Diabetes Risk Factors
Community Profile
District Health Department #10

December 2013

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District Health Department #10 (DHD #10)

Includes Lake, Mecosta, Newaygo, Wexford, Manistee,
Mason, Oceana, Kalkaska, Missaukee, and Crawford Counties

The National Association of Chronic Disease Directors (NACDD) has contracted with the Directors of Health Promotion and Education (DHPE) to provide the following data and recommendations to identify:

- target audiences for the Diabetes Prevention Programs (DPP)
- how to reach the target audience
- health care facilities in the area that can refer to DPPs.
- locations of select business that may be useful in promoting DPPs

This report uses PRIZM segment descriptions to determine where people at risk for diabetes may be located. Each segment has unique demographic descriptions based on income, life stage, age range, presence of children in the household, home ownership, employment, education, and race and ethnicity; there are 66 PRIZM segments. Based on the segment profiles the following questions can be examined:

- Where is the target population located?
- How would you reach them?
- What else is in the area?

Target Population

Approximately 67,400[1] prediabetic adults 21 years old and older live in District Health Department #10 (DHD #10). DHD #10 includes the following counties: Lake, Mecosta, Newaygo, Wexford, Manistee, Mason, Oceana, Kalkaska, Missaukee and Crawford. Below is a table with the number of prediabetic adults in each of the ten counties served by District Health Department #10.

County	Approximate Number of prediabetic adults
Lake	3,223
Mecosta	10,809
Newaygo	12,121
Wexford	8,258
Manistee	6,758
Mason	7,520
Oceana	6,642
Kalkaska	4,458
Missaukee	3,830
Crawford	3,775

[1]Estimate is based on multiplying the population for those 21 years old and older by 35%.The estimated number of persons with prediabetes was calculated by applying the national estimate of prediabetes from NHANES III to the 2013 population estimate for adults aged 21 years and older in the geography of interest. This is the same methodology used by the Centers for Disease Control and Prevention. National diabetes fact sheet: national estimates and general information on diabetes and prediabetes in the United States, 2011. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2011. Available at: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf.

Approximately 50% of adults 65 and older are estimated to have prediabetes.[1] People with prediabetes have an increased risk of developing type 2 diabetes, heart disease and stroke. Studies have shown that people with prediabetes who lose weight and increase their physical activity can prevent or delay type 2 diabetes and, in some cases, return their blood glucose levels to normal.

If the modifiable risk factors for type 2 diabetes (being overweight or obese and physical inactive) continue to increase, so will the prevalence of type 2 diabetes. The adult obesity prevalence in Michigan has increased from 18.2 to 31.7 percent between 1995 and 2010.[2]

Individuals at greatest risk of developing diabetes in Michigan are:

- African Americans
- Individuals with no college education
- Households that earn less than $25,000 per year

Table 1 provides a summary of some of the demographic factors associated with a higher risk of developing diabetes. **Appendix 2** contains a detailed report of demographics and household characteristics for the areas of interest.

Based on results in Table 1, more than 1 in 4 individuals in DHD #10 is between 45 and 64 years old. This age group is an ideal target group as the prevalence of diabetes goes up dramatically in the population 65 and older.[3] Compared to the state, DHD #10 has a lower median average household income and higher percent of adults with less than a four-year college degree. This suggests that the population that lives in DHD #10 may be at higher risk of developing diabetes compared to the state as a whole.

[2] Michigan Behavioral Risk Factor Surveillance System, 1995-2010. Available at http://apps.nccd.cdc.gov/BRFSS.

[3] Michigan Behavioral Risk Factor Surveillance System, 1995-2010. Available at http://apps.nccd.cdc.gov/BRFSS.

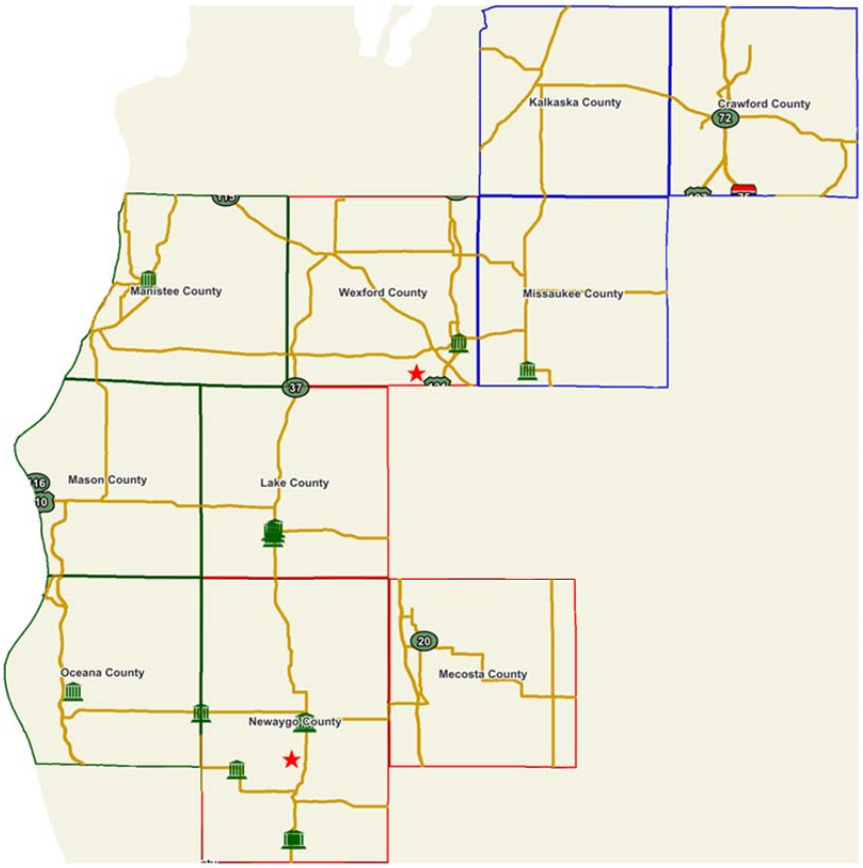
Table 1. Demographics

	Lake, Mecosta, Newaygo, and Wexford Counties	Manistee, Mason, and Oceana Counties	Kalkaska, Missaukee, and Crawford Counties	District Health Department #10	Michigan
Total Population	136,297	79,761	46,076	262,134	9,862,679
Age					
< 21 years old	27.86%	25.06%	25.20%	26.54%	27.69%
21-44	27.56%	24.91%	24.75%	26.26%	29.70%
45-64	27.27%	29.90%	30.61%	28.66%	27.87%
65-84	15.35%	17.62%	17.48%	16.41%	12.69%
85+	1.96%	2.52%	1.95%	2.13%	2.05%
Race					
White	59.00%	50.96%	66.89%	55.40%	78.56%
Black or African American	1.78%	0.74%	1.32%	1.21%	14.21%
American Indian and Alaska Native	2.32%	2.45%	3.30%	2.45%	0.64%
Asian	0.18%	0.11%	0.26%	0.15%	2.56%
Native Hawaiian and Other Pacific Islander	0.09%	0.00%	0.13%	0.05%	0.03%
Some Other Race	27.47%	38.12%	17.94%	32.31%	1.57%
Two or More Races	9.15%	7.62%	10.16%	8.43%	2.43%
Ethnicity					
Hispanic	3.26%	6.97%	1.65%	4.10%	4.69%
Not Hispanic	96.74%	93.03%	98.35%	95.90%	95.31%
Household Income					
Average	$47,015	$49,521	$48,808	$48,118	$58,514
Median	$35,352	$39,139	$38,894	$37,215	$43,691
Population 25 and older with less than a four-year college degree	84.76%	83.11%	87.26%	84.70%	74.90%

DPP= Diabetes Prevention Program
Data Source: 2013 The Nielsen Company Enhanced Demographic Report

Map 1.1 shows DHD #10. There are several Federally Qualified Health Centers (FQHC) located in DHD #10 and several YMCAs.

Map 1 DHD #10



FQHC

YMCA

Highway

Northern Counties - Kalkasja ,Crawford, and Missaukee

Lakeshore Counties – Manistee, Mason, and Oceana

Four County Area- Lake ,Mecosta, Wexford, and Newaygo

Location of People with Diabetes Risk Factors

The target population is individuals with risk factors for diabetes. The target population was determined using the demographic description and lifestyle preferences of each PRIZM segment found in DHD #10. Segments with demographic characteristics associated with a higher prevalence of diabetes were combined to form a profile. The demographic and socioeconomic characteristics included are:

- Education Attainment: less than a four-year college degree
- Household Income: $50,000 or less per year
- Age: segment age ranges that overlapped or contained the age group of 45 to 84 year olds

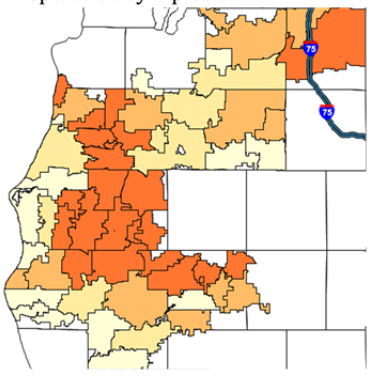
Based on these three characteristics the following PRIZM segments were found to be at high risk of developing diabetes: 38,39,40,41,42,43,44,45,46,48,49,52,53,54,55,56,57,58,59,60,61,64,65,66. There are 66 PRIZM segments. In general, as the segment number increases, the socioeconomic status decreases. As mentioned previously each segment has a unique demographic and socioeconomic description based on several indicators including income, life stage, age range, presence of kids in the household, home ownership, employment, education, and race and ethnicity. For a detailed description of each segment, visit
http://www.claritas.com/MyBestSegments/Default.jsp?ID=30&id1=1027&id2=&webid=1

To verify that these segments also had high-risk lifestyle behaviors that could lead to diabetes additional analyses examined their likelihood of being physically active, consuming fruits and vegetables, and watching over 20 hours of television per week. It was found that these segments were among the least likely to be physically active and to consume fruits and vegetables, and among the most likely to watch more than 20 hours of television per week.

Map 2.1.1 shows the concentration of the target segments within each zip code in DHD #10 and **Map 2.1.2** shows the concentration within each census tract; the darker the orange, the higher the concentration of the target segments.

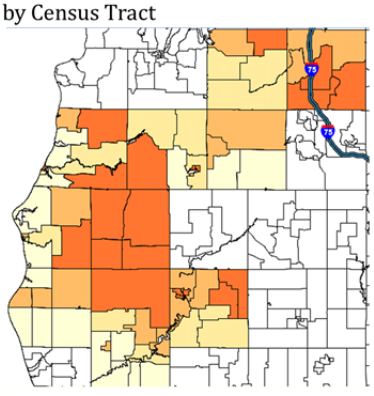
Appendix 3 provides a list of all the zip codes and census tracts in DHD #10 and the number of households that are at high risk of developing diabetes.

Map 2.1.1 Concentration of Target Population by Zip Code



*Number of adults per 100 households.
† Likelihood that the target population is located in a particular zip code compared to all zip code in the area of interest

Map 2.1.2 Concentration of Target Population by Census Tract



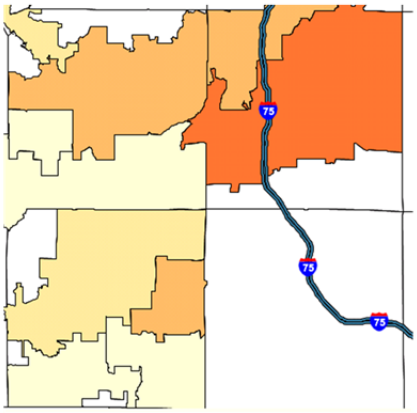
*Number of adults per 100 households.
† Likelihood that the target population is located in a particular census tracts compared to all zip code in the area of interest

The zip codes within DHD #10 where 85% or more households have one or more adults that fit this profile are 49304, 49642, 49644, 49638, 49656, 49689and 49309.

Taking a closer look at the census tracts in these areas may help narrow the focus highest risk areas further.

Map 2.2.1 shows the concentration of the target segments within each zip code in the three northern counties of DHD #10 and **Map 2.2.2** shows the concentration within each census tract. The indices are lower in these maps compared to map 2.1.1 and 2 because each zip code and census tract is compared only to those within the three northern counties of DHD #10 instead of all of DHD #10.

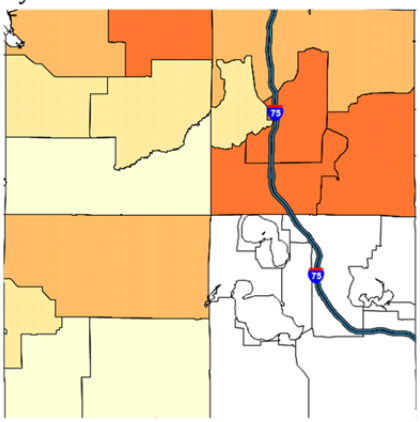
Map 2.2.1 Concentration of Target Population by Zip Code



HH/ 100 HH*	Index †
79.47	114
73.18	105
69.36	99
57.32	82

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular zip code compared to all zip code in the area of interest

Map 2.2.2 Concentration of Target Population by Census Tract

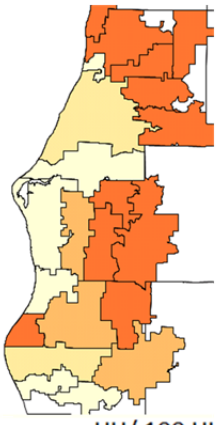


HH/ 100 HH*	Index †
80.68	113
76.43	107
70.86	99
57.51	80

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular census tracts compared to all zip code in the area of interest

Map 2.3.1 shows the concentration of the target segments within each zip code in the three lake counties of DHD #10 and **Map 2.3.2** shows the concentration within each census tract.

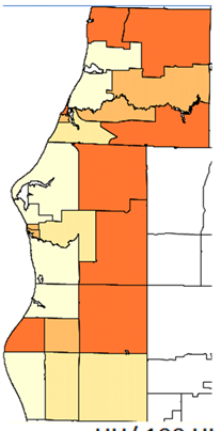
Map 2.3.1 Concentration of Target Population by Zip Code



HH/ 100 HH*	Index †
77.93	122
66.94	105
62.43	98
53.83	84

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular zip code compared to all zip code in the area of interest

Map 2.3.2 Concentration of Target Population by Census Tract

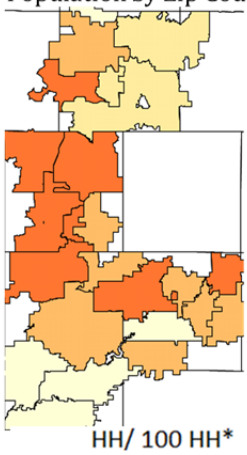


HH/ 100 HH*	Index †
78.29	123
69.00	109
61.02	96
44.77	71

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular census tracts compared to all zip code in the area of interest

Map 2.4.1 shows the concentration of the target segments within each zip code in the four middle counties of DHD #10 and **Map 2.4.2** shows the concentration within each census tract.

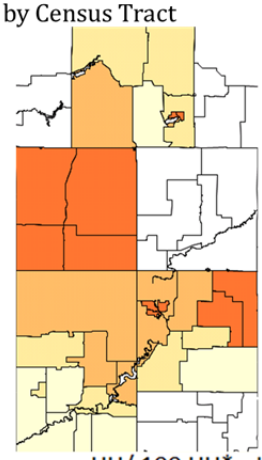
Map 2.4.1 Concentration of Target Population by Zip Code



	HH/ 100 HH*	Index †
	84.64	120
	72.52	103
	66.52	95
	58.76	84

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular zip code compared to all zip code in the area of interest

Map 2.4.2 Concentration of Target Population by Census Tract



	HH/ 100 HH*	Index †
	87.20	124
	75.86	108
	65.59	94
	51.57	74

*Number of adults per 100 households.
† Likelihood that the target population is located in a particular census tracts compared to all zip code in the area of interest

Marketing[4]

Below are ways to reach your target audience. There are descriptions of how often and the types of print, radio, and television stations they read, listen to, and watch. For radio and television, the times and days of the week the audience is most likely to listen to or watch are listed as well.

See **Appendix 4** for detailed tables and information for the source information the descriptions below are based on. The majority of findings are based on the number of adults per 100 households. For these findings, it is possible to have more than 100 adults per 100 households as multiple adults can live in a household. A few of the findings are based on household consumption, for these findings the number of households cannot exceed 100.

Print Media Profile:
Among the segments at high risk for diabetes that live in DHD #10:

- Over 60 adults per 100 households in the target PRIZM segments read the Sunday newspaper.
- Approximately the 79 adults per 100 households report frequently reading the newspaper; however, 82 adults per 100 households report reading the newspaper infrequently.
- Approximately 71 adults per 100 households report reading the Sunday newspaper and 62 adults per 100 households report reading the daily newspaper.

If using print media as a method for reaching the target population, the Sunday newspaper has the most reach.

Radio Media Profile:
Among the segments at high risk for diabetes that live in DHD #10:

- Approximately 94 adults per 100 households listen to the radio less than 15 hours a week; however, 67 adults per 100 households listen to the radio more than 20 hours a week.
- The highest number of adults per 100 households listens to the radio Monday through Friday from 6 am to 10 am, and Saturday and Sunday from 10 am to 3pm.
- The most frequently listened to radio stations are country radio stations.

If using radio media as a method for reaching the target population, the best time of day is 6 a.m. to 10 a.m. Monday through Friday on country radio stations.

[4] Marketing Profile is based on the PRIZM segments that are least likely to report exercising: segments 26, 31, 38-40, 42-49, 52-66. There are 66 PRIZM segments the higher the number the lower the social-economic status. The segments are defined based on a combination of household characteristics (e.g., presence of kids), demographic characteristics, and economic characteristics. Nielsen's segmentation system has been tested and verified in various settings and geographic locations. The selected marketing avenues were selected based both on a high Market Potential Index as well as the number of people that could be reached.

Television Media Profile:
Note this profile captures usage of specific channels if you want to know the shows watched or frequency of viewing different shows, let DHPE know and additional analysis can be run.

Among the Segments at High Risk for Diabetes that live in DHD #10:

- Over 105 adults per 102 households watch 23.5 hours or more of television per week for men and 24.5 hours or more per week for women.
- Over 85 adults per 100 households average at least a half hour of television between 8 p.m. and 11 p.m., 7:30 p.m. and 8 p.m., and 7 p.m.-7:30 p.m. Monday through Friday. Weekend viewing during these time periods is also around 85 adults per 100 households.
- Approximately 79% of households subscribe to cable or satellite television.

If using television media as a method for reaching the target population, the best time of day is 7 p.m. -11 p.m. Monday through Friday.

Internet Media Profile:
Among the Segments at High Risk for Diabetes that live in DHD #10:

- Over 119 adults per 100 households use the internet 0 to 17 times per month.
- Approximately 56% own their own computer.
- Approximately 42 adults per 100 households use the internet frequently – 28 or more times per month.
- Less than half of households (46%) have access to the internet at home.
- Approximately 16 adults per 100 households use the internet via a cell phone or smart phone.

Internet use for most users in the target segments is low.

Attitude Towards Media:
Over 60 users per 100 households in the target population feel magazines, newspapers, radio, and television ads give useful information. The target segments are more likely to agree that television is the most trusted media.

