and 11.8% used marijuana in the past 30 days.¹¹

Health Risk Factors in Iron County



⁵ "Food Security and Nutrition Assistance - USDA ERS." <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed 22 Aug. 2019.

⁶ "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

⁷ Ibid

⁸ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

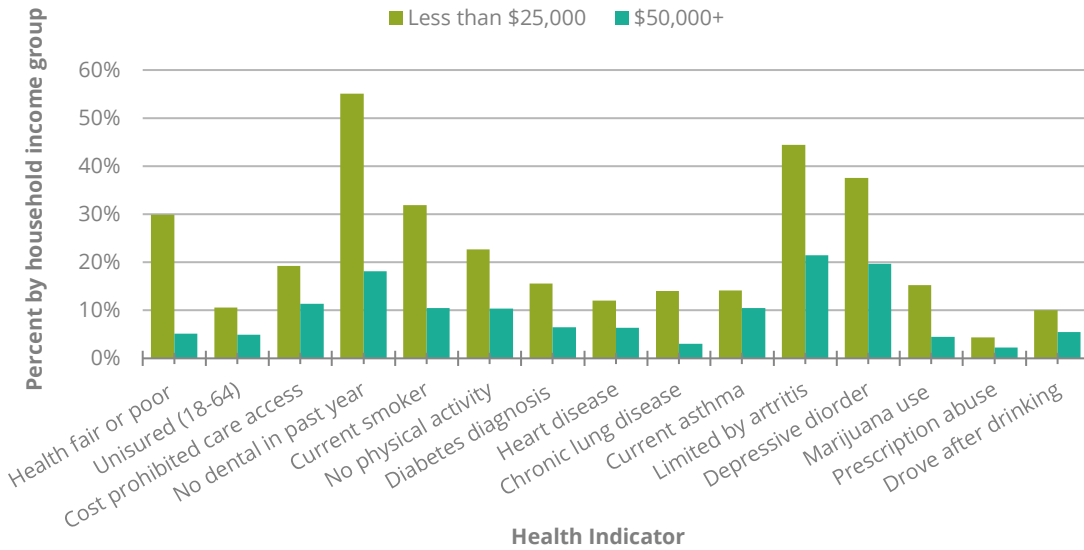
⁹ Ibid

¹⁰ "2019 County Health Rankings Key Findings Report | County Health" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

¹¹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wuphd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

Within the Upper Peninsula, health indicators vary greatly based on income levels.¹² The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.¹³

Health Indicator by Household Income Among UP Residents



Clinical Care Within Iron County, as of 2016, 7% of the population under the age of 65 is uninsured.¹⁴ The ratio of population to healthcare providers (PCP) in Iron County is 1,460:1, slightly higher than the state average PCP of 1,260:1.¹⁵ The county ratio of population to dentists is 2,220:1 compared to 1,360:1 statewide. The ratio of population to mental health providers is 740:1. In the state of Michigan, this ratio stands at 400:1.

The Ratio of Population to Healthcare Providers¹⁶

	Ontonagon County	Michigan
Population to primary care physicians	1,460:1	1,260:1
Population to dentists	2,220:1	1,360:1
Population to mental health providers	740:1	400:1

¹² Ibid

¹³ Ibid

¹⁴ "Small Area Health Insurance Estimates: 2016" <https://www.census.gov/library/publications/2018/demo/p30-03.html> Accessed 7 Nov. 2019

¹⁵ "Michigan Rankings Data | County Health Rankings & Roadmaps." <https://www.countyhealthrankings.org/rankings/data/MI>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

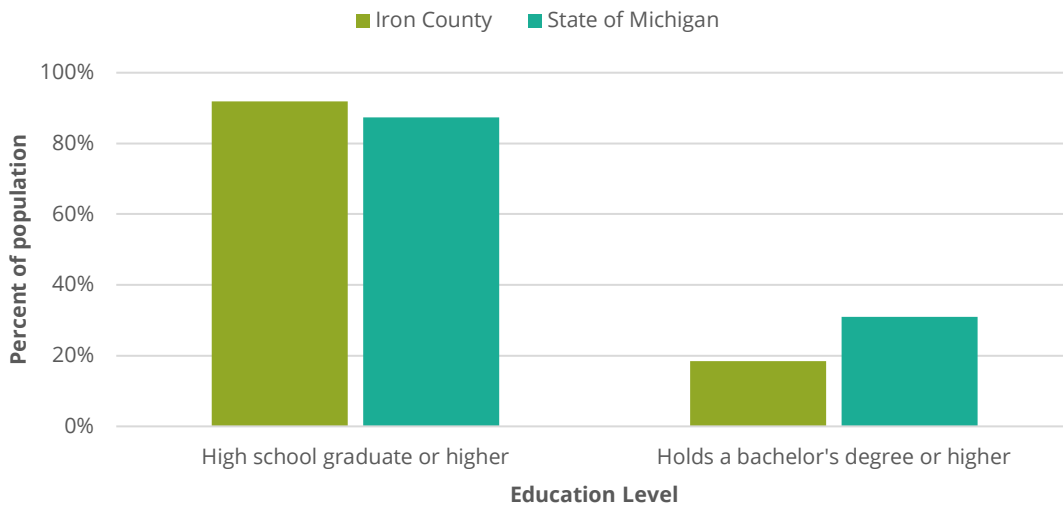
¹⁶ Ibid.

In terms of preventative care, in 2018, 28.8% of the population within Iron County did not have a routine check up with a general practitioner in the past year.¹⁷ Statewide, this percentage stands at 26.9%. Further, 41.7% of the population of Iron County have not received dental care in the past year. This is significantly higher than the state average of 29.9%. In 2018, 40.0% of the population received a flu shot in Iron County. Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide is near the state percentage standing at 42.0%.

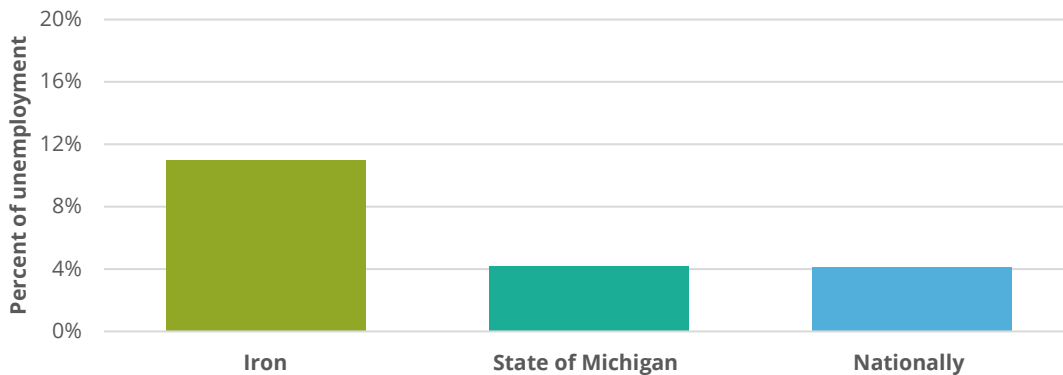
Social and Economic Factors

In Iron County, 91.9% of the population, ages 25 and above, is a high school graduate or higher.¹⁸ 18.5% of the population, ages 25 and above, holds a bachelor’s degree or higher. Despite the high number of citizens with a high school diploma, the unemployment rate is much higher than the state average. In 2017, the unemployment rate stood at 11.0% compared to 4.2% in the state of Michigan.

Education Among the Population (25 years of age and above)



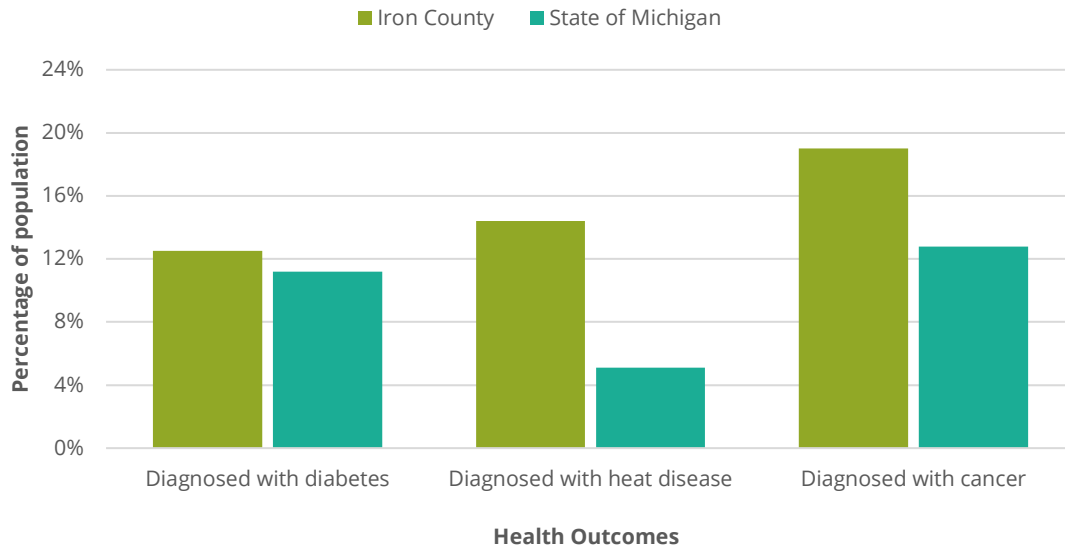
Unemployment Rate in 2017



¹⁷ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.
¹⁸ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from this source.

Health Outcomes:

In 2018, countywide health outcomes indicate a need for further preventative care.¹⁹ Specifically, 12.5% of the population was diagnosed with diabetes (11.2% statewide), 14.4% diagnosed with heart disease (5.1% statewide), and 19% diagnosed with cancer (12.8% statewide). These outcomes, in addition to countywide patient to provider statistics, display a need to increase access to preventative care.



Food Resources

Iron County represents more than 1,166 square miles of land area, with 23,450 acres of farm-land (3.14% of the land area), representing 133 farms, as of 2017.²⁰ Since 2012, Iron County has seen a 2.00% increase in acres of farmland, and as of 2017, the average farm size was 176 acres.²¹ In 2017, six farms totaling 497 acres were harvested for vegetables, potatoes and melons.²² This was a decrease from 2012 when there were 12 farms totaling 584 acres.²¹ There were also four reported orchards in 2017, half of the eight reported orchards in 2012.²¹ Additionally, four farms were reported as producing fruit and nuts in 2017, down from eight in 2012.²¹ Iron had one farm producing berries in 2017, a decrease from the three reported berry farms in 2012.²¹ As of 2017 there is one farm in Iron County with honey bees.²³ Cattle and chicken are the two most common livestock in Iron County, with approximately 950 cattle and calves on 39 farms, and 1,175 laying hens on 22 farms. Less common livestock includes hogs and pigs (approximately 60, on 13 farms) and sheep and lambs (approximately 375 on 27 farms). Farmland in Iron County has a relatively low market value, at about \$2,000/acre, compared to the state average of \$5,000/acre.²⁴

¹⁹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

²⁰ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²¹ Iron County Profile, 2017 Census of Agriculture. USDA Census of Agriculture. https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/County_Profiles/Michigan/

²² "National Agricultural Statistics Service - 2012 Census of ... - USDA NASS." 4 Feb. 2019, https://www.nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1,_Chapter_2_County_Level/. Accessed 21 Aug. 2019.

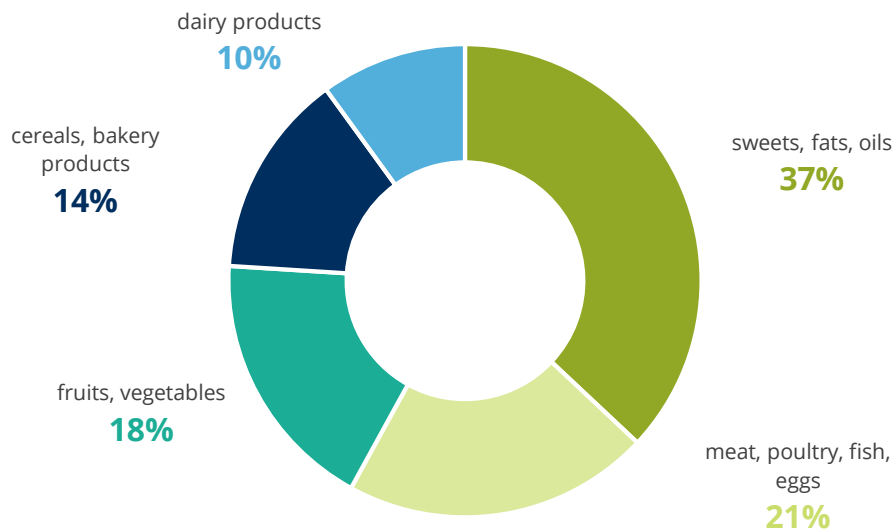
²³ Ibid.

²⁴ Ibid.

Oats are the most common crop grown in Iron County, with 14 farms producing 36,901 bushels on 521 acres.²⁵ Next is wheat, with 4 farms producing 10,040 bushels on 192 acres. There are 9 farms producing 5,174 bushels of barley on 150 acres, and 4 farms producing corn (total numbers withheld). Here it is important to note the limitation of the Department of Agriculture data is within this rural context. The census only collects data from farms which report a profit of more than \$1,000 a year. Also, there was no data available for foraged and hunted foods.

Households in Iron County spend \$29 million annually on food purchases as of 2011; of which \$18 million represents food purchased for home consumption.²⁶ Of these purchases, 37% were sweets, fats, and oils, while the remainder was split between meat, poultry, fish, eggs (21%), fruits and vegetables (18%), cereals and bakery products (14%), and dairy products (11%). In 2018, 8.0% of the population in Iron County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings.²⁷ Statewide, 14.4% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables.²⁸

Iron County Household Food Purchases (2011)



Local Food Purchasing

In Iron County, there are no reported farmers markets, u-pick farms, or community supported agriculture farms (CSA) present.²⁹ There is one reported retail business within the county which sells local foods.

²⁵ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019. All data in this paragraph came from this source.

²⁶ Western Upper Peninsula (Michigan) local farm and food economy | Crossroads Resource Center. Ken Meters. All data in this paragraph came from this source.

²⁷ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

²⁸ Ibid.

²⁹ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019. All data in this paragraph comes from the same source.



Social Services

In Iron County, residents have access to many federal social service programs including food assistance programs, funding for child care, disability assistance, and cash assistance (family independence program).

Social Service Programs at the County and State Level^{30 31}

	Iron County	State of Michigan
Population (2017)	11,117	9,995,915
Food Assistance Program Recipients (monthly average for 2017)	1,431 (12.87%)	1,375,434 (13.75%)
Family Independence Program Recipients (monthly average for 2017)	60 (0.54%)	48,120 (0.48%)
Child Development and Care (monthly average for 2017)	18 (0.16%)	32,217 (0.32%)

Free and Reduced Lunch Eligibility in Iron County Schools, 2018-2019³²

Free Lunch Eligible	Reduced Lunch Eligible
501 students (60.3%)	75 students (9.0%)

CY 2017 Deduplicated Enrollment Count By Local Agency in Women, Infants and Children (WIC) Special Supplemental Nutrition Program³³

Western Upper Peninsula			State of Michigan		
Infants and Children	Women	Total	Infants and Children	Women	Total
1,539	564	2,103	275,057	103,712	378,769

³⁰ "Food Assistance Program (FAP): Trend Information." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_24_269236_7.pdf. Accessed 20 Aug. 2019.

³¹ "Total Cases, Recipients and Payments for FIP, FAP ... - State of Michigan." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_02_269209_7.pdf. Accessed 20 Aug. 2019.

³² Michigan School Data, Free and Reduced Lunch Counts Data Table, 2018-2019. Accessed at <https://www.mischooldata.org/Other2/DataFiles/StudentCounts/HistoricalFreeAndReducedLunchCounts.aspx>.

³³ "MDHHS - WIC Data & Reports - State of Michigan." https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910_60308_60309---,00.html. Accessed 23 Aug. 2019.



Institutional Factors

Like other communities in the Upper Peninsula, residents of Iron County face electricity rates which significantly higher than the state average (\$0.1128/kwh), at about \$0.16-0.19/kWh.³⁴ However this is one of the least expensive rates in the Western Upper Peninsula. Just 56.2% of homes are heated by utility natural gas, below the Michigan average of 76.6%.

Overall, Iron County is a relatively safe place to live, with violent crimes and injury deaths below the state average. However, it has a higher rate of violent crimes compared to other counties in the Western Upper Peninsula.

	Iron County	Western Upper Peninsula	State of Michigan
Violent Crime³⁵ (number of reports violent crime offenses per 100,000 population)	189	242	443
Injury Deaths³⁶ (number of deaths due to injury per 100,000 population)	113	82	72



Natural Landscape

Iron County is rich in natural resources and can be characterized by forested landscapes with numerous rivers and lakes.³⁷ More than half of the land within Iron County is either owned by the federal government, the state government or enrolled in the Commercial Forest Act and open to the public for recreation. Thus, Iron County features thousands of acres which are available for year-round outdoor recreation. Popular activities include fishing, hunting, camping, snowmobiling, biking, walking, hiking, snowshoeing, and cross country skiing.

Iron County has acceptable levels of reported air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NO_x, and SO_x.³⁸ Compared to the state of Michigan, Iron County has very low levels of reported air pollutants. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from Iron County.³⁹ In 2018, there were no reported drinking water violations nor any reported toxic release events.^{40,41}

³⁴ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

³⁵ "FBI — Crime in the U.S. - Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

³⁶ "Saved Request: Underlying Cause of Death, 1999 ... - CDC Wonder." <https://wonder.cdc.gov/controller/saved/D76/D15F907>. Accessed 21 Aug. 2019.

³⁷ "Parks & Recreation Committee | Iron River, Michigan - Official" <http://www.ironriver.org/parksandrec/>. Accessed 8 Nov. 2019. All data in this paragraph came from this source.