Grocery Shopping Habits
Over 102 users per 100 households in the target segments grocery shop at a Walmart Supercenter or similar store (e.g. Meijer or Target Super Store).

Approximately 30 users per 100 households in the target segments do their grocery shopping within five miles of their home.

Retailer and Shopping Habits:
Walmart appears to be the store that the target segments shops at most often. Meijer was not included in the survey but since it has similar attributes as Walmart it would have likely ranked high among the stores most frequented.

Restaurants:
McDonalds and Burger King are the two fast food restaurants where the highest number of users per household frequent. However, the target segments are less likely to frequent these restaurants compared to all segments.

Maps

The following maps may be useful in program planning efforts to identify potential target areas. **Maps 3.1.1 through 8.4.3** highlight geographic areas with demographic and socioeconomic status data that are associated with a higher risk of developing diabetes. **Maps 9.1.1 through 12.4.2** highlights geographic areas where healthy behaviors are exhibited that are associated with higher risk of developing diabetes. **Appendix 5** contains the demographic and socioeconomic status data provided in **Maps 3.1.1 through 8.4.3**. **Appendix 6.1a-6.3.b** contains the health behavior data provided in **Maps 9.1.1 through 12.4.2**.

Demographic and Socioeconomic Status Associated with Higher Risk of Diabetes

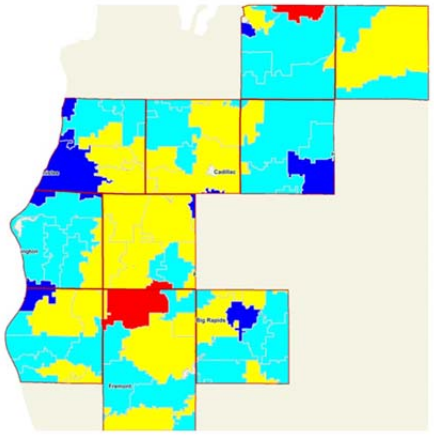
Map 3.1.1 shows the percent of families living below poverty by zip code. The zip codes in red have the highest percent of families living below poverty, between 17.6% and 22.4%.

At least 15% of the families living in the following zip codes are below poverty: 49309, 48625, 49659, 48886, 49631, 49656, 49459, 48850, 49425, 49349, 49676, and 49420.

Map 3.1.2 shows the percent of families living below poverty by census tract.

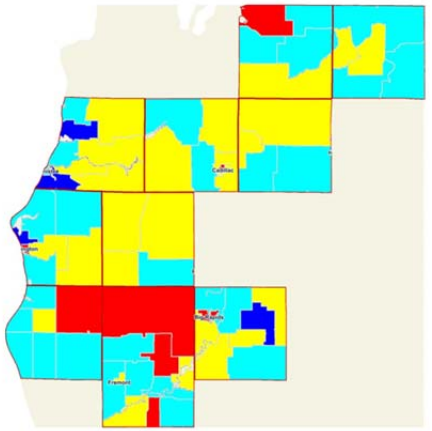
Map 3.1.3 shows the number of families living below poverty; each dot represents five families.

Map 3.1.1 Percent of Families Living Below Poverty by Zip Code



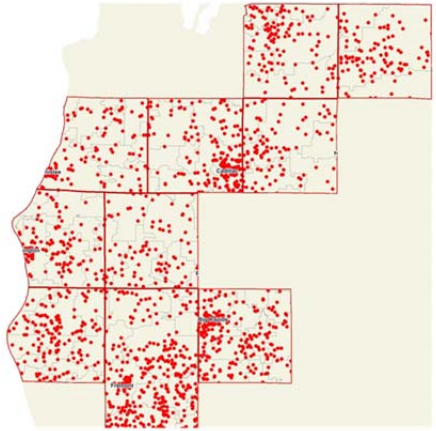
2.7 <= 7.6
7.7 <= 12.6
12.7 <= 17.5
17.6 <= 22.4

Map 3.1.2 Percent of Families Living Below Poverty by Census Tract



-- <= 5.8
5.9 <= 11.5
11.6 <= 17.3
17.4 <= 23

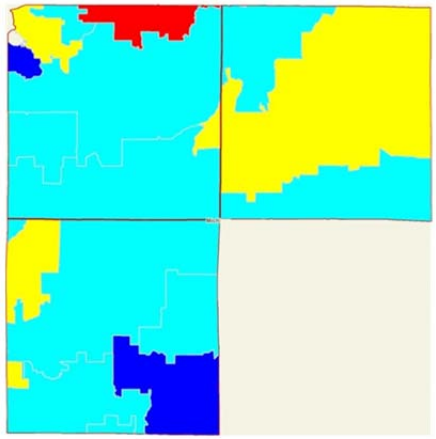
Map 3.1.3 Number of Families Living Below Poverty



1 dot = 5 Families Living Below Poverty

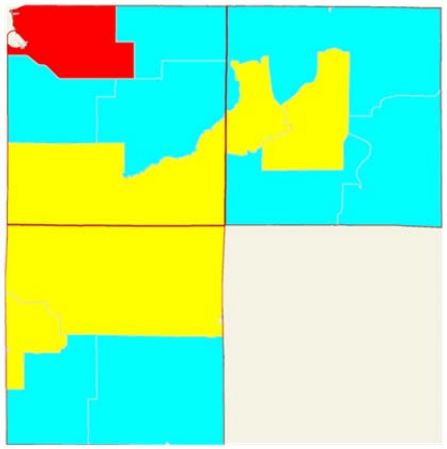
Map 3.2.1 shows the percent of families living below poverty by zip code in the northern three counties of DHD #10. **Map 3.2.2** shows the percent of families living below poverty by census tract and **Map 3.2.3** shows the number of families living below poverty.

Map 3.2.1 Percent of Families Living Below Poverty by Zip Code



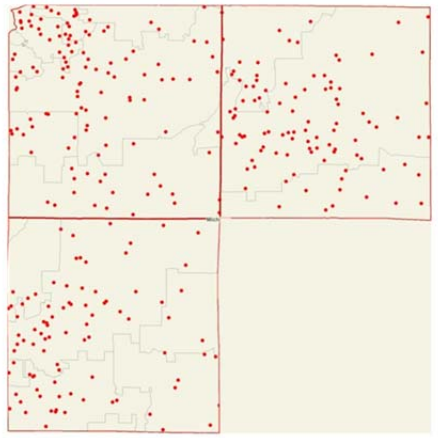
2.7 <= 7.6
7.7 <= 12.6
12.7 <= 17.5
17.6 <= 22.4

Map 3.2.2 Percent of Families Living Below Poverty by Census Tract



-- <= 5.8
5.9 <= 11.5
11.6 <= 17.3
17.4 <= 23

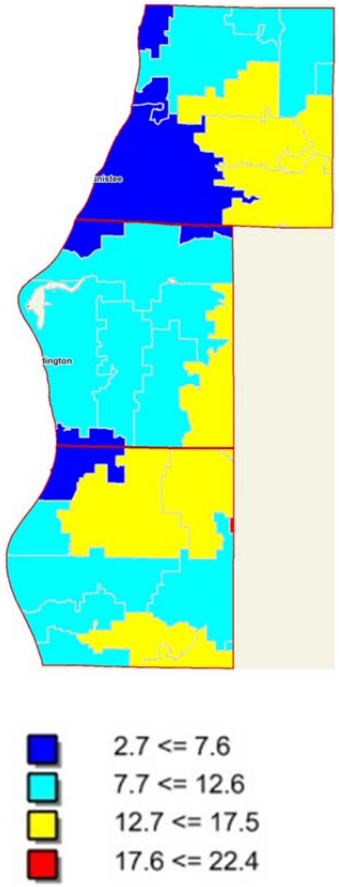
Map 3.2.3 Number of Families Living Below Poverty



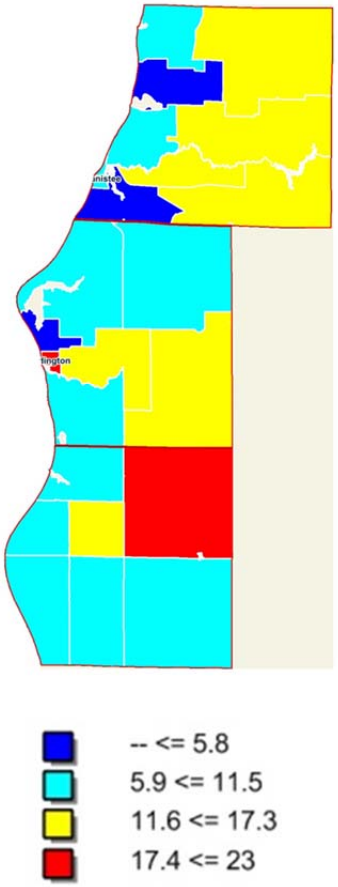
1 dot = 5 Families Living Below Poverty

Map 3.3.1 shows the percent of families living below poverty by zip code in three counties of DHD #10 near Lake Michigan. **Map 3.3.2** shows the percent of families living below poverty by census tract and **Map 3.3.3** shows the number of families living below poverty.

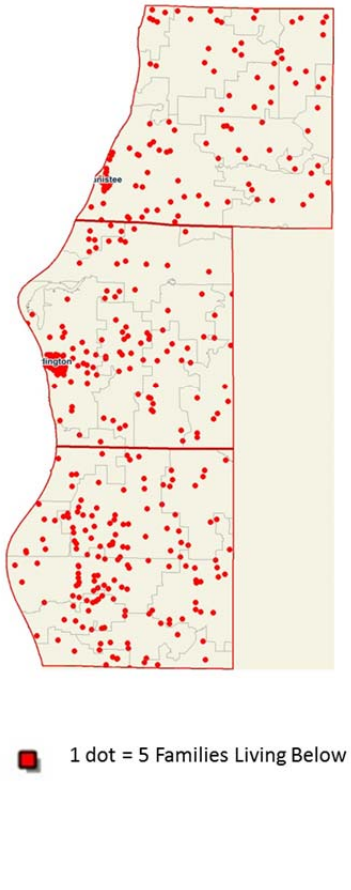
Map 3.3.1 Percent of Families Living Below Poverty by Zip Code



Map 3.3.2 Percent of Families Living Below Poverty by Census Tract

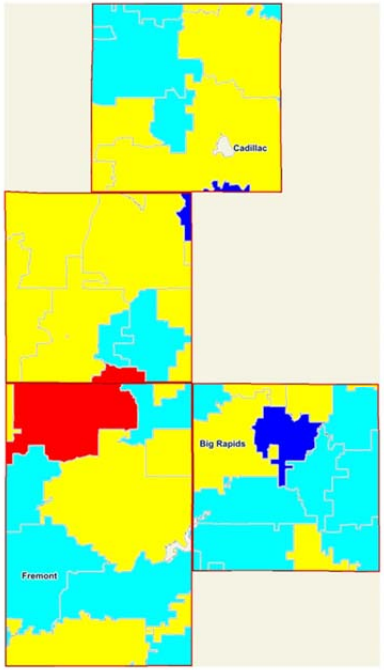


Map 3.3.3 Number of Families Living Below Poverty



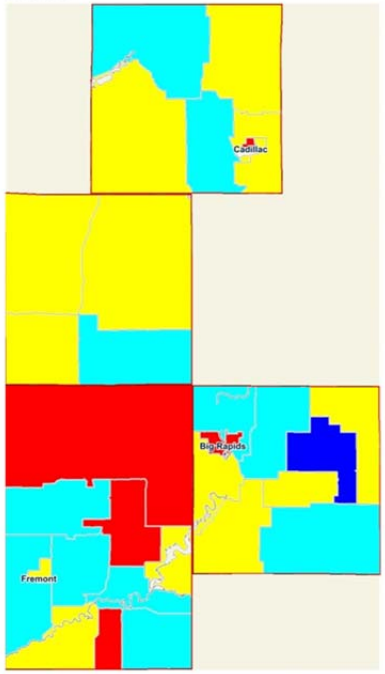
Map 3.4.1 shows the percent of families living below poverty by zip code in the four middle counties of DHD #10. **Map 3.4.2** shows the percent of families living below poverty by census tract and **Map 3.4.3** shows the number of families living below poverty.

Map 3.4.1 Percent of Families Living Below Poverty by Zip Code



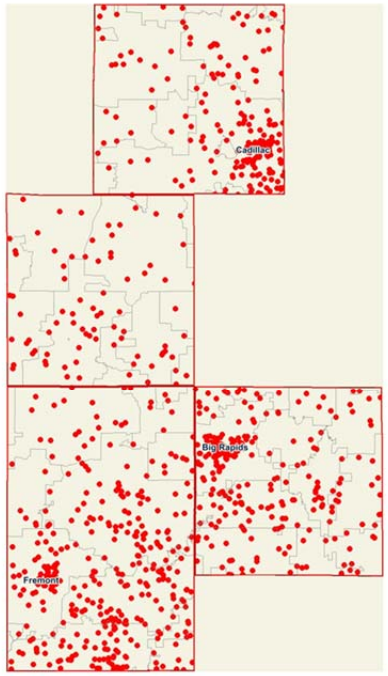
2.7 <= 7.6
7.7 <= 12.6
12.7 <= 17.5
17.6 <= 22.4

Map 3.4.2 Percent of Families Living Below Poverty by Census Tract



-- <= 5.8
5.9 <= 11.5
11.6 <= 17.3
17.4 <= 23

Map 3.4.3 Number of Families Living Below Poverty



1 dot = 5 Families Living Below Poverty

Map 4.1.1 shows the average annual household income and percent of adults 25 and older who have less than a four-year college degree by zip code for DHD #10. The areas with the darkest bluish-green color have the lowest average household income, and the areas with the darkest lines have the highest percent of adults without a four-year college degree.

The following zip codes had average household income less than $40,000 per year:
49304, 49642, 49309, 48625, 49638, 48886, 49459, 49656, 49689 and 49659.

At least 90% of adults 25 years old and older have less than a four-year college degree in the following zip codes: 49459, 49679, 49642, 49309, 49680, 49689, 48625, 49638, 49656, 49304, 49452, 49336, 49349, 49631, 49667, 49645, 49623, 49402, 49644, 49632, 49330, 49425, 49659, and 49665.

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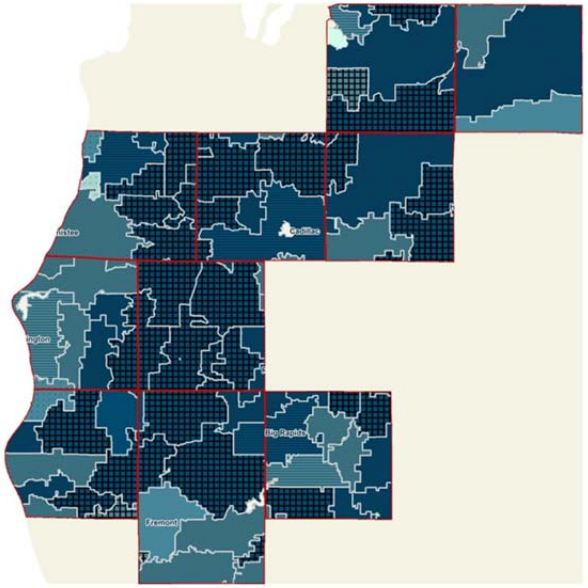
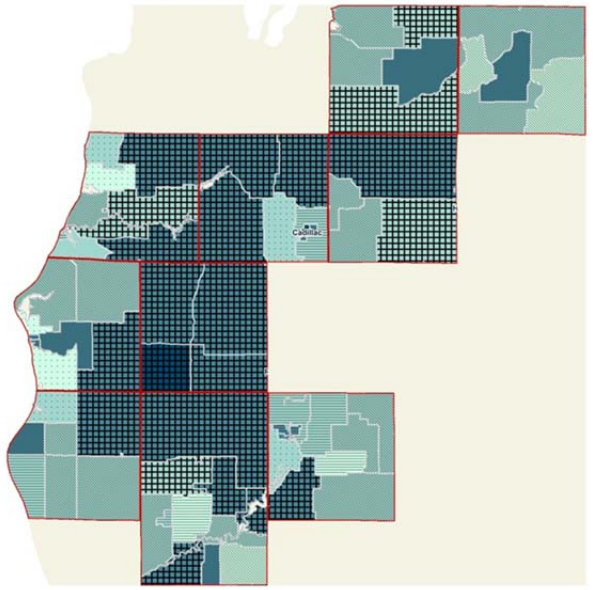
Map 4.1.1 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Zip Code



Average annual household income
- $35,455 <= $49,009
- $49,010 <= $62,563
- $62,564 <= $76,116
- $76,117 <= $89,670

Percent of Adults 25 and older with less than a four-year degree
- 65.9 <= 73.5
- 73.6 <= 81.2
- 81.3 <= 88.8
- 88.9 <= 96.4

Map 4.1.2 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Census Tract



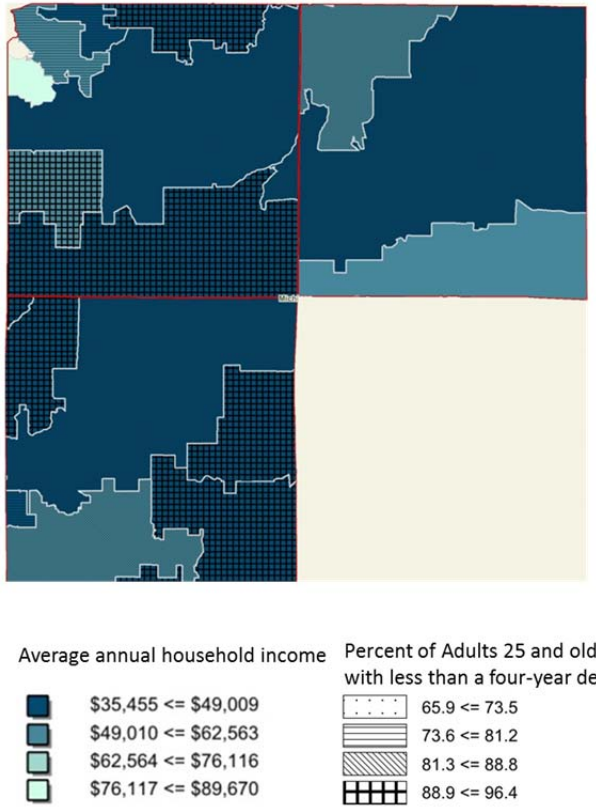
Average annual household income
- $28,984 <= $37,876
- $37,877 <= $46,769
- $46,770 <= $55,661
- $55,662 <= $64,553

Percent of Adults 25 and older with less than a four-year degree
- 68 <= 75
- 75.1 <= 82
- 82.1 <= 89
- 89.1 <= 96

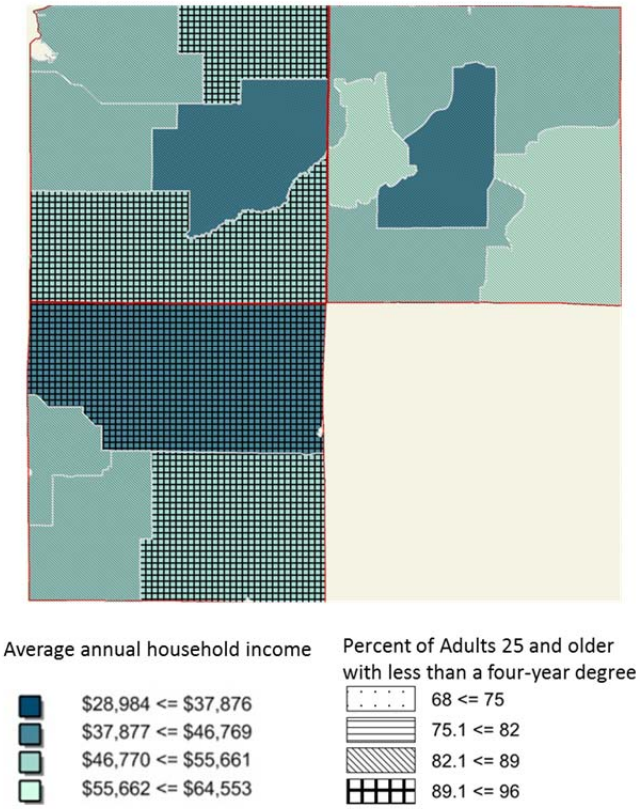
Map 4.1.2 shows the average annual household income and percent of adults 25 and older who have less than a four-year college degree by census tract.