³⁸ (n.d.). MDEQ - Michigan Air Emissions Reporting System (MAERS) - Annual Retrieved August 14, 2019, from https://www.eql.state.mi.us/maers/emissions_query.asp

³⁹ (n.d.). Michigan Air Quality - AirNow. Retrieved August 14, 2019, from https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23

⁴⁰ (2014, June 13). App D: Systems with 2018 MCL/TT Violations - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/eql/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

⁴¹ (n.d.). Toxics Release Inventory (TRI) Program Retrieved August 14, 2019, from <https://www.epa.gov/toxics-release-inventory-tri-program>

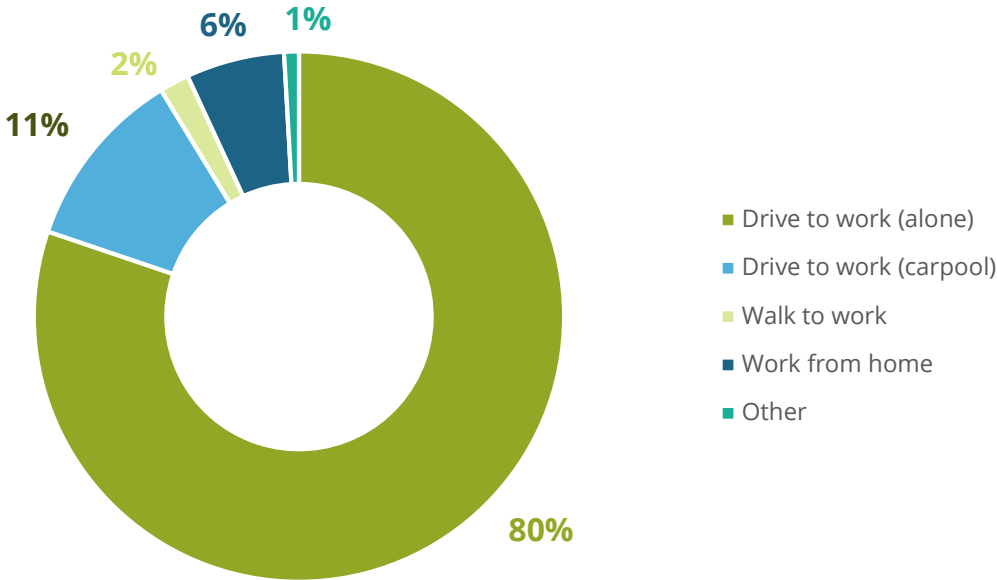


Built Environment

Of the 9,303 housing units in Iron County, 57.1% are occupied.⁴²

Driving is the primary form of transportation in Iron County, with 91.3% of employed persons driving to work (80.2% alone and 11.1% as part of a carpool).⁴³ An additional 6.00% of people work from home, and 1.8% walk to work. As such, 93.10% of households have at least one car, and 53.9% of households have at least two cars.

Mode of Transport to Work Among Residents in Iron County



⁴² "U.S. Census Bureau - American FactFinder - Results." <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CE>. Accessed 7 Nov. 2019.

⁴³ "U.S. Census Bureau - American FactFinder - Results." <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CE>. Accessed 7 Nov. 2019. All data in this paragraph came from this source.

COMMUNITY PROFILE:

Ontonagon County

Updated: November 7, 2019

 **DOW SUSTAINABILITY FELLOWS**
UNIVERSITY OF MICHIGAN

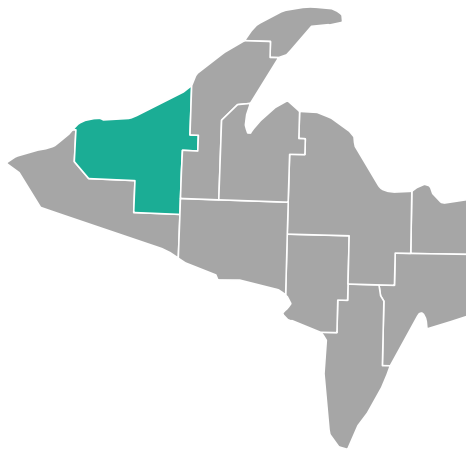
PREPARED BY:

Adriane Kline, Emily Johnson, Joshua Childs,
Maxwell Woody, and Nick Kemp

Photo: Lake Superior surrounds Porter's Island at
Copper Harbor in Keweenaw Peninsula.



WESTERN UPPER
PENINSULA FOOD
SYSTEM COUNCIL



COMMUNITY PROFILE: Ontonagon County



Demographics

Ontonagon County is located on the western side of Michigan’s Upper Peninsula. This county is situated with Lake Superior to the North. Bordering Ontonagon County to the southwest is Gogebic County and Houghton County is located to the east. Ontonagon County is home to 5,795 residents, of whom 35.40% are over the age of 65 years.¹ The county seat is the village of Ontonagon, which had 1,494 residents, as of the 2010 census. The average household income in Ontonagon is \$36,073. The county is home to 2,945 households within an average size of 2.03.

5,795
RESIDENTS

35%
OVER 65 YEARS

Residents living below the federal poverty line (FPL), 2017²

	Ontonagon County	State of Michigan
Population (#)	5,795	9,925,568
Percentage of population living below FPL	15.5%	15.6%
Percentage of elderly (older than 65) living below FPL	9.2%	8.2%
Percentage of families living below FPL with children under 18 and 5, respectively	18.5%, 57.1%	18.4%, 20.6%

In 2018, it was estimated that 13.00% of residents in Ontonagon are food insecure compared with 15.00% in the state of Michigan.³ The food insecurity rate for children in 2017 was 20.50%.⁴ Food Insecurity estimates the percentage of the population who did not have access to a reliable source of

¹ "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml Accessed 22 Aug. 2019. All data in this paragraph came from the same source.
² Ibid.
³ "Food insecurity in Michigan | County Health Rankings & Roadmaps." <http://www.countyhealthrankings.org/app/#/michigan/2018/measure/factors/139/data>. Accessed 20 Aug. 2019.
⁴ Map the Meal Gap 2019: Overall and Child Food Insecurity by County 2017. https://public.tableau.com/profile/feeding.america.research#/vizhome/2017StateWorkbook-Public_15568266651950/CountyDetailDataPublic Accessed 7 Nov. 2019

food during the past year, based on information from the Community Population Survey, Bureau of Labor Statistics, and American Community Survey. In 2017, 11.80% of U.S. households were food insecure at some time during the year.⁵



Public Health

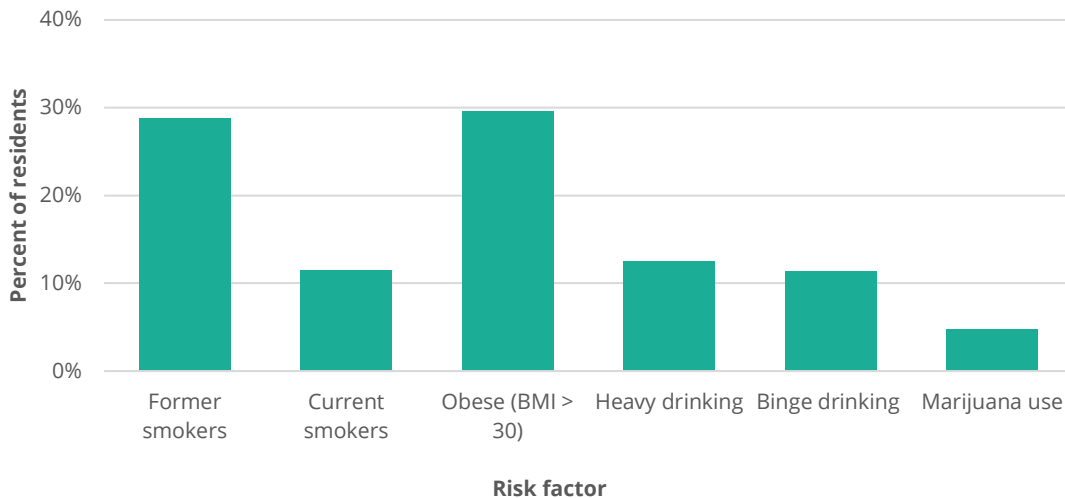
In 2019, the health factors within Ontonagon County ranked 31 out of the 83 Michigan counties.⁶ This measure examines health behaviors, clinical care, social and economic factors and the physical environment. In terms of health outcomes, Ontonagon County ranked number 39 out of the 83 Michigan counties, a measure which considers length and quality of life.⁷

Health Factors:

Health Behaviors

In 2018, within Ontonagon County, 35.6% of the residents are former smokers, and 20.30% are current smokers.⁸ The majority (72.0%) of the population in Ontonagon has access to exercise opportunities; however, 39.2% of the population is obese with a BMI of 30 or above.⁹ This is higher than the state where 32.5% of the population has a BMI of 30 or above.¹⁰ The Food Environment Index (an index of factors that contribute to a healthy food environment, 0 (worst) to 10 (best)) gives Ontonagon County an index of 7.30.¹¹ In terms of substance use, 20.6% of the population reported heavy drinking, 13.8% reported binge drinking, and 6.8% used marijuana in the past 30 days.¹²

Health Risk Factors in Ontonagon County



⁵ "Food Security and Nutrition Assistance - USDA ERS." <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/>. Accessed 22 Aug. 2019.

⁶ "2019 County Health Rankings Key Findings Report | County Health Ranking" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

⁷ Ibid.