Map 4.2.1 and 4.2.2 shows the average annual household income and percent of adults 25 and older who have less than a four-year college degree by zip code and census tract for the three northern counties of DHD #10.

Map 4.2.1 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Zip Code



Map 4.2.2 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Census Tract



Map 4.3.1 and 4.3.2 show the average annual household income and percent of adults 25 and older who have less than a four-year college degree by zip code and census tract for three lakeshore counties of DHD #10.

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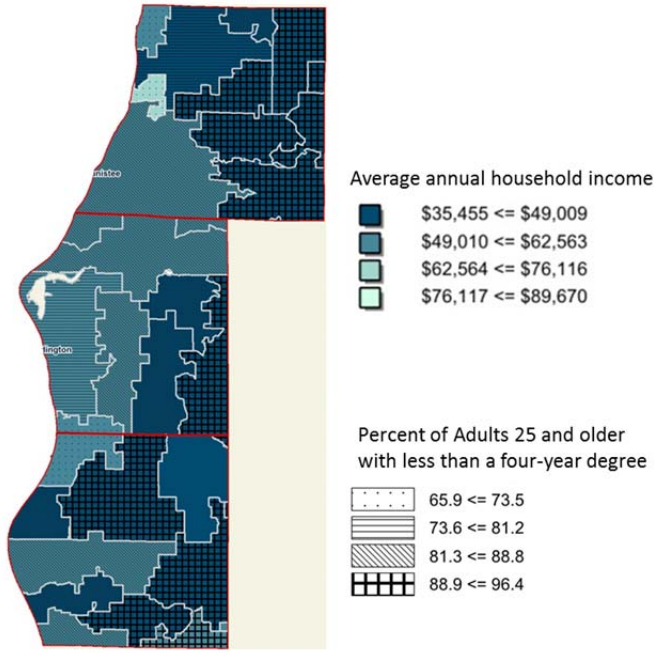
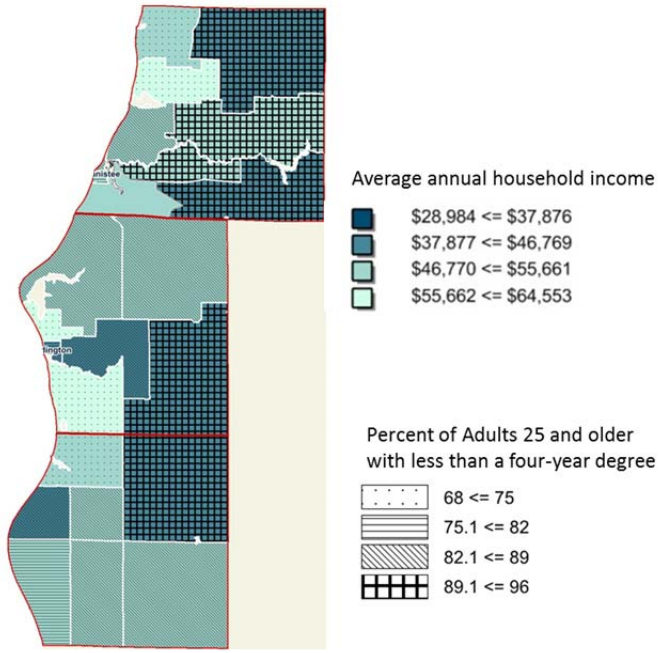
Map 4.3.1 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Zip Code

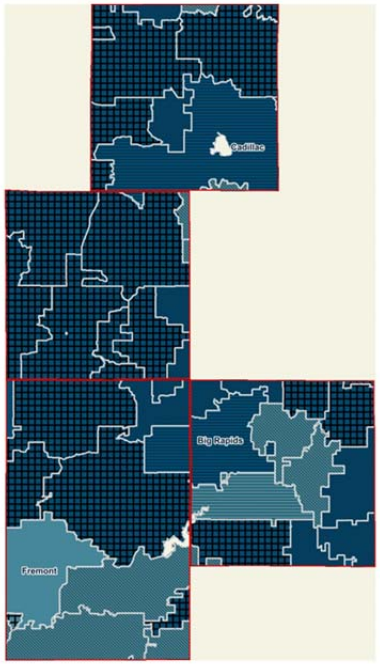


Map 4.3.2 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Census Tract



Map 4.4.1 and 4.4.2 show the average annual household income and percent of adults 25 and older who have less than a four-year college degree by zip code and census tract for the four middle counties in DHD #10.

Map 4.4.1 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Zip Code



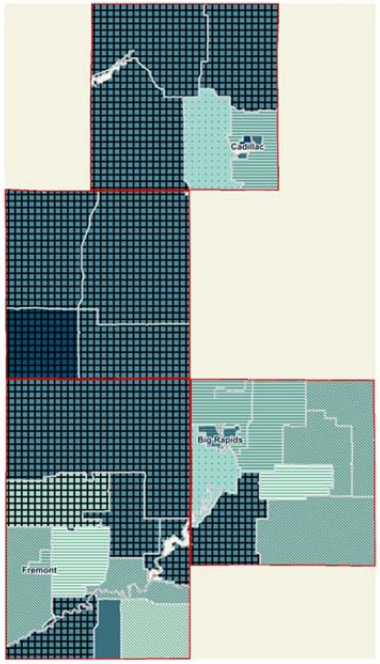
Average annual household income

- $35,455 <= $49,009
- $49,010 <= $62,563
- $62,564 <= $76,116
- $76,117 <= $89,670

Percent of Adults 25 and older with less than a four-year degree

- 65.9 <= 73.5
- 73.6 <= 81.2
- 81.3 <= 88.8
- 88.9 <= 96.4

Map 4.4.2 Average Household Income and Percent of Adults with Less than a Four-Year College Degree by Census Tract



Average annual household income

- $28,984 <= $37,876
- $37,877 <= $46,769
- $46,770 <= $55,661
- $55,662 <= $64,553

Percent of Adults 25 and older with less than a four-year degree

- 68 <= 75
- 75.1 <= 82
- 82.1 <= 89
- 89.1 <= 96

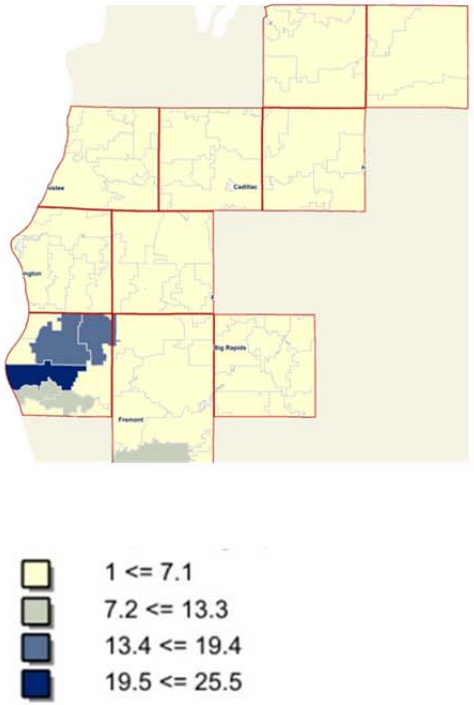
Map 5.1.1 shows the percent of the population that is Hispanic by zip code. As the blue color darkens, the percent of the population that is Hispanic increases.

At least 10% of the population is Hispanic in the following zip codes: 49455, 49420, 49459, 49327, 49446 and 49452.

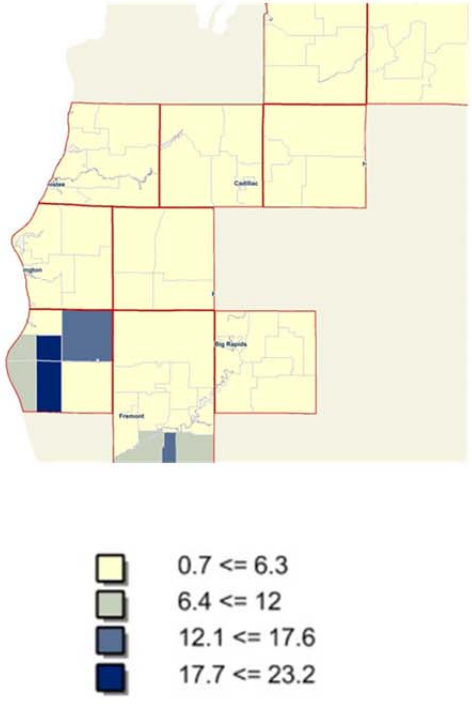
Map 5.1.2 shows the percent of the population that is Hispanic by census tract.

Map 5.1.3 shows the number of Hispanics.

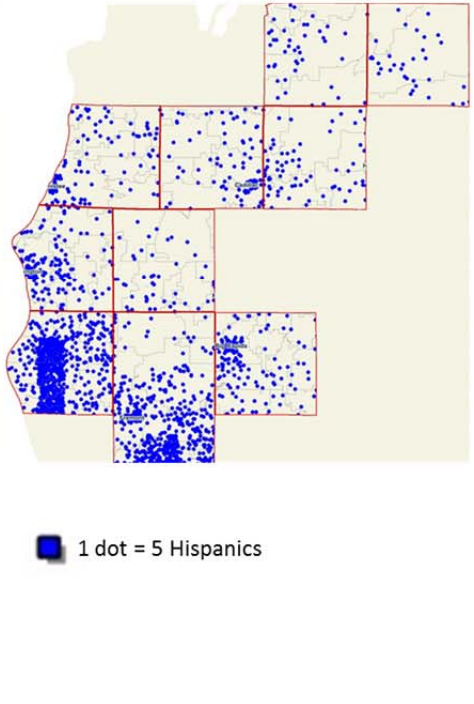
Map 5.1.1 Percent of the Population that is Hispanic by Zip Code



Map 5.1.2 Percent of the Population that is Hispanic by Census Tract



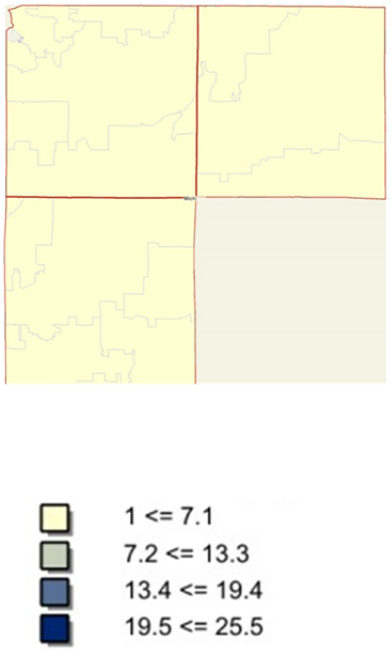
Map 5.1.3 Number of Hispanics



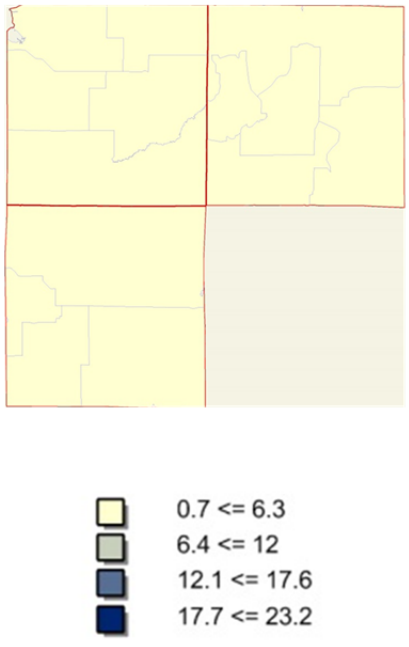
Map 5.2.1 and 5.2.2 show the percent of the population that is Hispanic by zip code and census tract As the color darkens, the percent of the population that is Hispanic increases for three northern counties in DHD #10

Map 5.1.3 shows the number of Hispanics.

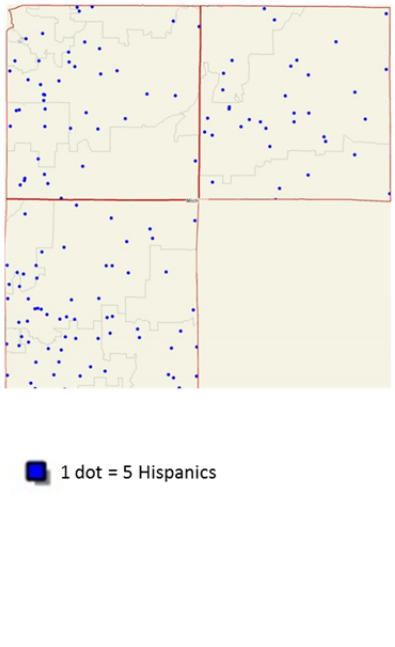
Map 5.2.1 Percent of the Population that is Hispanic by Zip Code



Map 5.2.2 Percent of the Population that is Hispanic by Census Tract



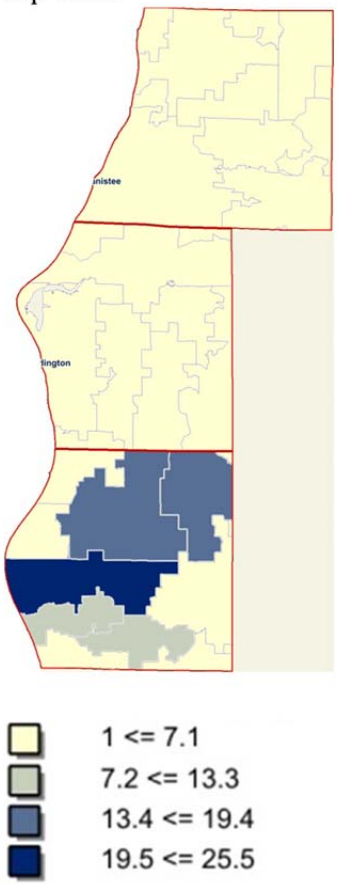
Map 5.2.3 Number of Hispanics



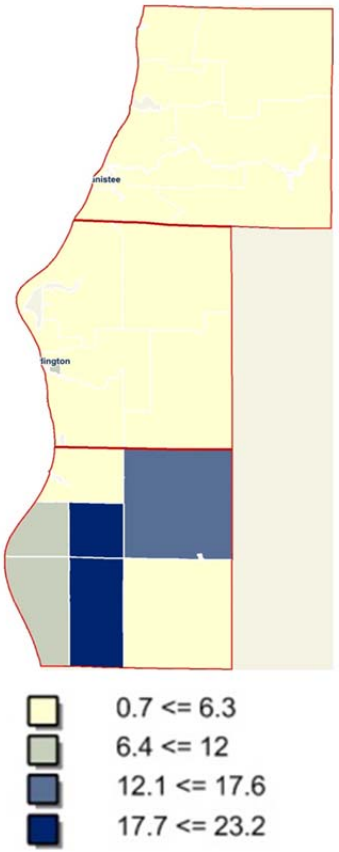
Map 5.3.1 and 5.3.2 show the percent of the population that is Hispanic by zip code and census tract. As the color darkens the percent of the population that is Hispanic increases for three lakeshore counties in DHD #10

Map 5.3.3 shows the number of Hispanics.

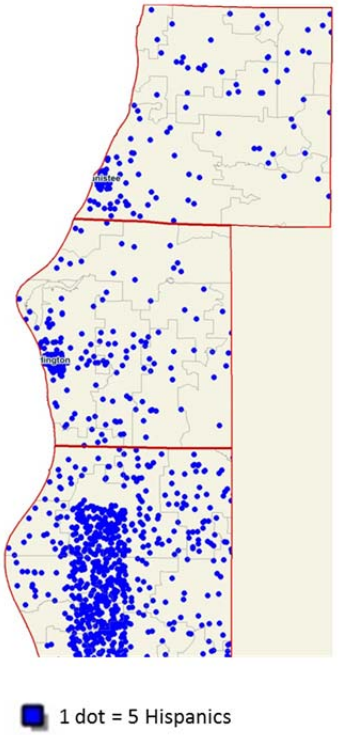
Map 5.3.1 Percent of the Population that is Hispanic by Zip Code



Map 5.3.2 Percent of the Population that is Hispanic by Census Tract



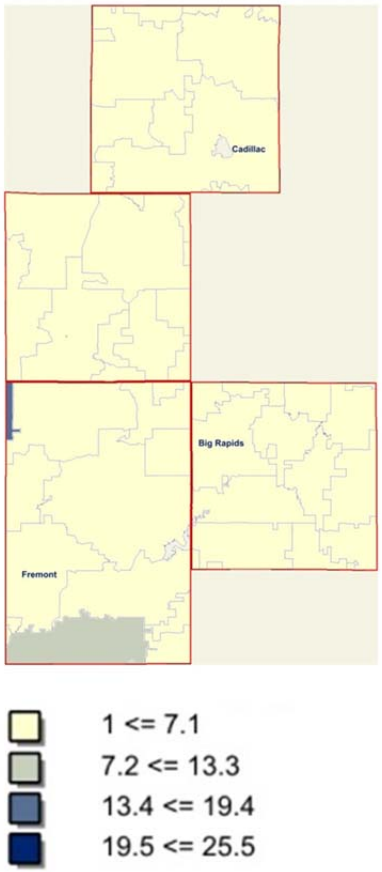
Map 5.3.3 Number of Hispanics



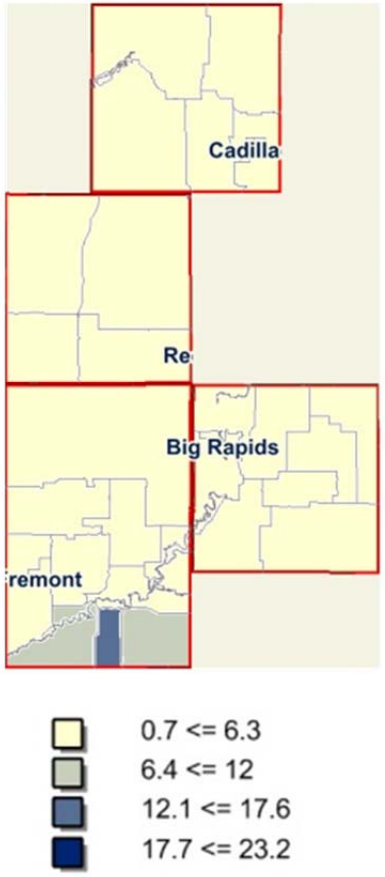
Map 5.4.1 and 5.4.2 show the percent of the population that is Hispanic by zip code and census tract. As the color darkens, the percent of the population that is Hispanic increases for four central counties in DHD #10

Map 5.4.3 shows the number of Hispanics.

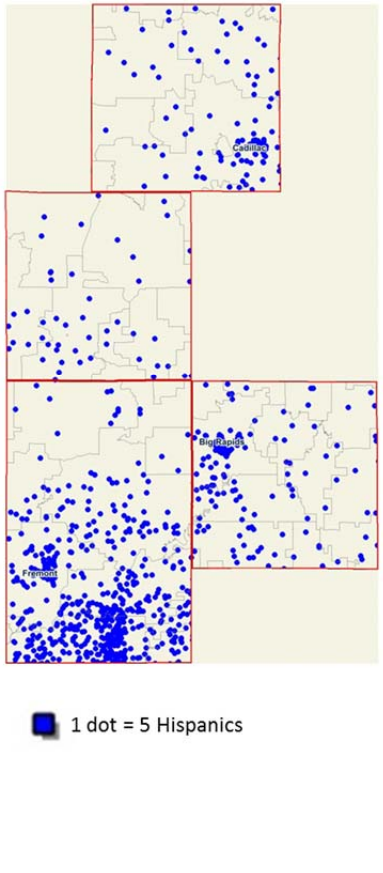
Map 5.4.1 Percent of the Population that is Hispanic by Zip Code



Map 5.4.2 Percent of the Population that is Hispanic by Census Tract



Map 5.4.3 Number of Hispanics



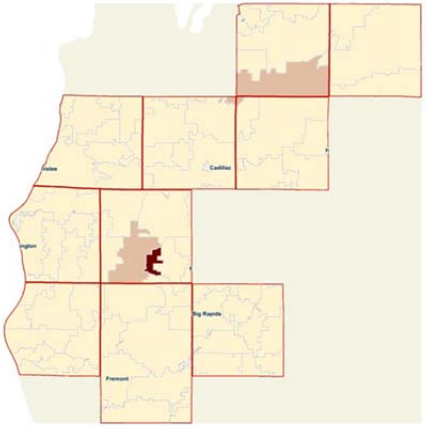
Map 6.1.1 shows the percent of the population that is African American by zip code. As the red color darkens, the percent of the population that is African American increases.

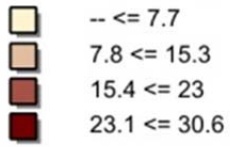
At least 10 % of the population is African American in the following zip codes: 49642 and 49304

Map 6.1.2 shows the percent of the population that is African American by census tract.

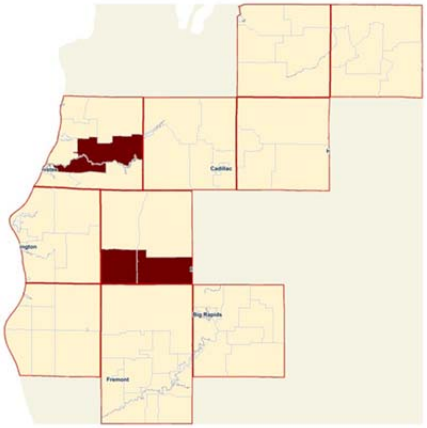
Map 6.1.3shows the number of African Americans.

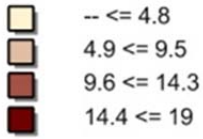
Map 6.1.1 Percent of the Population that is African American by Zip Code



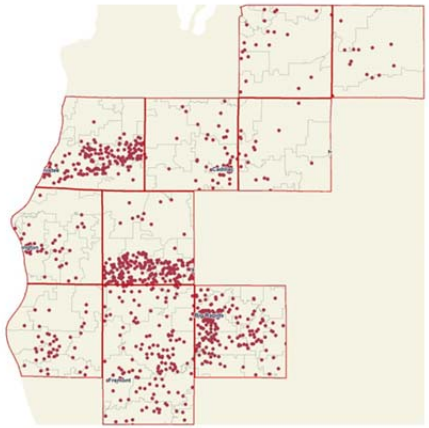


Map 6.1.2 Percent of the Population that is African American by Census Tract





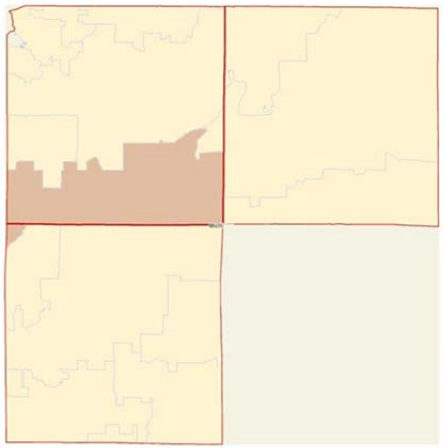
Map 6.1.3 Number of African Americans

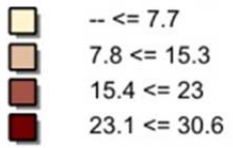


Map 6.2.1 and 6.2.2 show the percent of the population that is African American by zip code and census tract for three northern counties in DHD #10. As the color darkens, the percent of the population that is African American increases.

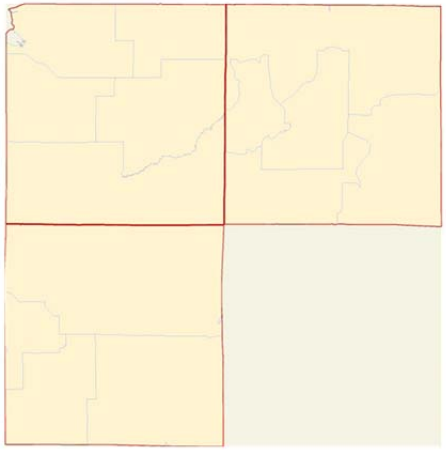
Map 6.2.3shows the number of African Americans.

Map 6.2.1 Percent of the Population that is African American by Zip Code

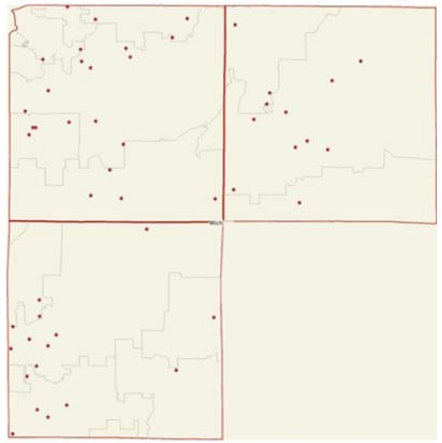




Map 6.2.2 Percent of the Population that is African American by Census Tract



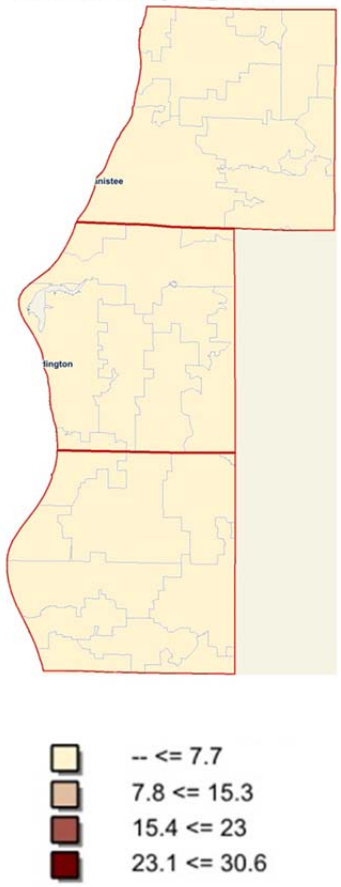
Map 6.2.3 Number of African Americans



Map 6.3.1 and 6.3.2 show the percent of the population that is African American by zip code and census tract for three lakeshore counties in DHD #10. As the color darkens, the percent of the population that is African American increases.

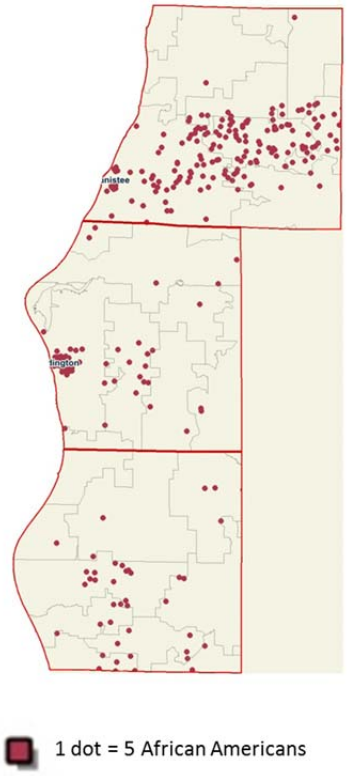
Map 6.3.3shows the number of African Americans.

Map 6.3.1 Percent of the Population that is African American by Zip Code



Map 6.3.2 Percent of the Population that is African American by Census Tract

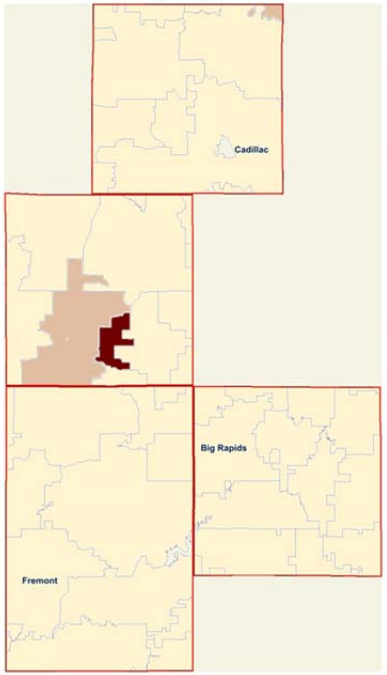
Map 6.3.3 Number of African Americans

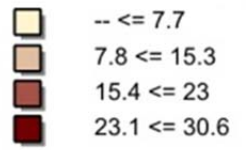


Map 6.4.1 and 6.4.2 show the percent of the population that is African American by zip code and census tract for four central counties in DHD #10. As the color darkens, the percent of the population that is African American increases.

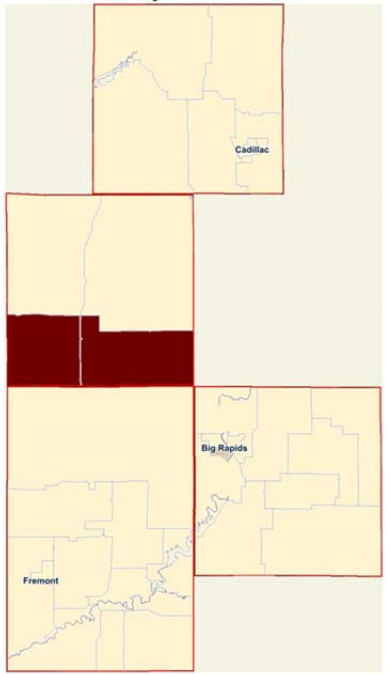
Map 6.4.3shows the number of African Americans.

Map 6.4.1 Percent of the Population that is African American by Zip Code

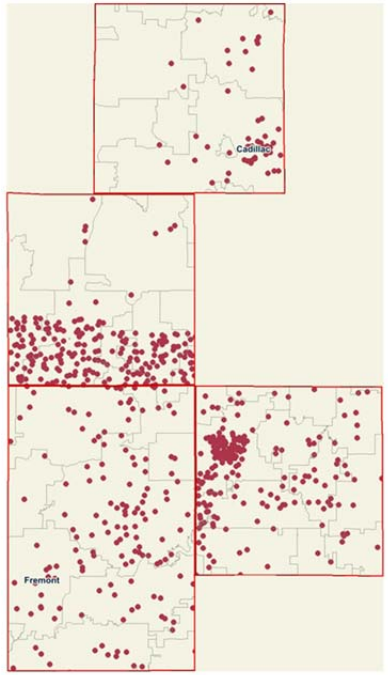




Map 6.4.2 Percent of the Population that is African American by Census Tract



Map 6.4.3 Number of African Americans



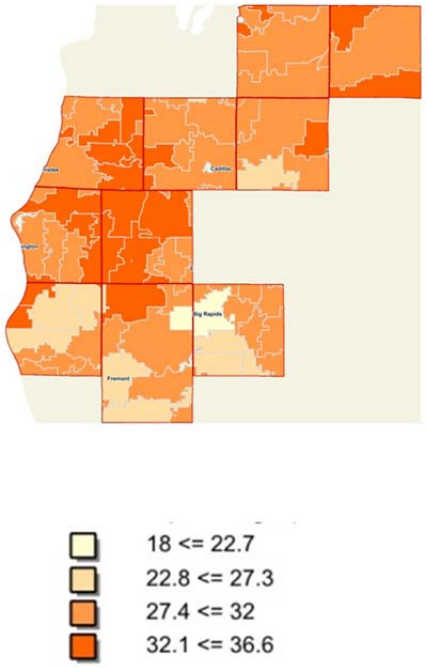
Map 7.1.1 shows the percent of the population 45 through 64 years old by zip code. As the orange color darkens, the percent of the population that is between 45 and 64 years old increases.

At least 35% of the population is 45 to 64 years in the following zip codes: 49644, 49638, 49733, 49675 and 49689.

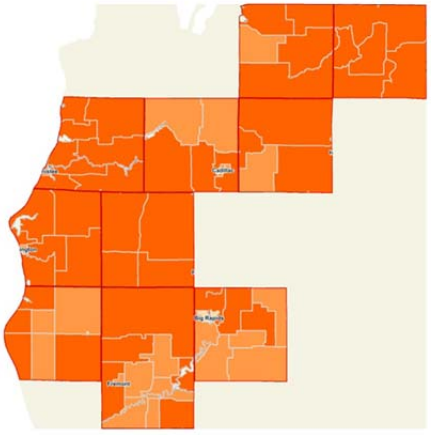
Map 7.1.2 shows the percent of the population 45 through 64 years old by census tract.

Map 7.1.3 shows the number of adults 45 through 64 years old.

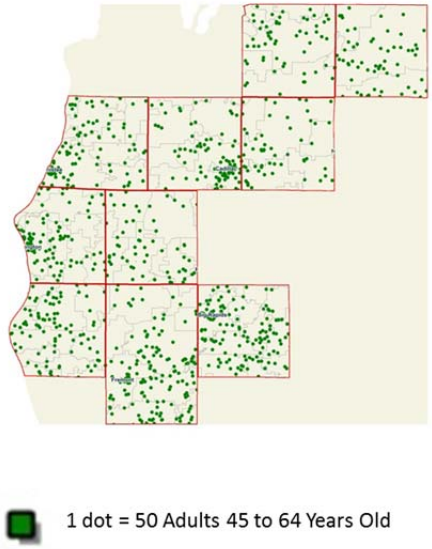
Map 7.1.1 Percent of the Population Age 45 to 64 Years Old by Zip Code



Map 7.1.2 Percent of the Population Age 45 to 64 Years Old by Census Tract



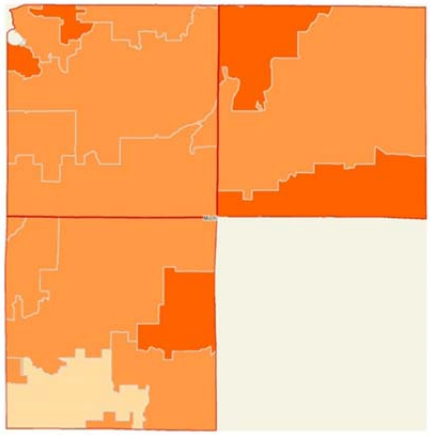
Map 7.1.3 Number of Adults Age 45 to 64 Years Old

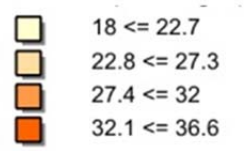


Map 7.2.1 and 7.2.2 show the percent of the population 45 through 64 years old by zip code and census tract for three northern counties in DHD#10. As the orange color darkens, the percent of the population that is between 45 and 64 years old increases.

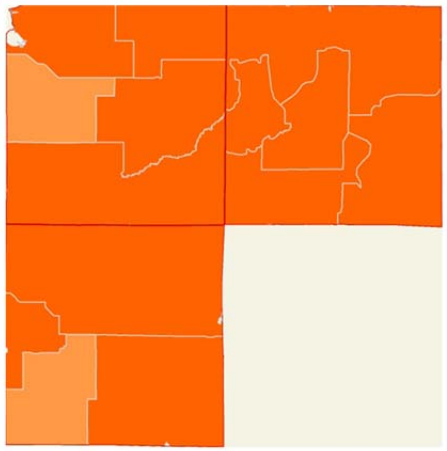
Map 7.2.3 shows the number of adults 45 through 64 years old.

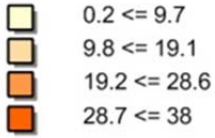
Map 7.2.1 Percent of the Population Age 45 to 64 Years Old by Zip Code



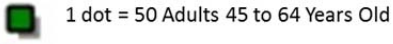


Map 7.2.2 Percent of the Population Age 45 to 64 Years Old by Census Tract





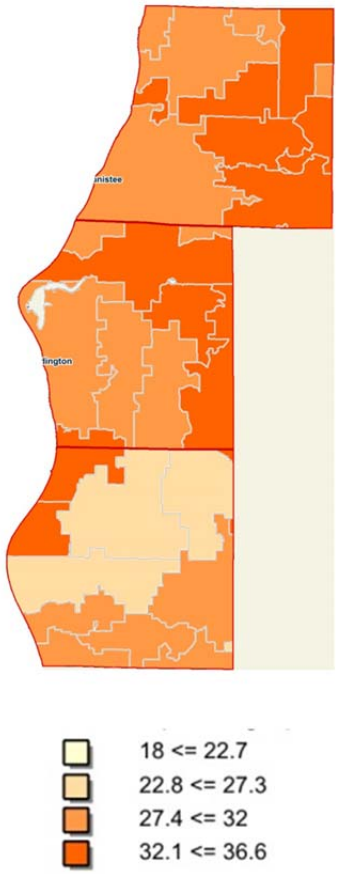
Map 7.2.3 Number of Adults Age 45 to 64 Years Old



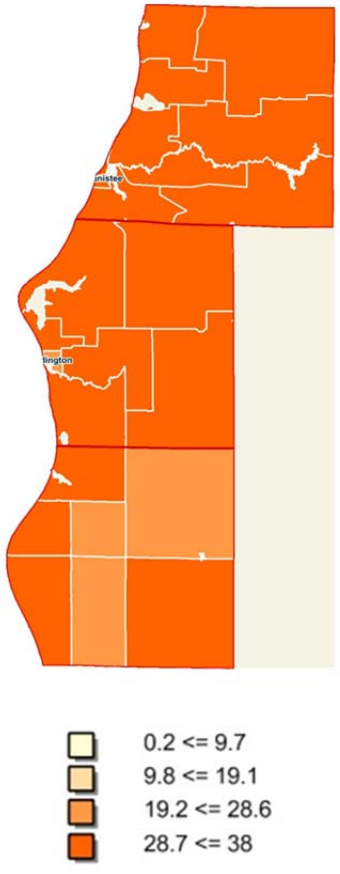
Map 7.3.1 and 7.3.2 show the percent of the population 45 through 64 years old by zip code and census tract for three lakeshore counties in DHD#10. As the orange color darkens, the percent of the population that is between 45 and 64 years old increases.