⁸ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

⁹ Ibid

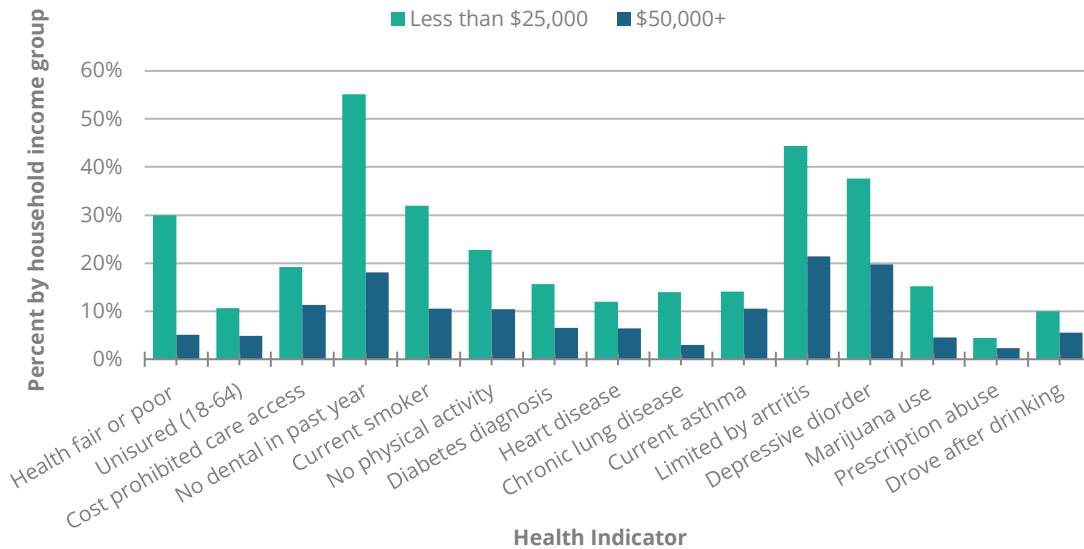
¹⁰ Ibid.

¹¹ "2019 County Health Rankings Key Findings Report | County Health ..." <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 22 Aug. 2019.

¹² "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

Within the Upper Peninsula, health indicators vary greatly based on income levels.¹³ The table below outlines disparities among social determinants of health and several key health indicators among Upper Peninsula households who make less than \$25,000 annually and household who earn \$50,000+ annually.¹⁴

Health Indicator by Household Income Among UP Residents



Clinical Care

Within Ontonagon County, as of 2016, 9.0% of the population under the age of 65 is uninsured.¹⁵ The ratio of population to healthcare providers in Ontonagon County is almost five times higher than the state. Specifically, the ratio of population to primary care physicians (PCP) stands at 5,910:1.¹⁶ In Michigan, the PCP is 1,260:1. This ratio is critical for Ontonagon County specifically as 35.40% of their population is over 65 years of age. Individuals over the age of 65 are twice as likely to seek primary care services.¹⁷ The county ratio of population to dentists is 1,960:1 and stands at 1,360:1 statewide. The ratio of population to mental health providers is 2,940:1. In the state of Michigan, this ratio stands at 400:1.¹⁸ These high ratios may contribute to residents having poor adoption of preventative health measures, including mammography screening and annual flu vaccination (detailed on the next page).

¹³ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 23 Sep. 2019.

¹⁴ Ibid.

¹⁵ "Small Area Health Insurance Estimates" <https://www.census.gov/programs-surveys/sahie.html>. Accessed 7 Nov. 2019.

¹⁶ "2019 County Health Rankings Key Findings Report | County" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 7 Nov. 2019. All data in this paragraph came from the same source.

¹⁷ (n.d.). The Evolving Health Workforce - The Impacts of the Affordable Care Retrieved August 14, 2019, from <https://www.ncbi.nlm.nih.gov/books/NBK241393/>

¹⁸ "2019 County Health Rankings Key Findings Report | County" <https://www.countyhealthrankings.org/reports/2019-county-health-rankings-key-findings-report>. Accessed 7 Nov. 2019. All data in this paragraph came from the same source.

The Ratio of Population to Healthcare Providers¹⁹

	Ontonagon County	Michigan
Population to primary care physicians	5,910:1	1,260:1
Population to dentists	1,960:1	1,360:1
Population to mental health providers	2,940:1	400:1

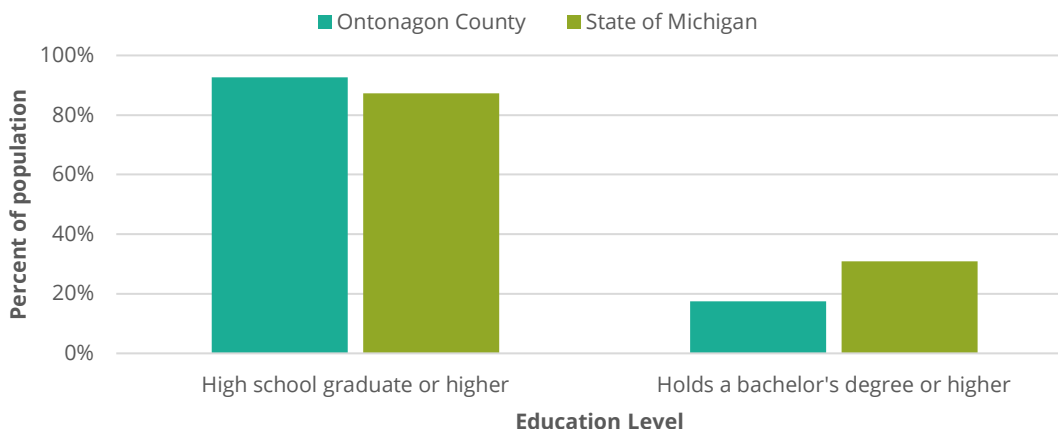
In terms of preventative care, in 2018, 32.6% of the population within Ontonagon County did not have a routine check up with a general practitioner in the past year.²⁰ Statewide, this percentage stands at 26.9%. Further, 34.7% of the population of Ontonagon County have not received dental care in the past year. At a state level, 29.9% of the population has not received dental care in the past year. In 2018, 31% of the population received a flu shot in Ontonagon County. Mammography screening (female Medicare enrollees ages 65-74 that received an annual mammogram) countywide is on par with state percentages standing at 43%.

Research shows that physicians born in rural areas are 2.4 times more likely to practice in rural areas, however only 25% of Michigan physicians are from rural areas.²¹

Social and Economic Factors

In Ontonagon County, 92.7% of the population, ages 25 and above, is a high school graduate or higher.²² 17.4% of the population, ages 25 and above, holds a bachelor’s degree or higher. Despite the high number of citizens with a high school diploma, the unemployment rate is extremely high. In 2017, the unemployment rate stood at 19% and at 4.2% in the state of Michigan.

Education Among the Population (25 years of age and above)



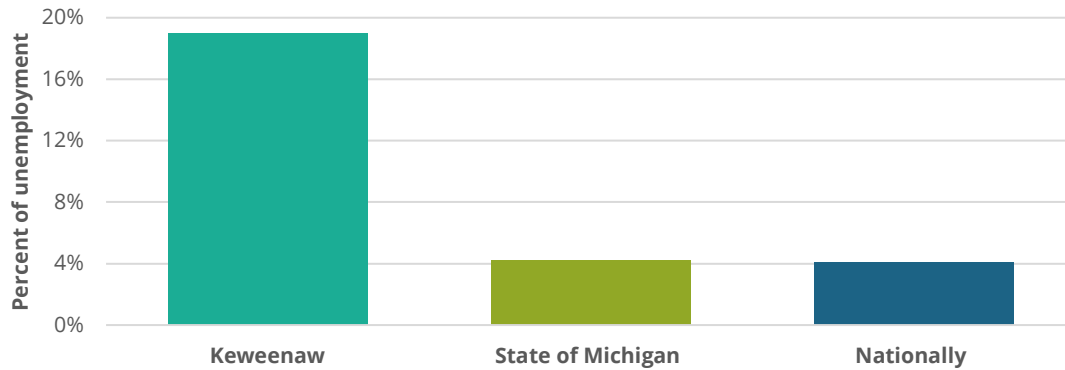
¹⁹ Ibid.

²⁰ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019. All data in this paragraph came from this source.

²¹ (2015, June 9). Where are the Primary Care Doctors? - Citizens Research Council of Retrieved August 14, 2019, from https://csrcmich.org/PUBLICAT/2010s/2015/primary_care_physician_shortage-2015.pdf

²² "U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates". https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml. Accessed 22 Aug. 2019. All data in this paragraph came from the same source.

Unemployment Rate in 2017



Physical Environment

**Further detailed below in Natural Landscapes and Built Environment*

Health Outcomes:

In 2018, countywide health outcomes indicate a need for further preventative care. Specifically, 15.8% of the population was diagnosed with diabetes (11.2% statewide), 12.1% diagnosed with heart disease (5.1% statewide), and 21.5% diagnosed with cancer (12.8% statewide).²³ These outcomes, in addition to countywide patient to provider statistics, display a need to increase access to preventative care.²⁴



Food Resources

Ontonagon County represents more than 1,300 square miles of land area, with 27,106 acres of farmland (3.26% of the land area), representing 114 farms, as of 2017.²⁵ Since 2012, Ontonagon County has seen a 7.0% reduction in acres of farmland, and as of 2017, the majority of farms range in size from 50-499 acres.²⁶ In 2017, two farms were harvested for vegetables, potatoes and melons (acreage not reported in order to maintain the privacy of farms).²⁷ This was a decrease from 2012 when there were 9 farms totaling 8 acres.²¹ There were also 2 reported orchards in 2017, one less than the three reported orchards in 2012.²¹ Additionally, two farms were reported as producing fruit and nuts in 2017, the same number as in 2012.²¹ Ontonagon had no farms producing berries in 2017, a decrease from the two reported berry farms in 2012.²¹ Eight farms reported selling 2,323 pounds of honey from 21 colonies of bees on 8 farms.²⁸ Cattle and calves represent the majority of livestock in Ontonagon County, with more than 1,200 cattle and calves on 31 farms. Farmland in Ontonagon has a relatively low market value, at about \$1,600/acre, compared to the state average of \$5,000/acre. This places Ontonagon as having the lowest market value per acre of any of the 6 counties in the Western Upper Peninsula. Relatively few crops are grown in Ontonagon, with only one

²³ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

²⁴ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019. All data in this paragraph came from this source.