Map 7.3.3 shows the number of adults 45 through 64 years old.

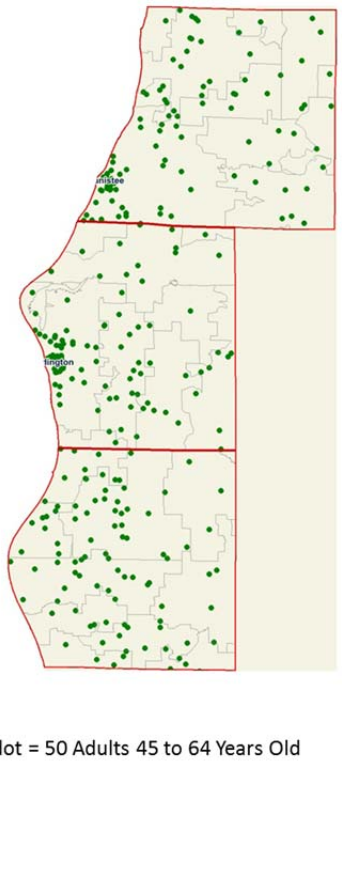
Map 7.3.1 Percent of the Population Age 45 to 64 Years Old by Zip Code



Map 7.3.2 Percent of the Population Age 45 to 64 Years Old by Census Tract



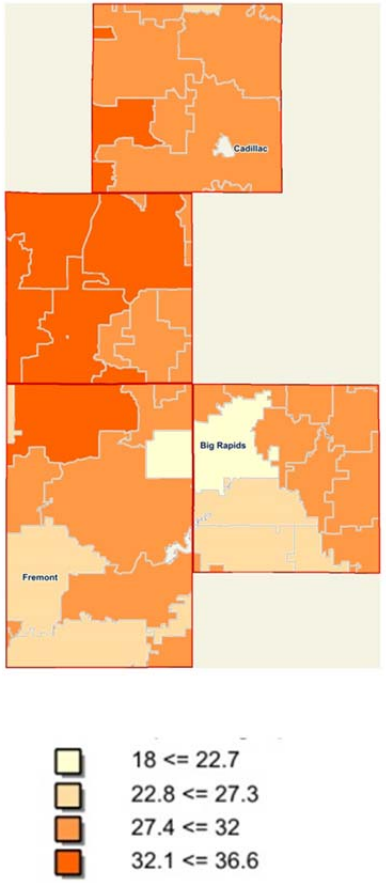
Map 7.3.3 Number of Adults Age 45 to 64 Years Old



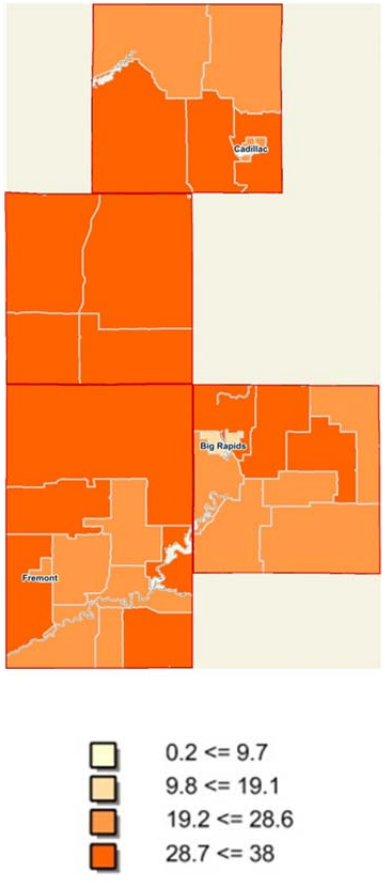
Map 7.4.1 and 7.4.2 show the percent of the population 45 through 64 years old by zip code and census tract for four central counties in DHD#10. As the orange color darkens, the percent of the population that is between 45 and 64 years old increases.

Map 7.4.3 shows the number of adults 45 through 64 years old.

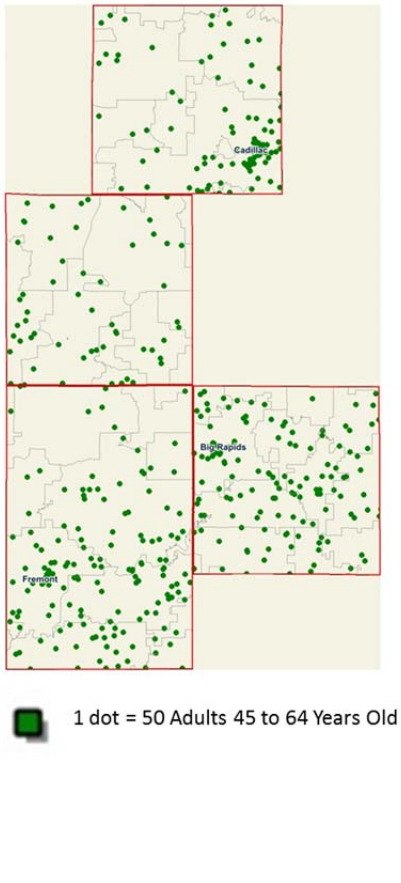
Map 7.4.1 Percent of the Population Age 45 to 64 Years Old by Zip Code



Map 7.4.2 Percent of the Population Age 45 to 64 Years Old by Census Tract



Map 7.4.3 Number of Adults Age 45 to 64 Years Old



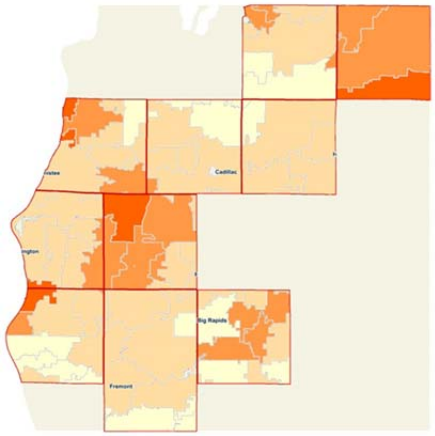
Map 8.1.1 shows the percent of the population 65 years old and older by zip code. As the orange color darkens, the percent of the population that is 65 years old and older increases.

At least 30% of the population is 65 years old and older in the following: 49644, 49675, 49613, 49449.

Map 8.1.2 shows the percent of the population 65 years old and older by census tract.

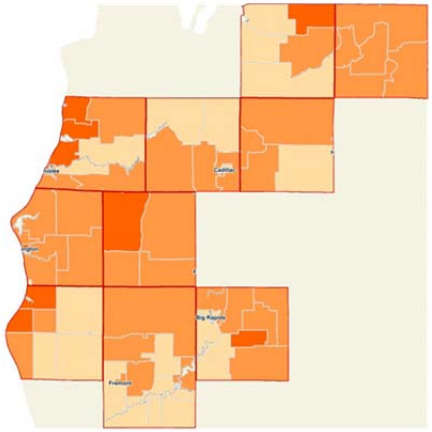
Map 8.1.3 shows the number of adults 65 years old and older.

Map 8.1.1 Percent of the Population 65 Years Old and Older by Zip Code



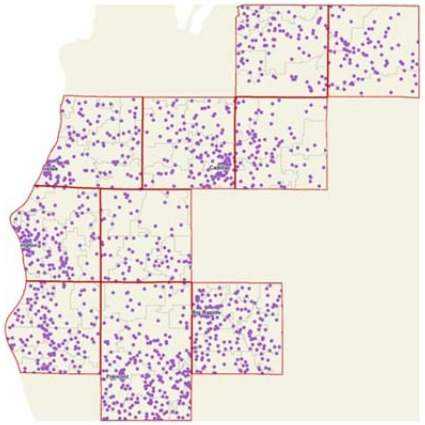
10.2 <= 16
16.1 <= 21.8
21.9 <= 27.6
27.7 <= 33.4

Map 8.1.2 Percent of the Population 65 Years Old and Older by Census Tract



-- <= 8.6
8.7 <= 17.1
17.2 <= 25.7
25.8 <= 34.2

Map 8.1.3 Number of Adults 65 Years Old and Older

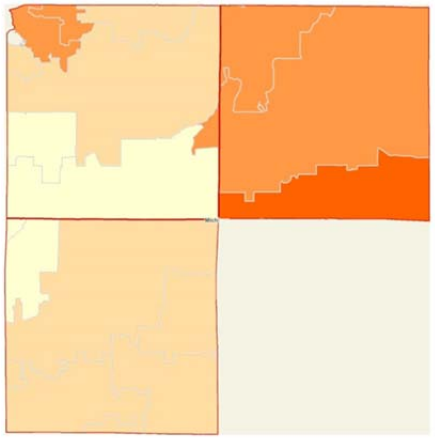


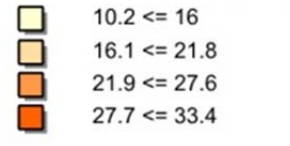
1 dot = 50 Adults 65 Years Old and Older

Map 8.2.1 and 8.2.2 show the percent of the population 65 years old and older by zip code and census tract for three northern counties in DHD #10. As the orange color darkens, the percent of the population that is 65 years old and older increases.

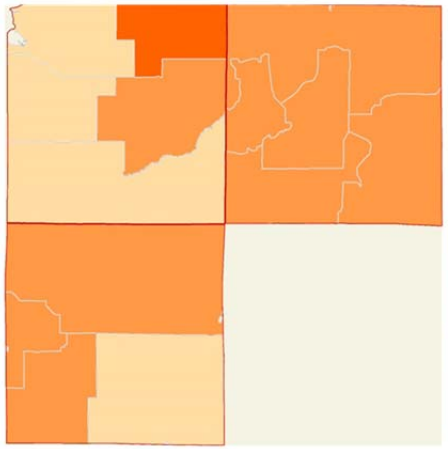
Map 8.2.3 shows the number of adults 65 years old and older.

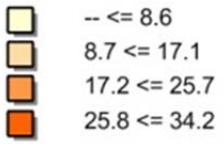
Map 8.2.1 Percent of the Population 65 Years Old and Older by Zip Code



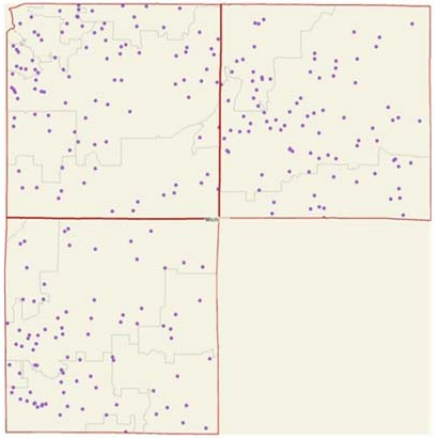


Map 8.2.2 Percent of the Population 65 Years Old and Older by Census Tract





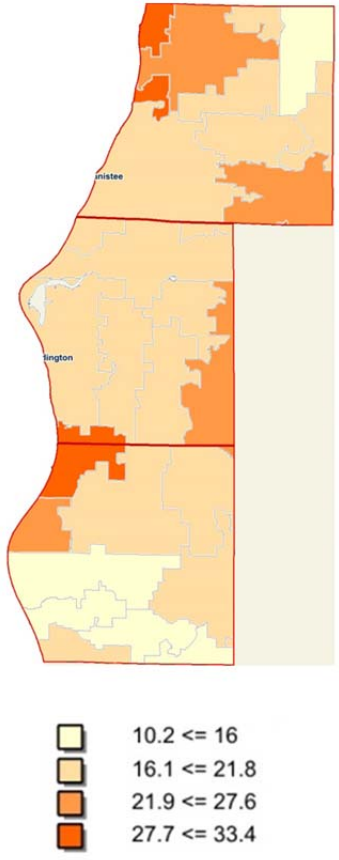
Map 8.2.3 Number of Adults 65 Years Old and Older



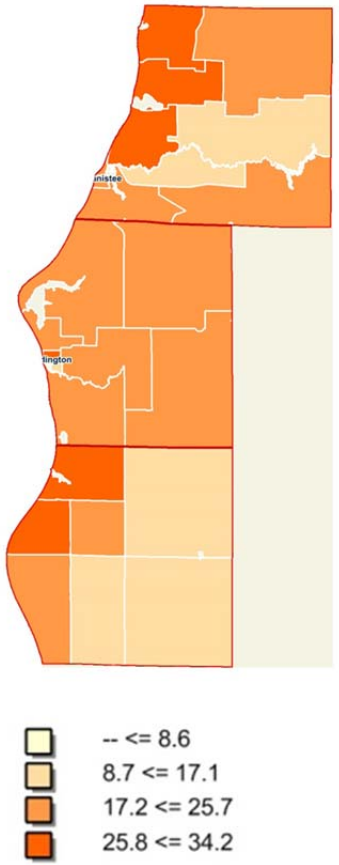
Map 8.3.1 and 8.3.2 show the percent of the population 65 years old and older by zip code and census tract for three lakeshore counties in DHD #10. As the orange color darkens, the percent of the population that is 65 years old and older increases.

Map 8.3.3 shows the number of adults 65 years old and older.

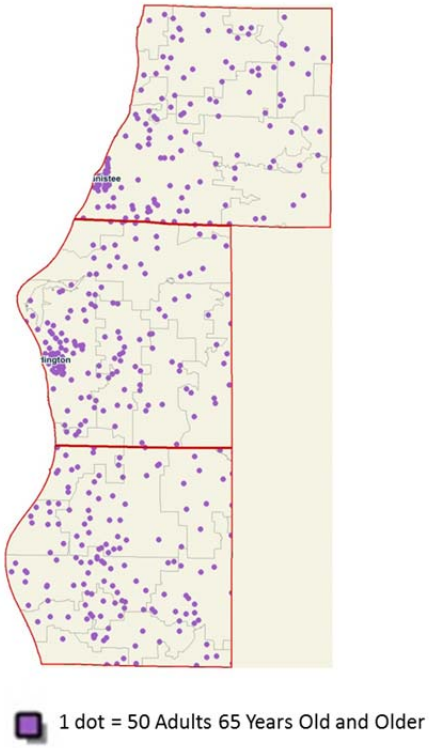
Map 8.3.1 Percent of the Population 65 Years Old and Older by Zip Code



Map 8.3.2 Percent of the Population 65 Years Old and Older by Census Tract



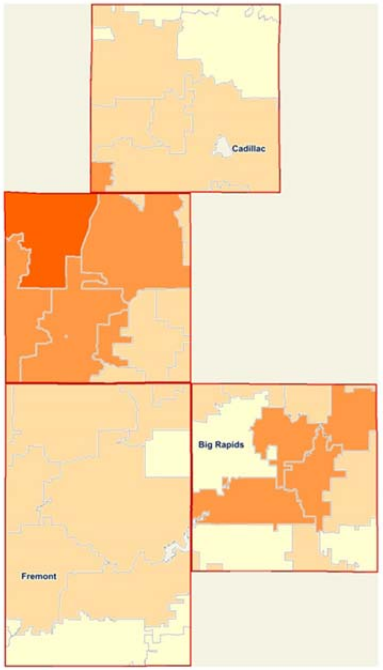
Map 8.3.3 Number of Adults 65 Years Old and Older



Map 8.4.1 and 8.4.2 show the percent of the population 65 years old and older by zip code and census tract for four central counties in DHD #10. As the orange color darkens, the percent of the population that is 65 years old and older increases.

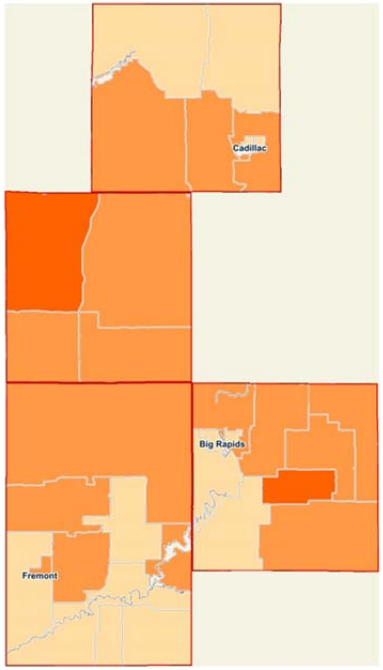
Map 8.4.3 shows the number of adults 65 years old and older.

Map 8.4.1 Percent of the Population 65 Years Old and Older by Zip Code



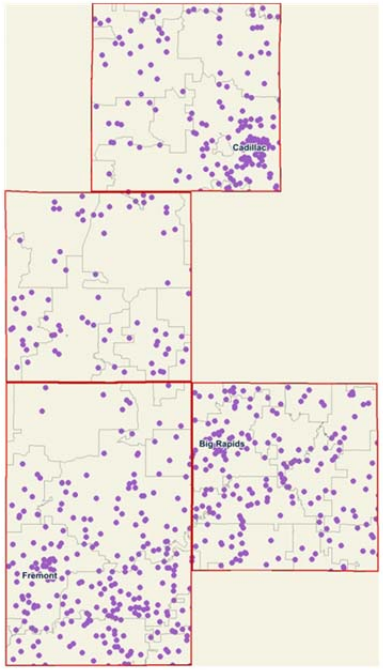
10.2 <= 16
16.1 <= 21.8
21.9 <= 27.6
27.7 <= 33.4

Map 8.4.2 Percent of the Population 65 Years Old and Older by Census Tract



-- <= 8.6
8.7 <= 17.1
17.2 <= 25.7
25.8 <= 34.2

Map 8.4.3 Number of Adults 65 Years Old and Older



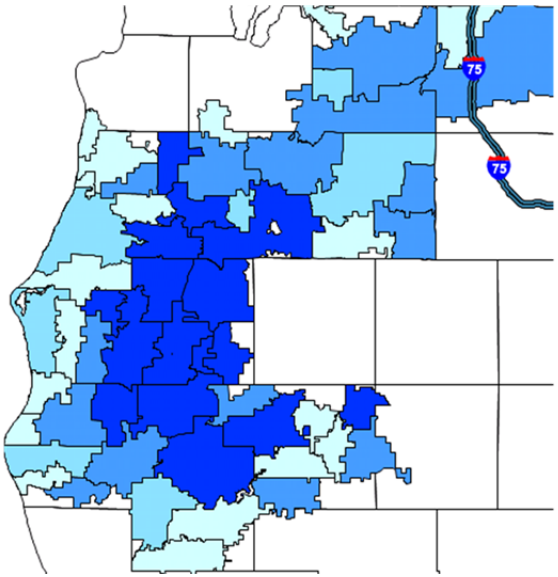
1 dot = 50 Adults 65 Years Old and Older

Behaviors Associated with Higher Risk of Diabetes

Maps 9.1.1 and 2 show the likelihood adults have health insurance by zip code and census tract compared to the average adult within DHD #10. The darker the blue, the ***less likely*** they are to report having health insurance.

Market Potential Index (MPI) is calculated based on the number of users per 100 households in each zip code or census tract divided by number of users per 100 households in the geographic area of interest times 100. It indicates the likelihood that households in a zip code or census tract are to display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicates they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest. An MPI of 100 indicates that they are as likely to display the behavior of interest as the average household in the geography of interest.

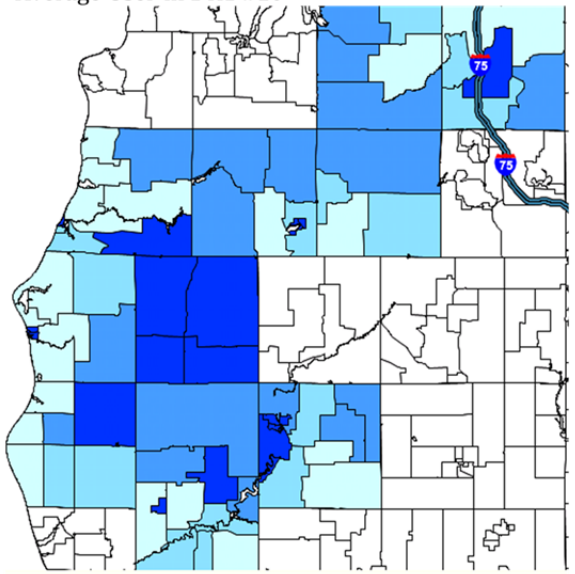
Map 9.1.1 Likelihood Adults Report Having Health Insurance by Zip Code Compared to the Average User in DHD#10



Users/100 HH*	MPI†
103.64	91
113.02	99
118.09	103
123.88	109

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 9.1.2 Likelihood Adults Report Having Health Insurance by Census Tract Compared to the Average User in DHD#10



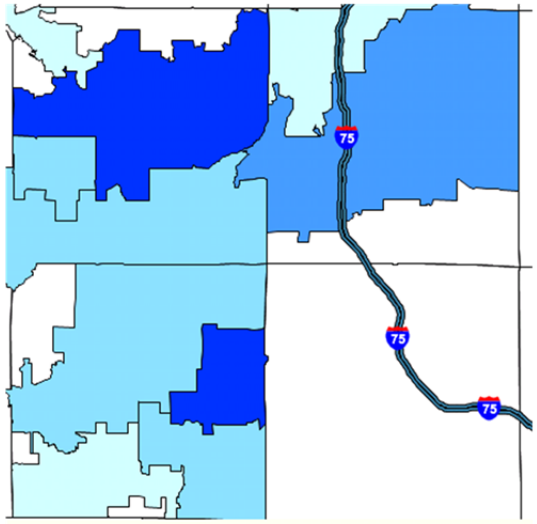
Users/100 HH*	MPI†
97.51	86
110.60	97
117.74	103
130.11	114

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

The behavior of interest in **Maps 9.1.1** and **2** is having health insurance and the geography of interest is DHD #10. The zip codes with the darkest blue color are 26% ***less likely*** to have insurance as compared to the average user for DHD #10 and the zip codes with the lightest blue shading are 17% ***more likely*** to have insurance as compared to the average user for DHD #10. The census tract with the darkest blue color are 30% ***less likely*** to have insurance as compared to the average user for DHD #10, and the census tract with the lightest blue shading are 23% ***more likely*** to have insurance as compared to the average user for DHD #10.

Map 9.2.1 and 9.2.2 show the likelihood adults have health insurance by zip code and census tract compared to the average adult within the three northern counties of DHD #10. The darker the blue the ***less likely*** they are to report having health insurance.

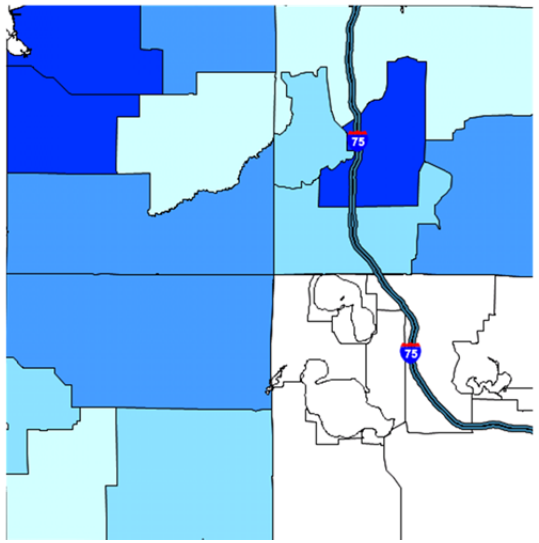
Map 9.2.1 Likelihood Adults Report Having Health Insurance by Zip Code Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties



Users/100 HH*	MPI†
110.50	95
113.39	98
117.42	101
123.08	106

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 9.2.2 Likelihood Adults Report Having Health Insurance by Census Tract Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties

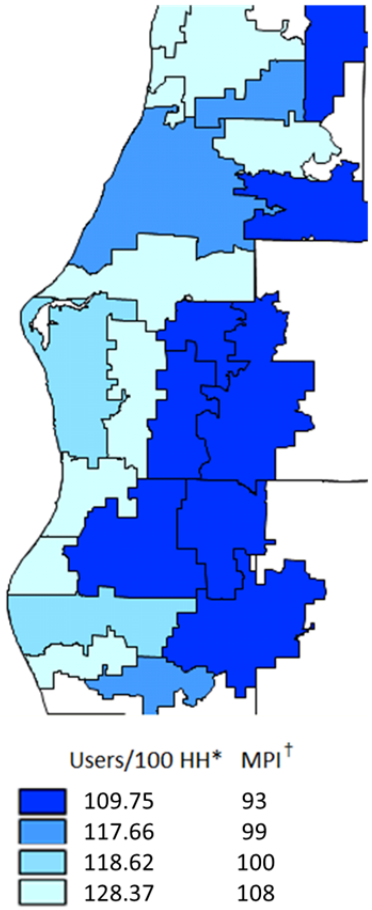


Users/100 HH*	MPI†
108.17	94
114.41	99
118.20	103
123.04	107

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

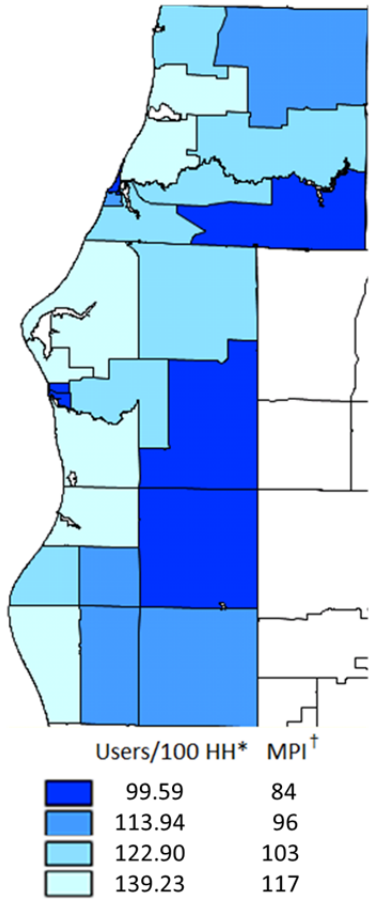
Map 9.3.1 and 9.3.2 show the likelihood adults have health insurance by zip code and census tract compared to the average adult within the three lakeshore counties of DHD #10. The darker the blue, the ***less likely*** they are to report having health insurance.

Map 9.3.1 Likelihood Adults Report Having Health Insurance by Zip Code Compared to the Average User in Manistee, Mason, and Oceana Counties



*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

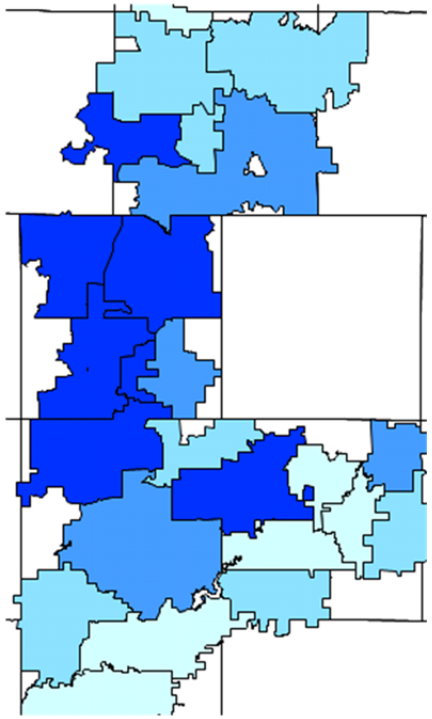
Map 9.3.2 Likelihood Adults Report Having Health Insurance by Census Tract Compared to the Average User in Manistee, Mason, and Oceana Counties



*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 9.4.1 and 9.4.2 show the likelihood adults have health insurance by zip code and census tract compared to the average adult within the four central counties of DHD #10. The darker the blue, the ***less likely*** they are to report having health insurance.

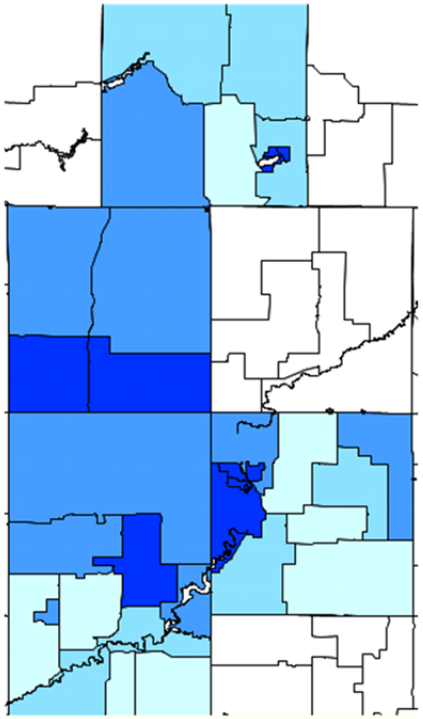
Map 9.4.1 Likelihood Adults Report Having Health Insurance by Zip Code Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties



Users/100 HH*	MPI†
96.85	87
109.37	99
114.93	104
121.47	110

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 9.4.2 Likelihood Adults Report Having Health Insurance by Census Tract Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties



Users/100 HH*	MPI†
94.01	85
107.66	97
115.64	104
126.50	114

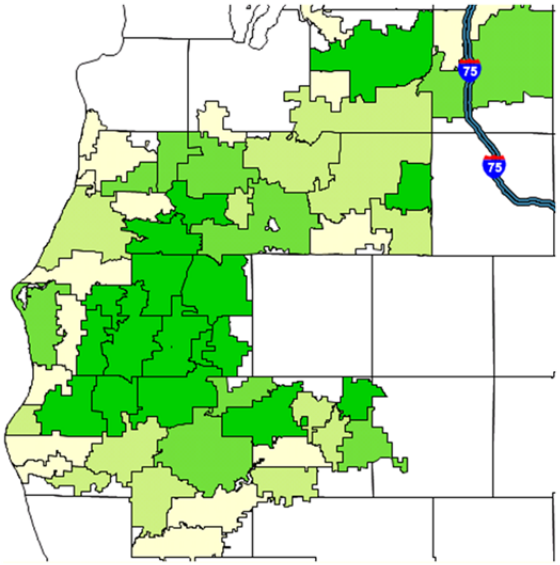
*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 10.1.1 and **10.12** show the likelihood households consume more or less fresh fruits and vegetables per month by zip code and census tract as compared to the average household in DHD #10. The darker the green, the ***less likely*** the households are to consume as much fresh fruits and vegetables as the average household in DHD #10.

Market Demand Index (MDI) is calculated based on the average consumption per household in each zip code compared to the average consumption in the geography of interest. It indicates the likelihood that households in a zip code or census tract have a higher or lower demand (or rate of consumption) for a particular product compared to the average for the geography of interest. An MDI of less than 100 indicates households are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest. A MDI of 100 indicates that they are as likely to consume the product of interest as the average household in the geography of interest.

The product of interest in **Maps 1.10.a and 1.10.b** is pounds of fresh fruits and vegetables consumed per month per household and the geography of interest is DHD #10. The zip codes of darkest green are 11% ***less likely*** to consume fresh fruits and vegetables as compared to the average household in DHD #10and the zip codes with the lightest yellow-green shading are 10% ***more likely*** to consume fresh fruits and vegetables as compared to the average household in DHD #10. The census tracts of darkest green are 14% ***less likely*** to consume fresh fruits and vegetables as compared to the average household in DHD #10, and the census tracts with the lightest yellow-green shading are 14% ***more likely*** to consume fresh fruits and vegetables as compared to the average household in DHD #10.

Map 10.1.1 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Zip Code Compared to the Average User in DHD#10

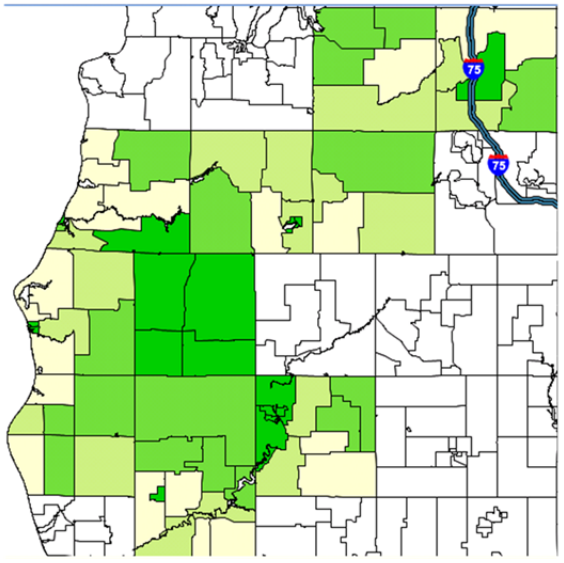


Pounds/Month*	MDI †
27.54	89
28.74	96
29.09	98
29.67	101

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a zip code compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.1.2 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Census Tract Compared to the Average User in DHD#10



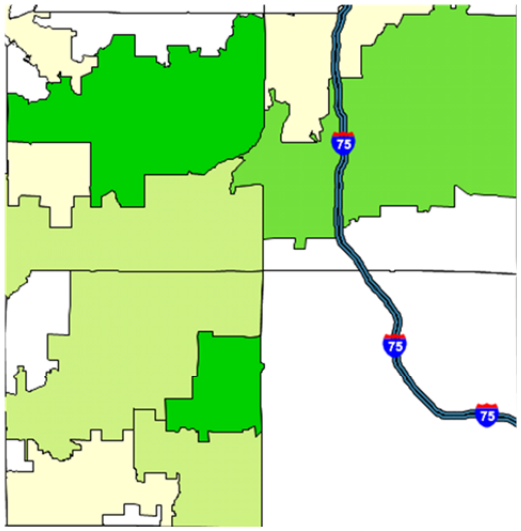
Pounds/Month*	MDI †
27.07	87
28.63	95
29.20	98
30.11	103

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a census tract compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.2.1 and 10.2.2 show the likelihood households consume more or less fresh fruits and vegetables per month by zip code and census tract as compared to the average household in the thee northern counties of DHD #10. The darker the green, the ***less likely*** the households are to consume fresh fruits and vegetables.

Map 10.2.1 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Zip Code Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties

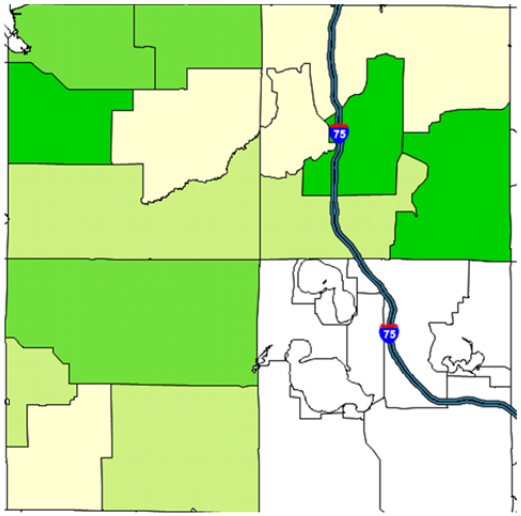


Pounds/Month*	MDI †
28.61	95
28.66	95
29.08	98
29.64	100

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a zip code compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.2.2 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Census Tract Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties



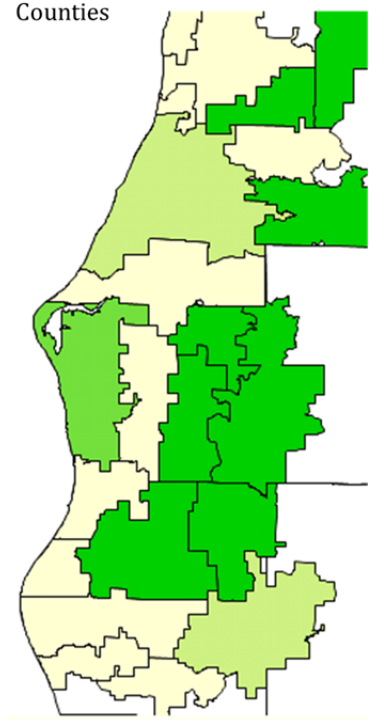
Pounds/Month*	MDI †
28.32	93
28.84	96
29.15	98
29.39	99

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a census tract compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.3.1 and 10.3.2 show the likelihood households consume more or less fresh fruits and vegetables per month by zip code and census tract as compared to the average household in the three lakeshore counties of DHD #10. The darker the green ***less likely*** the households are to consume fresh fruits vegetables.

Map 10.3.1 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Zip Code Compared to the Average User in Manistee, Mason, and Oceana Counties

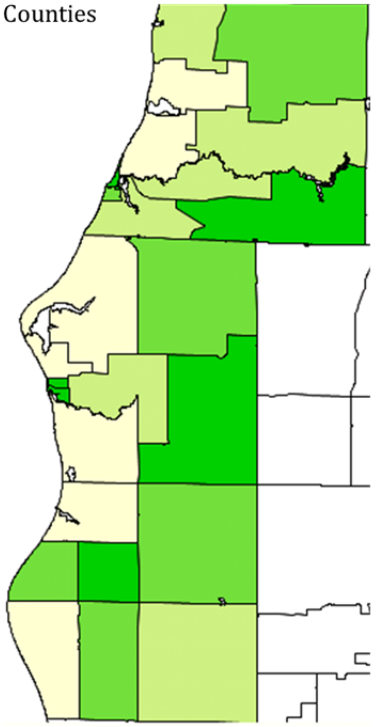


Pounds/Month*	MDI †
28.43	94
28.94	97
28.98	97
29.74	101

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a zip code compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.3.2 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Census Tract Compared to the Average User in Manistee, Mason, and Oceana Counties



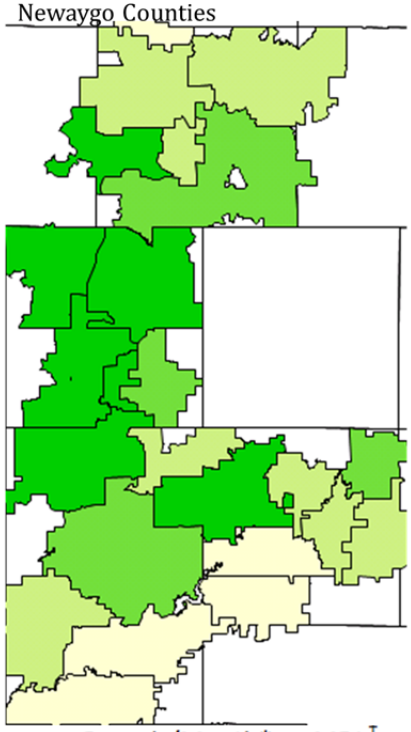
Pounds/Month*	MDI †
27.43	88
28.81	96
29.43	100
30.74	107

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a census tract compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.4.1 and 10.4.2 show the likelihood households consume more or less fresh fruits and vegetables per month by zip code and census tract as compared to the average household in the four central counties of DHD #10. The darker the green, the ***less likely*** the households are to consume fresh fruits and vegetables.