²⁵ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

²⁶ Ibid.

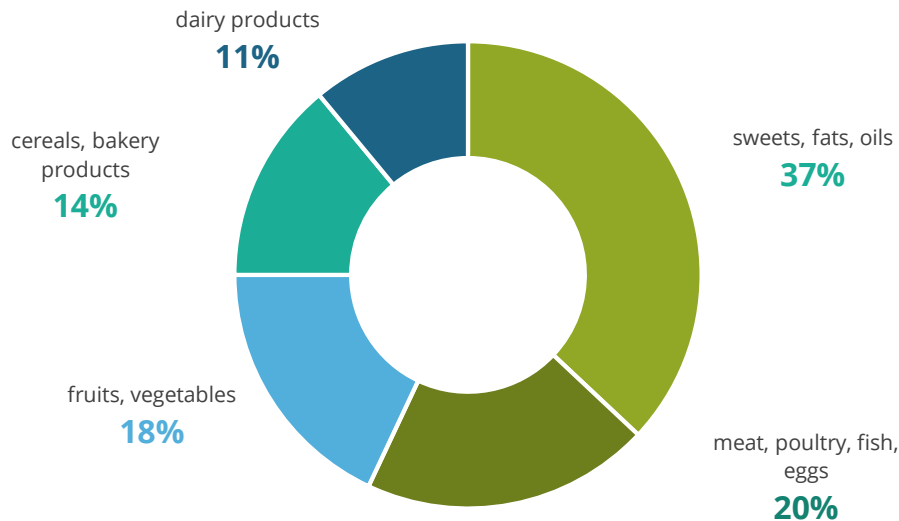
²⁷ "National Agricultural Statistics Service - 2012 Census of ... - USDA NASS." 4 Feb. 2019, https://www.nass.usda.gov/Publications/AgCensus/2012/Full_Report/Volume_1_Chapter_2_County_Level/. Accessed 21 Aug. 2019.

²⁸ Ibid.

farm growing any wheat, two farms growing any barley, and five farms producing a total of 1,200 bushels of oats. Here it is important to note the limitation of the Department of Agriculture data is within this rural context. The census only collects data from farms which report a profit of more than \$1,000 a year. Also, there was no data available for foraged and hunted foods.²⁹

Households in Ontonagon spend \$17 million annually on food purchases as of 2011; of which \$10 million represents food purchased for home consumption.³⁰ Of these purchases, 37.0% were sweets, fats, and oils, while the remainder was split between meat, poultry, fish, eggs (20.0%), fruits and vegetables (18.0%), cereals and bakery products (14.0%), and dairy products (11.0%). In 2018, 7.4% of the population in Ontonagon County reported eating five or more servings of fruits and/or vegetables daily, though it is important to note that this survey included fruit and vegetable juices as servings.³¹ Statewide, 14.4% of citizens reported the daily consumption of five or more servings of fruits and/or vegetables.³²

Ontonagon County Household Food Purchases (2011)



Local Food Purchasing

In Ontonagon County, no farmers markets are available and no u-pick farms exist; however, there is one community supported agriculture farm (CSA) present.³³ Further, there is one retail business within the county which sells local foods.³⁴

²⁹ "Census of Agriculture - USDA - National Agricultural Statistics Service." 23 Jul. 2019, <https://www.nass.usda.gov/AgCensus/>. Accessed 22 Aug. 2019.

³⁰ Western Upper Peninsula (Michigan) local farm and food economy | Crossroads Resource Center. Ken Meters. All data in this paragraph came from the same source.

³¹ "Upper Peninsula Community Health Needs Assessment 2018." <http://www.wupdhd.org/wp-content/uploads/2018/08/Upper-Peninsula-Community-Health-Needs-Assessment-2018-Second-Edition-1.pdf>. Accessed 22 Aug. 2019.

³² Ibid.

³³ "Taste the Local Difference." <https://www.localdifference.org/>. Accessed 22 Aug. 2019.

³⁴ Ibid.



Social Services

In Ontonagon County, residents have access to many federal social service programs including food assistance program, funding for child care, disability assistance, and cash assistance (family independence program). Ontonagon County is serviced by the Upper Peninsula’s chapter of Little Brother’s Friends of the Elderly, which is an organization that provides services for elderly including house visits, medical transportation, firewood delivery, and social activities. This chapter is housed in Houghton County.³⁵

Social Service Programs at the County and State Level^{36 37}

	Ontonagon County	State of Michigan
Population (2017)	5,795	9,995,915
Food Assistance Program Recipients (monthly average for 2017)	681 (11.75%)	1,375,434 (13.75%)
Family Independence Program Recipients (monthly average for 2017)	14 (0.24%)	48,120 (0.48%)
Child Development and Care (monthly average for 2017)	2 (0.03%)	32,217 (0.32%)

The Gogebic-Ontonagon Intermediate School District receives USDA funding to provide students eligible for free and reduced school lunch with food assistance over the summer, known as the Summer Electronic Benefits Transfer for Children (SEBTC) program.³⁸

Free and Reduced Lunch Eligibility in Ontonagon County Schools, 2018-2019³⁹

Free Lunch Eligible	Reduced Lunch Eligible
214 students (45.9%)	35 students (7.5%)

35 "Little Brothers – Michigan Chapter." <https://houghton.littlebrothers.org/>. Accessed 21 Oct. 2019.

36 "Food Assistance Program (FAP): Trend Information." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_24_269236_7.pdf. Accessed 20 Aug. 2019.

37 "Total Cases, Recipients and Payments for FIP, FAP ... - State of Michigan." https://www.michigan.gov/documents/dhs/DHS-Trend_Table_02_269209_7.pdf. Accessed 20 Aug. 2019.

38 Collins, Ann M., et al. Summer Electronic Benefit Transfer for Children (SEBTC) Demonstration: Summary Report. No. ae4330d2e5734003bd82df557b62478c. Mathematica Policy Research, 2016.

39 Michigan School Data, Free and Reduced Lunch Counts Data Table, 2018-2019. Accessed at <https://www.mischooldata.org/Other2/DataFiles/StudentCounts/HistoricalFreeAndReducedLunchCounts.aspx>.

CY 2017 Deduplicated Enrollment Count By Local Agency in Women, Infants and Children (WIC) Special Supplemental Nutrition Program ⁴⁰

Western Upper Peninsula			State of Michigan		
Infants and Children	Women	Total	Infants and Children	Women	Total
1,539	564	2,103	275,057	103,712	378,769



Institutional Factors

Like other communities in the Upper Peninsula, residents of Ontonagon face electricity rates which are more than twice the state average (\$0.1128/kwh), at about \$0.23/kWh.⁴¹ Just 41.70% of homes are heated by utility natural gas, below the Michigan average of 76.60%. Ontonagon County is home to a K&W Landfill.

Overall, Ontonagon is a relatively safe place to live, with violent crimes and injury deaths below the state average. However, it has a higher rate of violent crimes compared to other counties in the Western Upper Peninsula.

	Ontonagon County	Western Upper Peninsula	State of Michigan
Violent Crime⁴² (number of reports violent crime offenses per 100,000 population)	324	242	443
Injury Deaths⁴³ (number of deaths due to injury per 100,000 population)	69	82	72



Natural Landscape

Ontonagon county is split by the Ontonagon river which flows out into the southern shores of Lake Superior. The county is 3,741 square miles of which 1,311 square miles are land and 2,430 square miles are water.⁴⁴ The county encompasses 21 major lakes, 26 trout streams, nine waterfalls and four rapids that are considered recreational assets within the county.⁴⁵ The majority of development occurs on the eastern side of the Ontonagon river. The waterfront and parts of downtown are located on a 100 year floodplain with the last major flood occurring in 1963.³⁸ This county is home to the largest flood plain on the southern shores of Lake Superior.³⁸ The mean annual temperature is

⁴⁰ "MDHHS - WIC Data & Reports - State of Michigan." https://www.michigan.gov/mdhhs/0,5885,7-339-71547_4910_60308_60309---,00.html. Accessed 23 Aug. 2019.

⁴¹ "State Electricity Profiles - EIA." <https://www.eia.gov/electricity/state/michigan/>. Accessed 21 Oct. 2019. All data in this paragraph came from the same source.

⁴² "FBI — Crime in the U.S. - Uniform Crime Reporting (UCR) Program." <https://ucr.fbi.gov/crime-in-the-u.s>. Accessed 21 Aug. 2019.

⁴³ "Saved Request: Underlying Cause of Death, 1999 ... - CDC Wonder." <https://wonder.cdc.gov/controller/saved/D76/D15F907>. Accessed 21 Aug. 2019.

⁴⁴ https://web.archive.org/web/20131113024015/http://www.census.gov/geo/maps-data/data/docs/gazetteer/counties_list_26.txt.

⁴⁵ "COMMUNITY DESCRIPTION - wupldr." 25 Apr. 2012, http://www.wupldr.org/pdf/OntVTrec12-17_reduced.pdf. Accessed 15 Oct. 2019.