Map 10.4.1 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Zip Code Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties

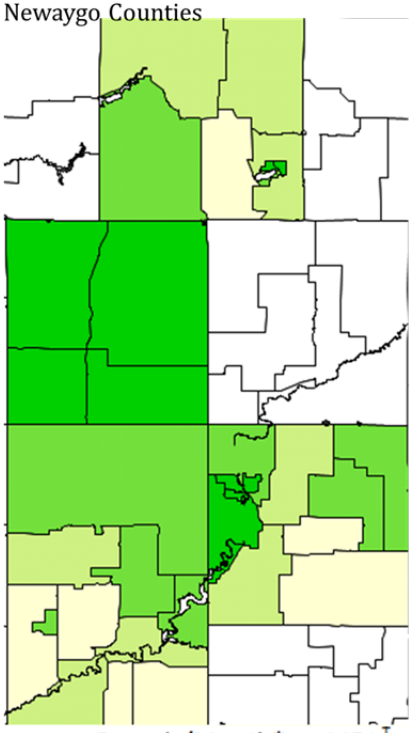


Pounds/Month*	MDI †
26.75	85
28.59	95
29.06	97
29.51	100

- Average number of pounds of fresh fruits and vegetables per month per household

† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a zip code compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Map 10.4.2 Likelihood Households Consume More or Less Fresh Fruit and Vegetables in a One Month Period by Census Tract Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties



Pounds/Month*	MDI †
27.43	88
28.81	96
29.43	100
30.74	107

- Average number of pounds of fresh fruits and vegetables per month per household

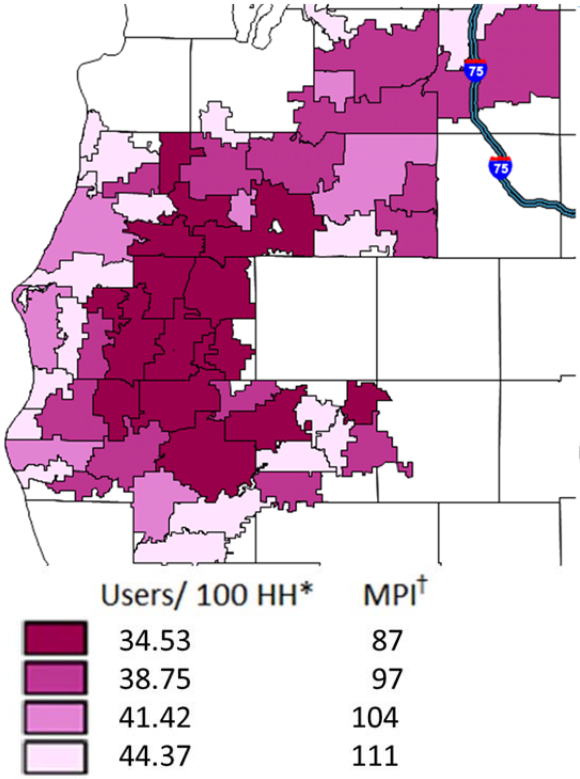
† MDI= Market Demand Index. MDI is calculated based on the average consumption per household in a census tract compared to the average consumption in the geography of interest. An MDI of less than 100 indicates adults are less likely to consume the product of interest. An MDI greater than 100 indicates households are more likely to consume the product of interest.

Maps 11.1.1 and 11.2.1 show the likelihood adults in exercise 2 or more times per week at home by zip code and census tract compared to the average user in DHD #10. The darker the purple, the ***less likely*** they are to report exercising 2 or more times per week.

Market Potential Index (MPI) is calculated based on the number of users per 100 households in each zip code or census tract divided by number of users per 100 households in the geographic area of interest times 100. It indicates the likelihood that households in a zip code or census tract are to display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicates they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest. An MPI of 100 indicates that they are as likely to display the behavior of interest as the average household in the geography of interest.

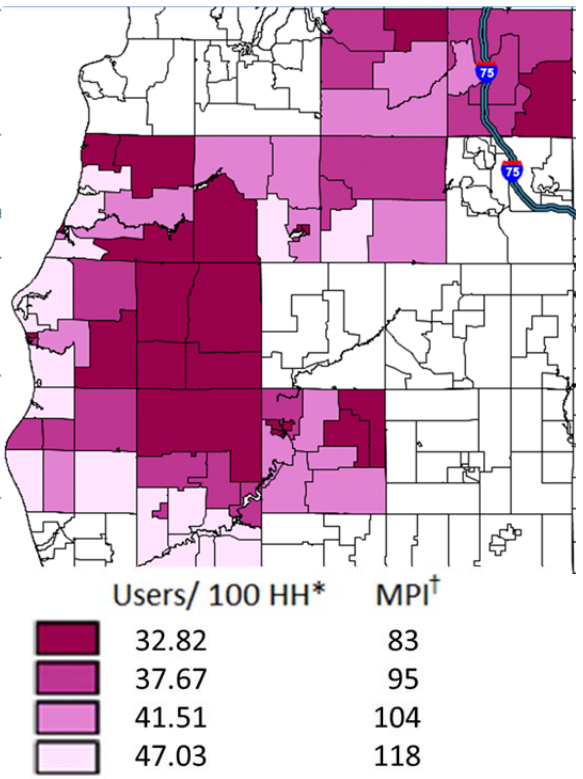
The behavior of interest in **Maps 1.11.a** and **1.11.b** is exercising two more times per week at home and the geography of interest is DHD #10. The darkest purple zip codes are 39% ***less likely*** to exercise 2 or more times per week at home as compared to the average adult in DHD #10, and the zip codes with the lightest purple shading are 23% ***more likely*** to exercise 2 or more times per week at home as compared to the average adult in DHD #10. The darkest purple census tract are 43% ***less likely*** to exercise 2 or more times per week at home as compared to the average census tract in DHD #10, and the areas with the lightest purple shading are 28% ***more likely*** to exercise 2 or more times per week at home as compared to the average adult in DHD #10.

Map 11.1.1 Likelihood Adults Exercise 2 or More Times per Week at Home by Zip Code Compared to the Average Adult in DHD#10



*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

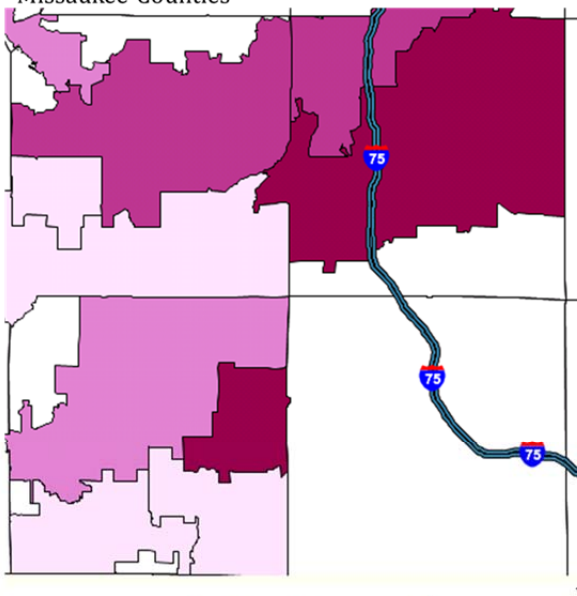
Map 11.2.1 Likelihood Adults Exercise 2 or More Times per Week at Home by Census Tract Compared to the Average Adult in DHD#10



*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 11.2.1 and 11.2.2 show the likelihood adults in exercise 2 or more times per week at home by zip code and census tract compared to the average user in three northern counties of DHD #10. The darker the purple, the ***less likely*** they are to report exercising 2 or more times per week.

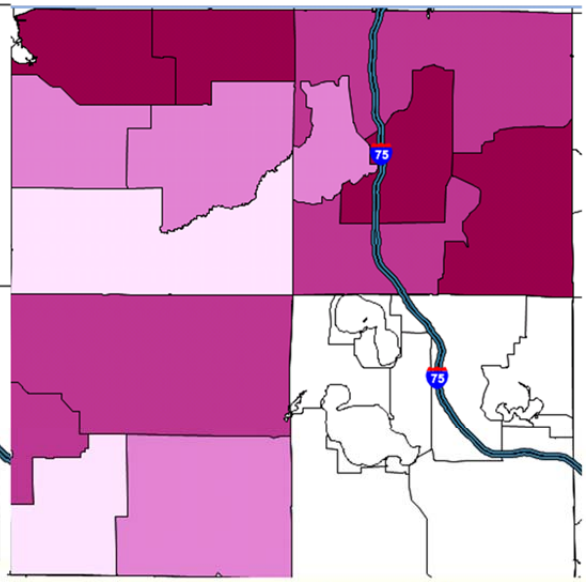
Map 11.2.1 Likelihood Adults Exercise 2 or More Times per Week at Home by Zip Code Compared to the Average Adult in Kalkasha, Crawford, and Missaukee Counties



Users/ 100 HH*	MPI†
37.13	94
37.70	96
39.22	100
43.66	111

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 11.2.2 Likelihood Adults Exercise 2 or More Times per Week at Home by Census Tract Compared to the Average Adult in Kalkasha, Crawford, and Missaukee Counties

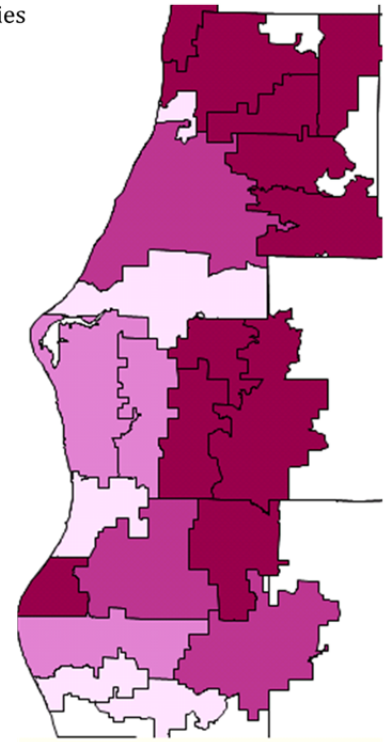


Users/ 100 HH*	MPI†
35.62	92
37.08	96
40.01	104
43.78	113

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

11.3.1 and 11.3.2 show the likelihood adults in exercise 2 or more times per week at home by zip code and census tract compared to the average user in three lakeshore counties of DHD #10. The darker the purple, the ***less likely*** they are to report exercising 2 or more times per week.

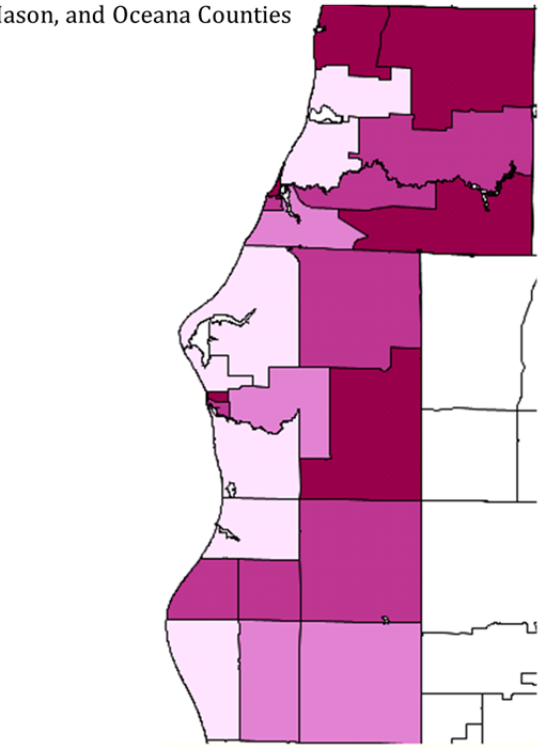
Map 11.3.1 Likelihood Adults Exercise 2 or More Times per Week at Home by Zip Code Compared to the Average Adult in Manistee, Mason, and Oceana Counties



Users/ 100 HH*	MPI†
34.83	85
40.89	100
43.32	106
45.92	112

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 11.3.2 Likelihood Adults Exercise 2 or More Times per Week at Home by Census Tract Compared to the Average Adult in Manistee, Mason, and Oceana Counties

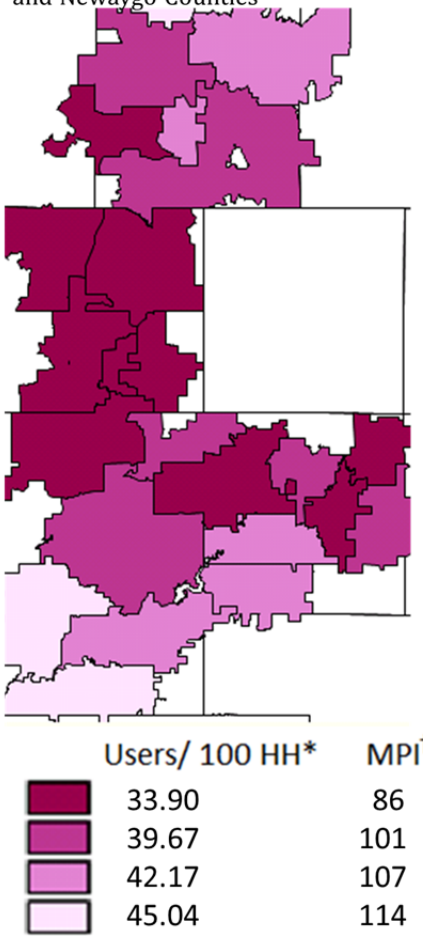


Users/ 100 HH*	MPI†
33.50	81
38.71	94
42.84	104
49.28	120

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

11.4.1 and 11.4.2 show the likelihood adults in exercise 2 or more times per week at home by zip code and census tract compared to the average user in four central counties of DHD #10. The darker the purple, the ***less likely*** they are to report exercising 2 or more times per week.

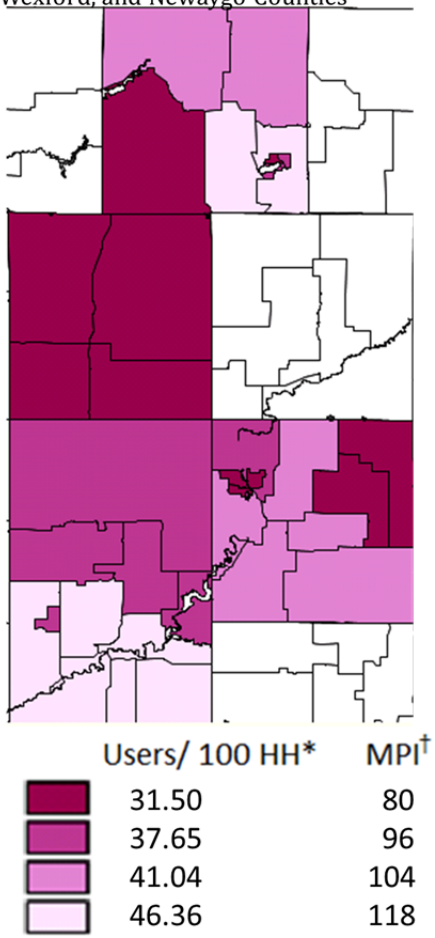
Map 11.4.1 Likelihood Adults Exercise 2 or More Times per Week at Home by Zip Code Compared to the Average Adult in Lake, Mecosta, Wexford, and Newaygo Counties



	Users/ 100 HH*	MPI†
	33.90	86
	39.67	101
	42.17	107
	45.04	114

*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 11.4.2 Likelihood Adults Exercise 2 or More Times per Week at Home by Census Tract Compared to the Average Adult in Lake, Mecosta, Wexford, and Newaygo Counties



	Users/ 100 HH*	MPI†
	31.50	80
	37.65	96
	41.04	104
	46.36	118

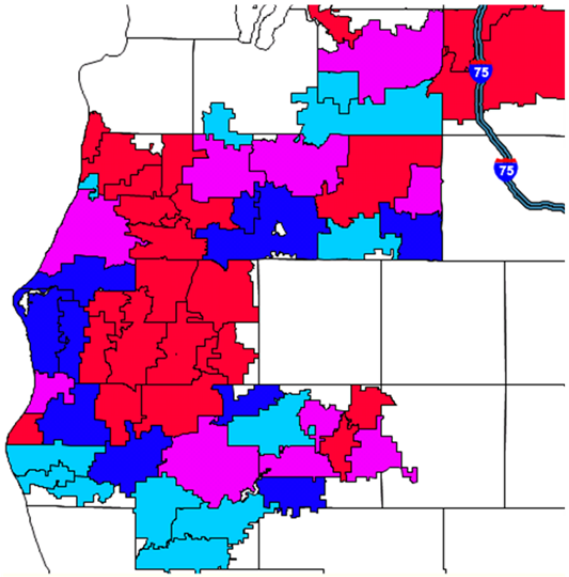
*Number of adults per 100 households.
† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Maps 1.12.a and 1.12.b show the likelihood adults watch 45 or more hours of television per week by zip code and census tract compared to DHD #10. The red areas are ***more likely*** to report watching 45 or more hours of television per week.

Market Potential Index (MPI) is calculated based on the number of users per 100 households in each zip code or census tract divided by number of users per 100 households in the geographic area of interest times 100. It indicates the likelihood that households in a zip code or census tract are to display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicates they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest. An MPI of 100 indicates that they are as likely to display the behavior of interest as the average household in the geography of interest.

The behavior of interest in **Maps 1.12.a** and **1.12.b** is watching 45 or more hours of television per week and the geography of interest is DHD #10. The red zip codes are 37% ***more likely*** to watch 45 or more hours of television per week as compared to the average user household in DHD #10 and the zip codes in light blue are 10% ***less likely*** to watch 45 or more hours of television per week as compared to the average household in DHD #10. The red census tracts are 41% ***more likely*** to watch 45 or more hours of television per week as compared to the average user household in DHD #10, and the census tracts in light blue are 13% ***less likely*** to watch 45 or more hours of television per week as compared to the average household in DHD #10.

Map 12.1.1 Likelihood Adults Watch More Than 45 Hours of TV per Week by Zip Code Compared to the Average User in DHD#10

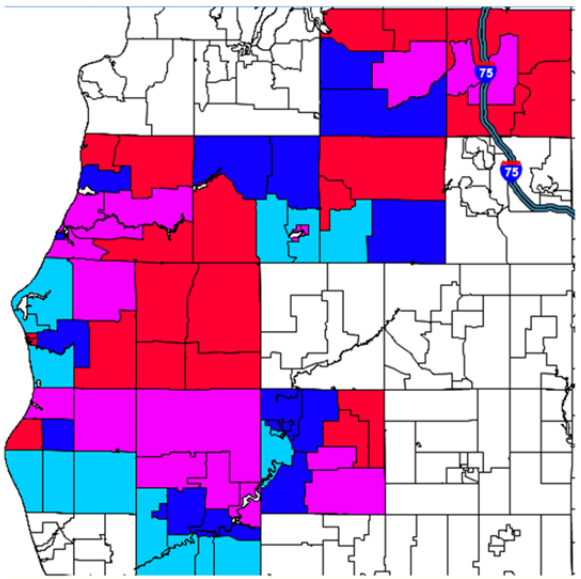


Users/ 100 HH*	MPI †
48.90	116
45.86	108
39.95	94
33.90	80

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.1.2 Likelihood Adults Watch More Than 45 Hours of TV per Week by Census Tract Compared to the Average User in DHD#10



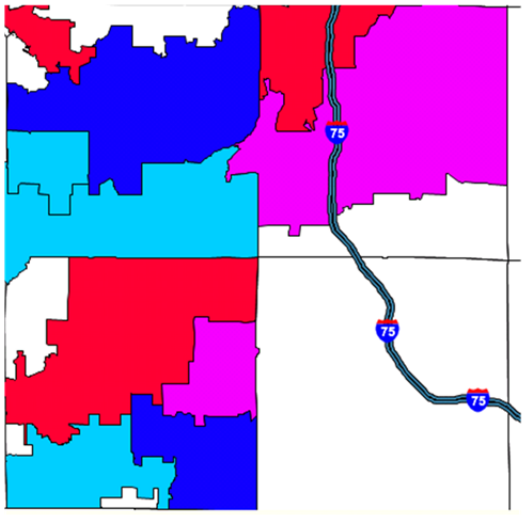
Users/ 100 HH*	MPI †
50.71	120
46.17	109
39.97	94
32.53	77

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.2.1 and 12.2.2 show the likelihood adults watch 45 or more hours of television per week by zip code and census tract compared to the three northern counties in DHD #10. The red areas are ***more likely*** to report watching 45 or more hours of television per week.

Map 12.2.1 Likelihood Adults Watch More Than 45 Hours of TV per Week by Zip Code Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties

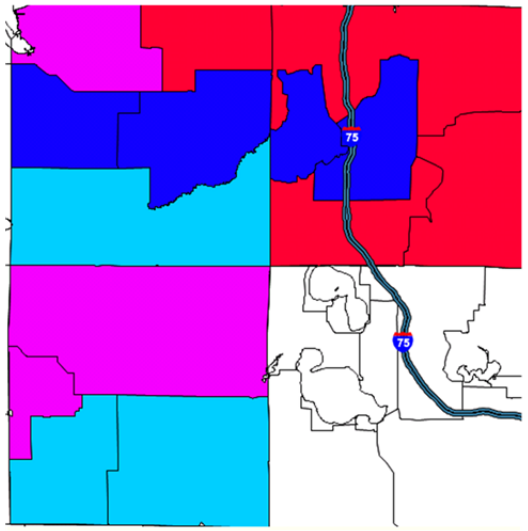


Users/ 100 HH*	MPI †
47.77	102
47.46	101
46.92	100
44.36	95

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.2.2 Likelihood Adults Watch More Than 45 Hours of TV per Week by Census Tract Compared to the Average User in Kalkasha, Crawford, and Missaukee Counties



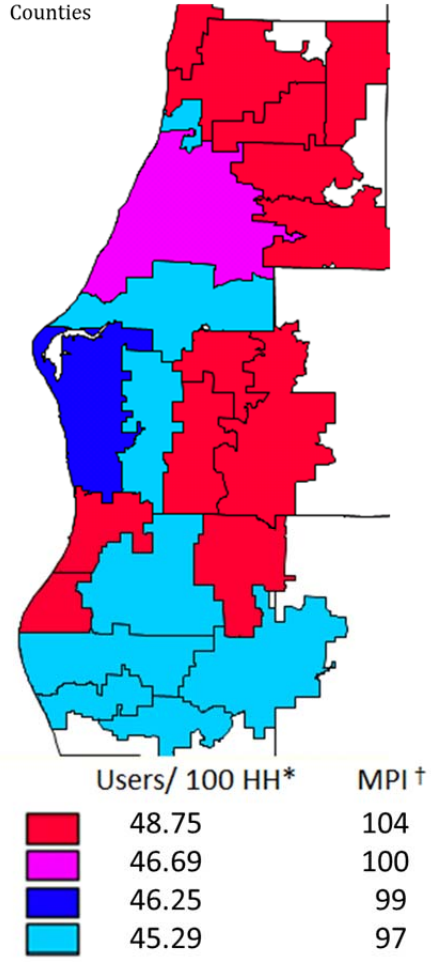
Users/ 100 HH*	MPI †
49.39	105
48.40	103
46.43	98
44.83	95

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.3.1 and 12.3.2 show the likelihood adults watch 45 or more hours of television per week by zip code and census tract compared to the three northern counties in DHD #10. The red areas are ***more likely*** to report watching 45 or more hours of television per week.

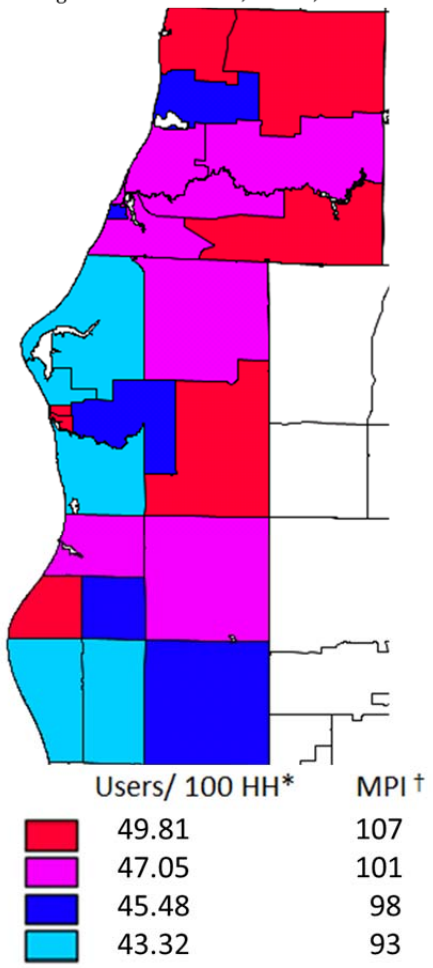
Map 12.3.1 Likelihood Adults Watch More Than 45 Hours of TV per Week by Zip Code Compared to the Average User in Manistee, Mason, and Oceana Counties



*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.3.2 Likelihood Adults Watch More Than 45 Hours of TV per Week by Census Tract Compared to the Average User in Manistee, Mason, and Oceana Counties



*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

12.4.1 and 12.4.2 show the likelihood adults watch 45 or more hours of television per week by zip code and census tract compared to the four central counties in DHD #10. The red areas are ***more likely*** to report watching 45 or more hours television per week.

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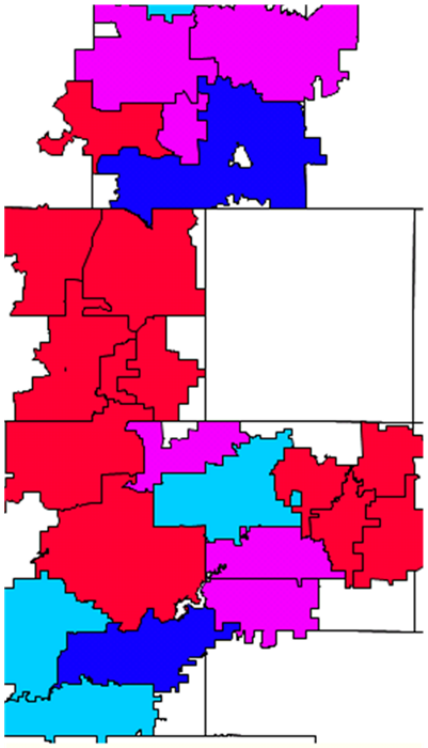
Map 12.4.1 Likelihood Adults Watch More Than 45 Hours of TV per Week by Zip Code Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties

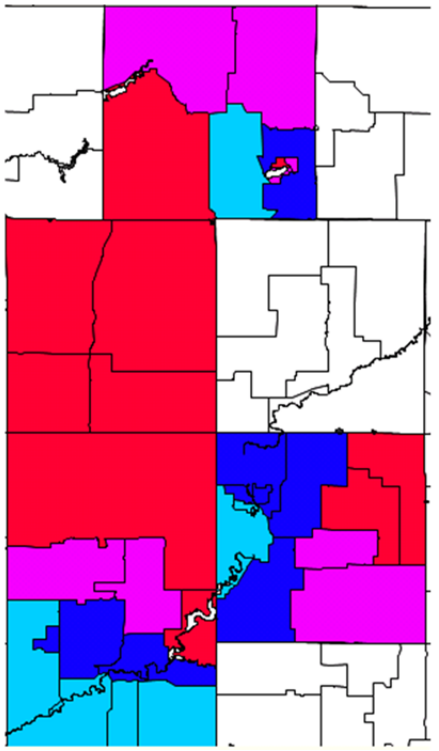


	Users/ 100 HH*	MPI †
	48.83	106
	46.36	101
	45.34	99
	43.47	95

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a zip code display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Map 12.4.2 Likelihood Adults Watch More Than 45 Hours of TV per Week by Census Tract Compared to the Average User in Lake, Mecosta, Wexford, and Newaygo Counties



of

	Users/ 100 HH*	MPI †
	49.06	107
	47.08	103
	45.27	99
	42.09	92

*Number of adults per 100 households.

† MPI = Market Potential Index. Likelihood that households in a census tract display the behavior of interest compared to the average for the geography of interest. An MPI of less than 100 indicated they are less likely to display the behavior of interest. An MPI greater than 100 indicates they are more likely to display the behavior of interest.

Understanding the Built Environment

Table 2 below provides a list of the number of certain types of businesses located in DHD #10. The North American Industry Classification System (NAICS) codes were used to identify businesses. The following NAICS codes were used:

- 621111 Medical Offices (except Mental Health Specialist)
- 445120 Convenience food stores
- 447110 Gasoline stations with convenience stores
- 445110 Grocery stores
- 813110 Churches
- 722511 - 722515 Restaurants
- 722515 Coffee shops
- 812112 - 812113 Beauty Salons
- 611110 Elementary and Secondary Schools
- 713940 Fitness Centers

Appendix 7 provides a list of each of these types of businesses that are in DHD #10.

Table 2. Number of Select Types of Businesses within the DHD #10

	Number of Businesses
Medical Offices (except Mental Health Specialist)*	179
Federally Qualified Health Centers ǂ	15
Farmer's Markets	12
Grocery Stores	106
Churches	495
Elementary and Secondary Schools	183
YMCA	2
Fitness Centers	40
Senior Centers	15

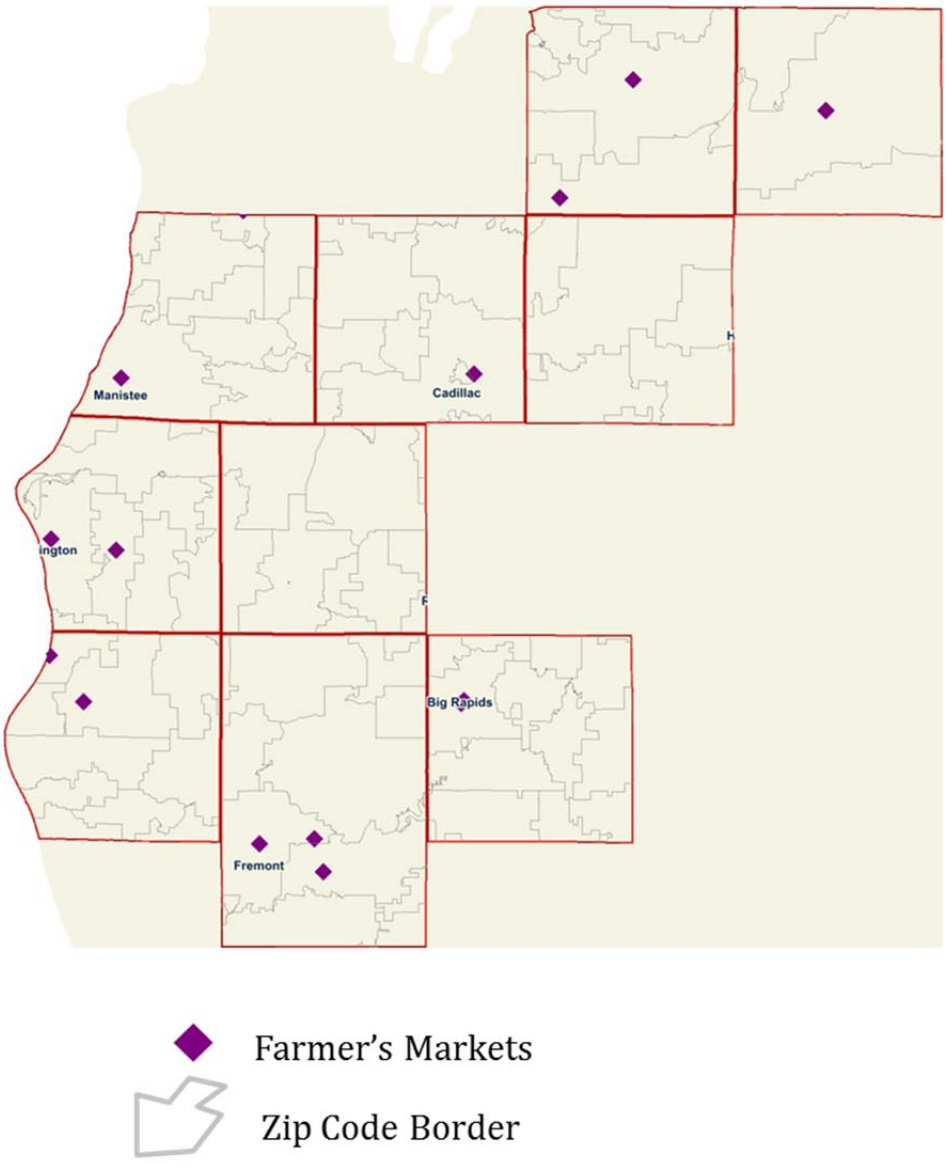
* This includes dermatologists, cardiologist, and other specialty offices in addition to primary care offices. Due to changes in coding, it is not easy to separate the type of medical office based on the NAICS codes. Also medical offices are listed multiple times because each provider can register themselves as a business. Attempts were made to de-duplicate the number based on the street address. However, all listings are provided in Appendix 7.

ǂ Health Resource and Service Administration Data Warehouse http://datawarehouse.hrsa.gov/Download_HCC_LookALikes.aspx. Accessed March 8, 2013

Farmer's Markets

Map 13 shows the locations of farmer's markets throughout DHD #10.

Map 13 Farmer's Markets



Large Employers

Table 3 below provides a list of business that have 500 or more employees within DHD #10. Businesses with multiple locations may have registered the number of employees for each location OR the number for all locations. (e.g., McDonald's might say it has 10,000 employees because all locations combined have 10,000). **Appendix 8** provides a list of all businesses, large employers, and business with multiple locations. The business lists may contain the same business multiple times for several reasons: 1) they have multiple locations 2) different spellings of the same business were registered with the same address 3) the business is registered under more than one NASIC code and 4) it was register with the same name more than once or with a different employee size.

Table 3. Large Employers within *DHD #10*

Company Name	Address	City/State	Zip Code
LITTLE RIVER CASINO RESORT	2700 ORCHARD HWY	Manistee, MI	49660
PACTIV CORP	2246 UDELL ST	Filer City, MI	49634
GERBER PRODUCTS CO	445 STATE ST	Fremont, MI	49412
GERBER PRODUCTS CO	405 STATE ST	Fremont, MI	49412
GERBER PRODUCTS CO	400 N WEAVER AVE	Fremont, MI	49412
SPECTRUM HEALTH GERBER MEML	212 S SULLIVAN AVE	Fremont, MI	49412
CONSUMERS CONCRETE CORP	4550 W 72ND ST	Fremont, MI	49412
MAGNA MIRRORS	700 PARK ST	Newaygo, MI	49337
PETERSON FARMS INC	3104 W BASELINE RD	Shelby, MI	49455
MEIJER	8605 E 34 RD	Cadillac, MI	49601
MERCY HOSPITAL CADILLAC	400 HOBART ST	Cadillac, MI	49601
AVON AUTOMOTIVE	805 W 13TH ST	Cadillac, MI	49601
MEMORIAL MEDICAL CTR	1 N ATKINSON DR	Ludington, MI	49431

Appendix 1: Project and Technical Notes:

Behavioral Risk Factor Surveillance System (BRFSS) is a primary source of diabetes data at the county and state level for local health departments and other agencies. Through a grant award, from NACDD the Directors of Health Promotion and Education (DHPE) are able to offer data and analysis at smaller units of geography through a database maintained by the Nielsen Company.

Technical Background
Nielsen is a global marketing and advertising research company that offers software to businesses and government agencies through two software programs: ConsumerPoint and PrimeLocation. Nielsen is one of the world's leading suppliers of marketing information, media information and TV ratings, online intelligence and mobile measurement.

Nielsen PRIZM Segments
Community populations are categorized into 66 segments based on socioeconomic rank, life stage, and urbanization. The 66 segments each have unique demographic descriptions based on income,

age class, age range, presence of kids in the household, home ownership, employment, education, and race and ethnicity. Each segment also has specific lifestyle preferences that are typical for the segment such as media preferences, shopping preferences, and typical behaviors. More information may be accessed at the following site: http://www.claritas.com/MyBestSegments/Default.jsp?ID=30&SubID=&pageName=Segment%2BLook-up

Appendix 2: Enhanced Demographics

Due to the length of this appendix it is in a separate accompanying document. This appendix contains detailed demographics and socioeconomic characteristics beyond those provided in **Table 1**.

Appendix 3: Target Concentration Reports

There are approximately 104,790 households in DHD #10. Of these approximately 104,790 households (or 68%) have one or more members who are at high risk of developing prediabetes.

Due to the length of this appendix, it is in a separate accompanying document. The information in this appendix was used create Maps 2.1 and 2.2.

Appendix 4: Media Profiles

Media profiles were conducted for the target area of interest using PRIZM household segments that have characteristics associated with a higher risk of developing prediabetes and diabetes as the target population. For this report, the geography of interest is DHD #10.

Due to the length of this appendix, it is in a separate accompanying document. The information in this appendix was used create the marketing descriptions provided in the Marketing section of this report.

Appendix 5: Select Demographics by Zip Code

Due to the length of this appendix it is in a separate accompanying document. This information in this appendix was used in the creation of Maps 3..1.1 through 8.4.3.

Appendix 6.1 Behaviors Associated with Higher Risk of Diabetes by Zip Code

Due to the length of this appendix it is in a separate accompanying document. The information in this appendix was used create Maps 9.1.1 through 12.4.1.

Appendix 6.2 Behaviors Associated with Higher Risk of Diabetes by Census Tract

Due to the length of this appendix, it is in a separate accompanying document. The information in this appendix was used create Maps 9.1.2 through 12.4.2.

Appendix 7. List of Select Businesses

Due to the length of this appendix, it is in a separate accompanying document. The information in this appendix was used to estimate the number of business in **Table 2**.

Appendix 8. Large and Multi Site Businesses

Due to the length of this appendix, it is in a separate accompanying document. The information in this appendix was used to develop the large employer list in **Table 3**.