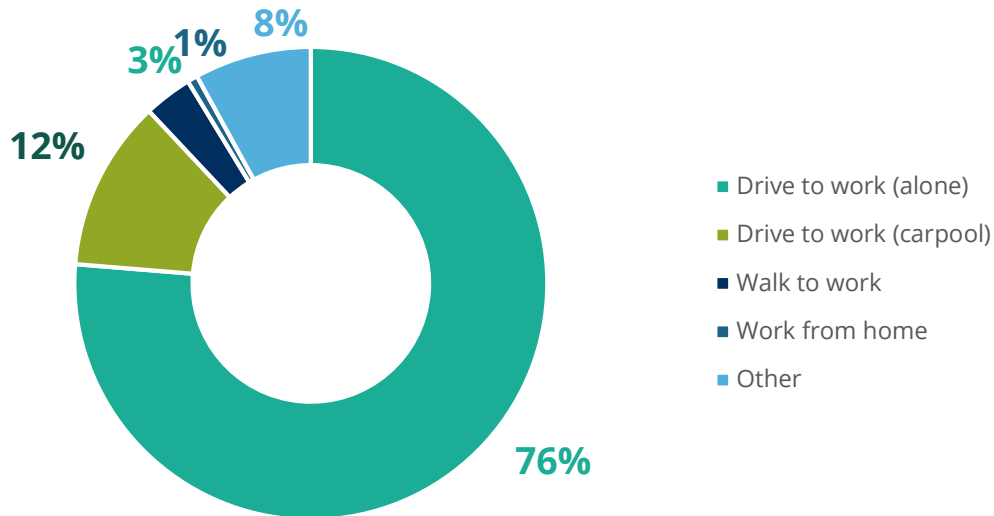
46 degrees fahrenheit with an average of 142 inches of snowfall per year.³⁸ Soils in the county are mostly sandy but exhibit a large variety of types, textures and drainage characteristics.³⁸ 80% of land in Ontonagon county is covered by forests. They have acceptable levels of reported air pollutant emissions including ammonia, carbon monoxide, lead, non-methane organic hydrocarbons, NO_x, and SO_x.⁴⁶ Compared to the state of Michigan and other counties in the Western Upper Peninsula, Ontonagon has very low levels of reported air pollutants. However, there is only one air quality monitoring site in the entire Upper Peninsula located in Seney, far from the Western Upper Peninsula.⁴⁷ In 2017, there were no reported drinking water violations nor any reported toxic release events.^{48,49} As of 2019, Ontonagon County has an out of date FEMA approved hazard mitigation plan.⁵⁰ A new plan is in the process of being developed.



Built Environment

Of the 5,693 housing units in Ontonagon County, 51.90% are occupied.⁵¹ Driving is the primary form of transportation in Ontonagon County, with 87.60 percent of employed persons driving to work (80.80% alone and 6.80% as part of a carpool). An additional 5.90% of people work from home, and 5.50% walk to work.⁵² As such, 92.80% of households have at least one car, and 58.50% of households have at least 2 cars.⁵³

Mode of Transport to Work Among Residents in Ontonagon County



⁴⁶ (n.d.). MDEQ - Michigan Air Emissions Reporting System (MAERS) - Annual Retrieved August 14, 2019, from https://www.eql.state.mi.us/maers/emissions_query.asp

⁴⁷ (n.d.). Michigan Air Quality - AirNow. Retrieved August 14, 2019, from https://airnow.gov/index.cfm?action=airnow.local_state&stateid=23

⁴⁸ (2014, June 13). App D: Systems with 2018 MCL/TT Violations - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/eql/dweh-cws-4_MI_2018_ACR_MCL_Listing_Appendix_D_659636_7.pdf

⁴⁹ (n.d.). Toxics Release Inventory (TRI) Program Retrieved August 14, 2019, from <https://www.epa.gov/toxics-release-inventory-tri-program>

⁵⁰ (2019, April 22). Michigan Hazard Mitigation Plan - State of Michigan. Retrieved August 14, 2019, from https://www.michigan.gov/documents/msp/MHMP_480451_7.pdf

⁵¹ Selected Housing Characteristics - 2017 American Community Survey <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

⁵² Commuting Characteristics by Sex - 2017 American Community Survey <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

⁵³ ibid

APPENDIX II: Master Planning Addendum Template

Master Planning Addendum Template

About this Document:

This addendum template can serve as a preamble to a food policy section of a municipal or county master plan. The narrative was purposefully written broadly enough to be applicable to the variety of communities in the Western Upper Peninsula, with the understanding that WUPPDR can tailor the specific text to account for the unique history, context, and conditions of the individual localities they work with.

This addendum also interacts well with the Community Profiles and Policy Catalog documents. For example, data from the Community Profiles can be used to highlight certain health or economic conditions in the area and entries in the Policy Catalog can be used to build the specific policy language of the master plan.

Text for Planning Addendum:

Like [county/municipality], the Western Upper Peninsula (UP) region has a rich history of food production. Native American communities harvest wild foods such as strawberries, blueberries, squash, wild rice, corn, wild game, and fish. Their environmental stewardship allowed these communities to live off the land and develop sustainable food systems.

In the late 1800s, recruiting campaigns by railroad companies aimed to have farmers move to the UP. Extraction industries in minerals, lumber, furs, and fish were a key source of income for many across the UP and in the Keweenaw Peninsula. During this period, food production transitioned to industrialized farming. Though some still utilize traditions that have been passed down through generations, most communities in the upper peninsula rely on food produced far away. This reliance on trucking results in distribution and consumption of less fresh and nutritious foods. Further, it makes the Upper Peninsula's food system vulnerable during the winter due to large storms and highway closures. Local policies can help reverse this dependency on outside foods by strengthening our community's long history of local, place-based, and sustainable foodways.

Upper Peninsula communities like [county/municipality] are strong, tightknit, and resilient. Local policies and planning have helped catalyze a more robust and resilient food system that builds on the growing demand for local food. A resilient community food policy considers all aspects of the system, from production to food waste. Local policies can have tremendous impacts on encouraging access to and production of food in our community and policy should support the local and regional food and farming economy.

Developing this new plan for our community, we considered-- what can a more robust local food system do for [county/municipality]? In addition to the **health** benefits of greater access to fresh foods, a stronger local/regional food system brings important **social**, **cultural**, and **economic** benefits.

Locally grown foods can offer healthier alternatives to more heavily processed options. Food imported from far-away states and countries is often older and sits in distribution centers before it gets to a local store. Supporting a local food economy that increases fresh, non-processed food options for local consumers is an important part of any strategy to improve the overall health and wellbeing of the people in our community.

Creating a more vibrant local food system can also bring social and cultural benefits. Events and spaces like farmer's markets and community gardens are places where people come together and build social ties. Food is also a deeply significant part of many cultures. Wild rice, for example, is an important food product for Native American tribal communities that populate the Upper Peninsula. Through sustained efforts and support from state and local governments, the tribal community has successfully reintroduced native wild rice beds across the region. Events that center on food stories and traditions like the Wild Rice Camp in Alberta help participants learn more about the traditional food production and builds social ties around culturally significant foods. Local policy can help support further opportunities to build community and social ties through accessible, culturally sensitive food.

The local economy also benefits from a stronger local food system. It creates new market opportunities for local producers, processors, distributors, and retailers. Most importantly, the money that is spent with local farmers and growers stays close to home and is reinvested with businesses and services in the community. In these ways, investing in local food systems is an effective way to spur the local economy.

Given the array of benefits that a more resilient local food system can provide, [county/municipality] is committed to exploring the following priorities and policy actions:

APPENDIX III: Policy Catalog

Food Systems Planning Policy Catalog

Last Update: 11/7/2019

ABOUT THIS CATALOG

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This catalog contains direct quotations of food systems-related policy language from the master plans of Michigan communities and other municipalities around the country. Whereas the master planning addendum template provides a general introduction to the benefits of food systems planning, this document is designed to catalog action-oriented food policy language from master plans Michigan and across the country. This action-oriented language can be adapted or included as-is in planning documents that WUPPDR helps produce across the Western Upper Peninsula. It is intended to be a living document where new language can be added as further research is conducted.

Most of the planning documents referenced in this catalog were found through searches in two food policy databases:

- [Growing Food Connections](#) from the University at Buffalo
- [Food Policy Networks](#) from Johns Hopkins University

HOW TO USE THIS CATALOG

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The policies in this catalog are divided based on the categories of the Community Food System Model.¹ Click on each category in the Table of Contents below to be directed to that section of the catalog. Each policy entry also has descriptive tags that can be searched, recommended levels of government for best use, a notes section for more description, and links to the source planning document.

Table of Contents for Thematic Sections and Tags:

-  [Administrative Capacity](#)
-  [Producing](#)
-  [Processing](#)
-  [Distributing](#)
-  [Retailing](#)
-  [Eating](#)
-  [Waste Management](#)

¹ "Michigan Good Food Charter," June 2010, accessed July 2, 2019, <https://www.canr.msu.edu/michiganfood/uploads/files/charter.pdf>. The Michigan Good Food Charter establishes a Community Food System Model on page 5 that is used by food policy leaders throughout the state.

ADMINISTRATIVE CAPACITY

Policy Language:

"The purpose of this chapter is to:

- A. Recognize the importance of agriculture as both a vital local economic base and as a land form that provides the (Municipality) with much of its rural, rustic character and charm.
- B. Assure the continued viability of farming as an industry which is important to the local economy and to the preservation of open space and vistas.
- C. Provide for the most beneficial relationship between the use of land and buildings and the agricultural practices of the community and to further encourage the wise use and management of the town's natural resources through modern farming practices.
- D. Provide the Town Board, Planning Board and other relevant boards/committee of our government with a conduit for recommendations from the agricultural community on the long- and short-term impact of a variety of matters and questions considered by these groups."

(Continued in longer document linked below)

Tags: municipal capacity-building, advisory board, community food production, ordinance

Level of Government: county, municipality

Notes: This excerpt from the 2-page law that created the Town of Eden's Agricultural Advisory committee is a great model for increasing local capacity for food policy issues. Establishing a municipal advisory committee can be an important early step in the food systems planning to elevate food issues and bring local stakeholders together.

Source: [Town of Eden, NY Agricultural Advisory Committee](#)

PRODUCING

Policy Language:

"Goals: Improve the health and sustainability of (municipality) economy through production, processing, and consumption of local foods, and increase affordability and access to them. Reduce dependence on increasingly expensive imported foods.

- Action: Seek sources of funding to achieve these goals.
- Action: Support educational opportunities that teach farming and gardening skills and the importance of the local food system.
- Action: Support businesses and institutions operating in (municipality) in purchasing local and sustainable foods and composting organic waste.
- Action: Encourage partnerships between local food producers and institutions such as schools, hospitals, and elder care facilities.
- Action: Support activities and policies to facilitate food waste recovery, such as composting and bio-digestion programs."

Tags: production, sustainable foods, education, waste recovery

Level of government: county, municipality

Notes: This policy is best for a community that is just getting started with food systems planning. These action items are good first steps towards enriching the local food economy.

Source: [City of Iron River Master Plan](#), pg. 66

Policy Language:

"Local food access and production is a priority, and this can be supported by policies for the use of city-owned land.

Goal: Support growing more food on (municipality) property.

- Action: Establish community gardens that are highly accessible to residents throughout the city."

Tags: production, community garden, land use

Level of government: county, municipality

Notes: This policy would work best for a town that has sufficient population size to make a community garden feasible. Community gardens could have individual garden plots cared for by individual community members, or by local restaurants/food businesses that want to grow their own produce.

Source: [City of Iron River Master Plan](#), pg. 41

PRODUCING

Policy Language:

"Provide for community gardens in zoning regulations by defining it as an allowed use in residential zoning districts, with clear site and operational standards.

Provide proactive support for community gardens through soil testing, water provision, or leasing publicly owned property to gardens.

Encourage community gardens to take on outreach and education related to growing healthy food, and to partner with schools, nursing homes, food shelves, local restaurants, and nurseries as outlets for produce."

Tags: community garden, small-medium farm viability, land use

Level of government: county, municipality

Notes: This policy might be appropriate for a community that is just getting started with food systems planning. Establishing a regulatory system for community gardens is a good early step toward engaging with residents and local partner organizations to create community-grown fresh food options.

Source: [Minnesota Good Food Charter](#), pg. 31

Policy Language:

"Consider leasing (municipality)-owned land to non-profit or community partners to support the local food system where appropriate, such as implementing projects to train new farmers, engage children and youth in growing their own food, or establish and maintain public food forests or gardens, etc."

Tags: production, processing, retailing, community partnerships

Level of government: county, municipality

Notes: This policy is one of a series of strategies identified in the capital projects section of Chocolay Township, MI's 2015 Master Plan. This is an introductory policy that can help strengthen community partnerships and support/incubate local food systems organizations.

Source: [Chocolay Township 2015 Master Plan](#), pg. 122

PRODUCING

Policy Language:

“Provide food, agriculture training, and agribusiness workshops and hands-on gardening experience to increase access to healthy affordable produce.

- Offer community members a chance to participate in farmers markets, garden preparation and maintenance classes, and food preservation courses
- Establish traveling farmers market to support large land base with many community members who cannot access a market that sits in a single spot”

Example Community: Pine Ridge, South Dakota

Tags: training, education, farmers market

Level of government: county, municipality

Notes: This policy would be ideal for communities with strong local resident interest in home and community gardening, but who lack the agricultural knowledge to do so.

Source: [Intertribal Food Systems: A National Intertribal Survey and Report](#), pg. 31

Policy Language:

“Issue a formal resolution that prioritizes objectives related to public health, ecological sustainability, and economic development with regards to (municipality’s) food system. The resolution could be modeled after previous county resolutions or after food-related resolutions in other localities.”

Tags: resolution

Level of government: county, municipality

Notes: Formal resolutions are an important tool that counties and municipalities use to draw attention to specific issues and signify policy commitments and goals. This kind of language could be used in a master planning document as a specific action that the unit of government will take to achieve its food systems goals.

Source: [Franklin County Food Policy Audit](#) pg.4

PRODUCING

Policy Language:

“Adopt new practices to extend growing seasons. This can include plastic mulch to produce berries earlier in the season, hoop houses and high tunnels to grow vegetables in the early spring and late fall, and greenhouses for year-round growing. These practices can make local food more visible by keeping it available for most of the year.”

Tags: extended growing season, hoop houses

Level of government: county, municipality

Notes: This language could be used as a policy goal for a county or municipality that wants to support local food producers extend their growing season.

Source: [Central Ohio Local Food Assessment and Plan](#) pg.9

Policy Language:

“Support seed sharing through the development of seed libraries. Seed libraries, which are community-based organizations that provide free access to seeds, promote saving and sharing, and educate the public about the importance of seeds and genetic diversity in the food system. Many seed libraries are run out of local libraries.”

Example communities: Omaha, NE; Pittsburgh, PA; Magnolia Springs, AL; and Pima, AZ

Tags: seed sharing, seed library, education

Level of government: municipality

Notes: Seed libraries are a unique way that a municipality can encourage local food production, educate and engage its population, and start conversations about the importance of the local food system.

Source: [Good Food Good Laws: Putting Local Food Policy to Work for Our Communities](#) p.22

PRODUCING

Policy Language

“(a) In addition to livestock otherwise allowed in the Ag Agriculture and R-1R Rural Residential zoning districts, urban livestock outlined herein is permitted on single and two-family residential parcels when accessory to a permitted residential use providing they are housed at the premises that is residentially occupied by the owner of the livestock. The care and keeping of urban livestock is subject to restrictions outlined herein, and for accessory buildings, fencing, and nuisance provisions of the (municipality) Codified Ordinances...”

(continued in longer ordinance linked below)

Tags: zoning, livestock, ordinance

Level of Government: municipality

Notes: This zoning ordinance from Battle Creek, Michigan (full document linked below) is a good template for a community that might consider a similar ordinance to allow livestock in residential areas.

Source: [Battle Creek Livestock Ordinance](#)

PROCESSING

Policy Language:

“Agricultural processing, packing and direct sales are considered agricultural activities and should be allowed at a size and scale appropriate to the zone in which they are operating. (municipality) shall work with local and state health departments to develop regulations supporting these activities.”

“(municipality) supports the processing and packaging of farm products from crops and livestock, and will continue to work with farmers, ranchers, municipalities, neighboring counties, and other interested parties to address the infrastructure and regulatory needs to promote sales to consumers, institutions, restaurants, and retail enterprises.”

Tags: regulation, processing

Level of government: county, municipality

Notes: This is great policy language for a county or municipal government to affirm its support for processing of local-scale agricultural products. Meeting state health regulations for this kind of activity can be a barrier for small-scale producers, so it's important for these levels of government to provide the capacity needed to work with state regulators.

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 25

Policy Language:

“Definition: Farm product processing is defined as the alteration or modification, for the purpose of storage, transport, or sale of an agricultural product produced on a farm site through the addition of other ingredients or components, provided that the initial agricultural product must be the principal ingredient or component. The addition of elements necessary for the long-term storage or stability of the product must not be considered farm product processing, provided that this addition does not alter the agricultural product from its original constitution or state. Farm product processing includes the production of wine. Farm product processing must not include the operation of a stockyard or slaughter house.

Code Requirements Farm product processing is permitted in the following zones: _____

In the _____ zones, up to 5,000 square feet of space devoted to farm product processing is permitted. Over 5,000 square feet devoted to farm product processing requires an Administrative Conditional Use permit.”

Example Communities: Snohomish County (WA) Planning and Development Services

Tags: definition, zoning

PROCESSING

Level of government: county, municipality

Notes: Defining agriculture processing and explicitly designating zones where processing is permitted is an important first step for a county or municipality that wants to formalize the way they regulate and plan for this type of activity. This is one example of how a county defined and zoned for agricultural processing.

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 25

DISTRIBUTION

Policy Language:

“Improve aggregation and distribution of local food. Farmers and distributors could benefit from regional centers where fresh-picked produce can be chilled and packaged for distribution, or stored for winter use. Such centers could be operated as farmer cooperatives, or by non-for-profit organizations or private business.”

Tags: distribution center

Level of government: regional, county

Notes: This language can be used in a master plan that identifies distribution issues as problem that limits the regional food network.

Source: [Central Ohio Local Food Assessment and Plan](#) p.9

Policy Language:

“Encourage mobile vending. Mobile vending encompasses everything from mobile farmers markets and mobile grocery stores to food trucks and produce carts. Mobile markets are generally renovated trucks or trailers that bring fresh produce, household staples, and prepared foods into underserved neighborhoods with food deserts.”

Example community: The Gorge Grown Mobile Market in the Columbia River Gorge region of OR and WA sells fresh locally grown produce in a low-income rural community where 10% of the population uses food stamps

Tags: mobile vending, distribution

Level of government: region, county, municipality

Notes: This is a good action statement for a government that wants to plan to increase the local foods distribution network in its jurisdiction through mobile markets and food trucks.

Source: [Good Food Good Laws: Putting Local Food Policy to Work For Our Communities](#) p.27

DISTRIBUTION

Policy Language:

“Expand and increase innovative methods to bring healthy foods to under-served areas as well as strategies to encourage their consumption.”

Tags: distribution, healthy foods

Level of government: region, county, municipality

Notes: This policy is an important early-stage priority that can help a regional, county, or municipal entity start thinking about innovative distribution networks to bring healthy foods to their communities. The good food charter lists a few different examples of such strategies: farmers’ markets, community gardens, food delivery programs, community kitchens, and incubator kitchens.

Source: [Michigan Good Food Charter](#), pg. 14

RETAILING

Policy Language:

“Increase public and private funding for incentives to match federal nutrition benefits spent at farmers markets. Additional funding could be expanded to match funds spent by Women, Infants, and Children (WIC), and Farmers Market Nutrition Program (FMNP) for WIC and Seniors.”

Tags: economic incentives, farmers markets, healthy food

Level of government: county, municipality

Notes: This policy would be ideal for communities with pre-existing farmers markets and other direct to consumer distribution and a population of residents with food insecurity and access to federal nutrition benefits.

Source: [Montgomery County Food Security Plan](#) pp. 97

Policy Language:

“Promote large-scale institutional purchases of local food. (region) and the state need a guide for institutions on the logistics of buying local — finding producers, processors and distributors — and a network of institutional chefs and buyers who can be mentors for their counterparts at other institutions. Institutional buying cannot occur on any grand scale until the local-food infrastructure is expanded. That expansion will create new markets, inducing producers to grow food for local consumption.”

Tags: local institutions, local food

Level of government: regional

Notes: This language can be used by a regional plan that wants to take action to encourage local food purchase by institutions in the region.

Source: [Central Ohio Local Food Assessment and Plan](#) p.9

RETAILING

Policy Language:

“Ensuring that zoning codes allow for farmers markets in all residential and commercial areas.

Verifying that farmers markets are allowed to operate without local permits; or, if permits are needed, that they are of an appropriate cost and level of sophistication for farmers markets (as opposed to grocery stores or large businesses).”

Tags: farmers market, regulation, zoning

Level of government: county, municipality

Notes: This language could be especially useful for a county or community that may not currently have a farmers market but wants to make sure that there are minimal regulatory barriers in place.

Source: [Good Food Good Laws: Putting Local Food Policy to Work for Our Communities](#) p.26

Policy Language:

“Encourage institutions – including schools, hospitals, colleges and universities – to use their collective purchasing power to influence the food supply chain to provide healthier food and more foods grown, raised and processed in Michigan.”

Tags: local institutions, healthy foods, local food

Level of government: regional, county, municipality

Notes: This language is especially applicable for regions or communities that do have substantial institutions that they can partner with to increase purchase of local foods.

Source: [Michigan Good Food Charter](#), pg. 14

RETAILING

Policy Language:

“Establish food business districts to encourage food businesses to locate in the same area and to support their collaboration.”

Tags: local institutions, healthy foods, food district

Level of government: municipality

Notes: This policy will be better for municipalities that have larger population centers and downtown areas where these types of businesses could thrive.

Source: [Michigan Good Food Charter](#), pg. 14

Policy Language:

“Farmers market vendors are expected to sell Michigan grown and/or processed products, and are required to sell in accordance with all applicable local, state and federal regulations.”

Tags: farmers market, healthy foods, local foods

Level of government: municipality

Notes: Where farmers markets do exist, this language could be used in a master plan to signify a policy priority that the food sold should come from local Michigan producers.

Source: [Battle Creek Farmers Market Association](#)

Policy Language:

“Utilize existing economic development incentives and/or create new incentives to encourage stores to sell fresh, healthy foods such as produce in underserved areas.”

Tags: economic incentives, healthy foods, underserved communities

Level of government: county, municipality

Notes: This language can be used as a specific action that a government can take to incentivize healthy food retail options.

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 5

EATING

Policy Language:

“Strategy 1 : Improve the nutrition environment for children birth to age 18 (including schools, child care settings and before/ after-school programs)

Opportunities for Community Action:

1. Assure implementation of strong wellness policies and practices in Douglas County schools, before and after-school programs, child care homes and centers, which will include:
 - a) Oversight by a wellness “council” or “committee” with representation by key community/ school district stakeholders
 - b) Policies and practices that include criteria for the nutritional quality of snacks, vending options, school stores, concessions, and food at special events & fundraisers
 - c) Assure that all nutrition education curricula meet a minimum standard
2. Increase enrollment and participation in meal programs (including breakfast, free and reduced meals, afterschool, and summer food programs) for school-age youth in Douglas County
3. Advocate for continued implementation of the Healthy, Hunger-Free Kids Act
4. 4. Create (or maintain) school gardens across (municipality)
5. Establish practices that result in greater use of fruits/ vegetables from school gardens in district schools”

Tags: healthy eating, children’s health

Level of government: county, municipality

Notes: This strategy and accompanying actions are part of a larger set of food policies that Douglas County, Kansas has identified as important to achieving their goal “to create environments where healthy food consumption is easier and more likely.” This language is appropriate for planning documents at the county or municipal level and strikes a balance between declaring goals and the action steps needed to achieve those goals.

The Healthy, Hunger-Free Kids Act was passed in 2010 and provides funding to help reduce health risks for America's children by helping schools across the country produce balanced meals so children have access to healthy foods during the school day.

Source: [Roadmap to a Healthier Douglas County: 2013-2018 Douglas County Community Health Plan](#), pg. 6

EATING

Policy Language:

“Strategy 2: Assure Opportunities for Healthy Eating at Work

Opportunities for Community Action:

1. Develop and implement a communications strategy to promote workplace wellness as economic development and to build community buy-in
2. Develop a public recognition program for employers who promote healthy eating at work
3. Recruit employee champions to advocate for implementation of worksite policies promoting healthy food/ beverages options and opportunities for physical activity
4. Implement policies and practices in (municipality) worksites supporting healthy eating and physical activity (e.g., implementing best practices, creating flex time, sponsorship of local physical activity events, limiting unhealthy options in vending machines, catering, and cafeterias)”

Tags: healthy eating

Level of government: county, municipality

Notes: This strategy and accompanying actions are part of a larger set of food policies that Douglas County, Kansas has identified as important to achieving their goal “to create environments where healthy food consumption is easier and more likely.” This language is appropriate for planning documents at the county or municipal level and strikes a balance between declaring goals and the action steps needed to achieve those goals.

Source: [Roadmap to a Healthier Douglas County: 2013-2018 Douglas County Community Health Plan](#), pg. 6

EATING

Policy Language:

“Strategy 4: Enhance Access to Healthy Food for Low-Income Families

Opportunities for Community Action:

1. Establish waste minimizing practices and policies with supermarkets, restaurants, cafeterias, schools, hospitals and any other large feeding institutions, restaurants and stores by supplying excess to food banks serving (municipality) (for low-income families)
2. Implement a choice-based system with whole foods incentivized in local food banks/ pantries and assure availability of healthy food choices
3. Establish satellite food pantry locations to provide access to whole foods for low-income families
4. Establish a system that engages low-income families as food growers and small business operators
5. Enhance the capacity of the food system to handle large-scale donations (e.g., storage, transportation)
6. 6. Establish new opportunities to purchase fresh produce in (neighborhood) and other parts of (municipality) with limited options, including farmer’s markets, integration into existing retail options, or opening corner stores.
7. Implement environmental changes (e.g., moving bus stops closer) that make access to local food banks/ pantries and farmers’ markets easier
8. Establish case management and outreach enrollment at local food pantries and schools that links and enrolls people to SNAP and food stamps programs”

Tags: healthy eating, waste management, food access, food bank

Level of government: county, municipality

Notes: This strategy and accompanying actions are part of a larger set of food policies that Douglas County, Kansas has identified as important to achieving their goal “to create environments where healthy food consumption is easier and more likely.” This language is appropriate for planning documents at the county or municipal level and strikes a balance between declaring goals and the action steps needed to achieve those goals.

Source: [Roadmap to a Healthier Douglas County: 2013-2018 Douglas County Community Health Plan](#), pg. 7

WASTE MANAGEMENT

Policy Language:

“Goal: Reduce the amount of food and other organic materials going to landfills and convert excess organic waste into resources such as compost.”

Tags: food waste, composting

Level of government: regional, county, municipality

Notes: This kind of goal-setting policy language could be a good first start for a community that hasn’t done any kind of food waste reduction planning. A graduated version of this policy could include a measurable/verifiable target outcome (ex. “Reduce the amount of food and other organic materials going to landfill by 1 ton in 2020.”)

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 41

Policy Language:

“Encourage food waste management by the commercial sector. The suggested order for management of food waste is: (1) food donation; (2) convert to animal feed and/or rendering; and (3) compost. Local establishments should be encouraged, through educational efforts, to follow this hierarchy when possible.”

Tags: food waste, composting, education

Level of government: county, municipality

Notes: This policy helps build a local culture of composting food waste. This is an important aspect to consider as local food systems grow, and this carrying out this policy would help start that conversation with the local business community.

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 43

WASTE MANAGEMENT

Policy Language:

“Continue backyard composting education by conducting at least two compost workshops each year with each participating household receiving one compost bin after attending a workshop and will survey participants in the fall about usage and participation in composting. Maintain a compost pile at the (municipality) Community garden, support backyard composting classes and facilities in other locations if feasible and conduct one master composter class.”

Tags: composting, education

Level of government: county, municipality

Notes: This policy helps build a local culture of composting food waste.

Source: [Growing Nourishing Food Systems: A Guide for Local Governments to Improve Healthy Eating in Washington State](#), pg. 44