



ST. LOUIS COUNTY



Public Health and Human Services



St. Louis County Health Status Report



The vision of the St. Louis County Public Health and Human Services Department is “A community where all people are safe and healthy.” While this vision is lofty, it is also very basic; I cannot think of any individual who would not choose safety and health over the alternatives. What we realize in this report is that we are not all equal in our ability to attain those attributes. My hope is this report will serve as a catalyst for discussion and action, not only for those of us within St. Louis County, but also for our community partners, both public and private, in changing the way we think about health, health care and health policy in order to better enable all to achieve safety and health.

It is just as important to sustain good health and prevent illness as it is to treat illness and disease. In order to do this effectively, we need to broaden our thinking about the factors that interact and impact our health. In addition to our genes, our individual behaviors and our access to health care, we need to focus on where health starts: in our homes, schools, jobs and neighborhoods.

Broadening our thinking about health in this way provides us with many more opportunities to provide healthy choices and long-term prevention strategies for all people that will positively impact their quality of life. I am committed to working with our staff, citizens, current and new community partners and elected officials, to make our vision of a safe and health community a reality in St. Louis County.

Sincerely,

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Acknowledgements

Those who: Supported our work when the issues were beyond our understanding; Assisted in working with the data; Reviewed our work to ensure validity and fidelity.

- Susan Brower, Melanie Ferris and Andi Egbert, Wilder Research Foundation
- Drew Digby, DEED Regional Analyst
- Randy Huard, Public Health Nurse
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- Michelle MacDonald, Public Health Analyst (retired)
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- Jake Peters, Generations Health Care Initiatives
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If we want to use our resources more wisely, develop sound policies and take advantage of all the opportunities we have to improve the quality of life for St. Louis County residents, we will need to pay closer attention to where health starts. It begins in:

- Our homes with loving families that are living in neighborhoods with sidewalks safe for walking and grocery stores with fresh fruits and vegetables.
- Our schools that educate children for jobs of the 21st century and that feed them healthy foods.
- Jobs that allow us to have time and financial resources to play at the end of a day's hard work to relieve chronic stress that takes a toll on our hearts and immune systems.
- Workplaces free of unnecessary hazards and that we can get to without long commutes in cars or buses.

All of us should have the opportunity to make choices that allow us to live long healthy lives, regardless of our income, education, ethnic background or zip code. This study used Life Expectancy (the age to which a child born today could be expected to live) and the Mortality Rate (the age-adjusted deaths per 1000) as measures of health to look at the impact of education, income and the chronic stress of racism on the ability of residents in St. Louis County and in its largest city, Duluth, to live a long and healthy life.

Study findings include:

- ⇒ Projected Life Expectancy in Zip Code 55812 (Duluth) was the highest at 84.65 years. The lowest projected life expectancy was 73.44 years found in Zip Code Zone D, made up of Duluth Zip Codes 55802 and 55806. That is a difference of 11.2 years.
- ⇒ Age-adjusted mortality rates ranged from a high of 18.9 deaths per 1000 individuals in Zip Code Zone D (Duluth Zip Codes 55802 and 55806) to a low of 9.19 in Duluth Zip Code 55812. That is a difference of 9.71 deaths per 1000 individuals.
- ⇒ Those with the lowest median household income (under \$25,000 in Zip Code Zone D and Zip Code 55805 - both in Duluth) had the lowest projected life expectancy at 74.47 and the highest mortality rate of 17.62. Those with the highest median household income (Over \$50,000 in Duluth Zip Code 55803) had the highest projected life expectancy at 81.43 and the lowest mortality rate of 11.35.
- ⇒ The chronic stress experienced by people of color negatively impacts their projected life expectancy. The difference in projected life expectancy for all people of color in St. Louis County was 2.31 years less than the white population (75.99 years versus 78.3 years) and in Duluth, it was 4.32 years less (72.85 years versus 78.3 years). Mortality rates per 1000 individuals showed a similar result with People of Color showing the highest age-adjusted mortality rates. In St. Louis County, the mortality rate for all People of Color was 16.07 (compared to Whites at 13.8); for all People of Color in Duluth, it was 19.29 (compared to Whites at 15.09).
- ⇒ Recommendations to create a local and regional response in St. Louis County include:
 - ◆ Form a Steering Committee to create new directions and opportunities to improve the health of all people in St. Louis County.
 - ◆ Direct the staff of Public Health and Human Services to facilitate and develop the Steering Committee and to provide leadership in accomplishing the identified Steering Committee tasks.
 - ◆ Task the Steering Committee to:
 - Develop a comprehensive plan to improve health, using a collaborative approach with participants from across St. Louis County and from a diverse range of organizations.
 - Engage a broader and more diverse range of partners to inform and explore opportunities to improve health within St. Louis County, as well as across county borders in Northeastern Minnesota.
 - Begin a search for funding to create and implement a County-wide and a region-wide comprehensive plan for creating opportunities to improve the health of all residents.
 - Replicate this study by 2015, including the resolution of this study's identified limitations
 - ◆ Develop and implement a multi-year strategic plan for St. Louis County Government that would set measurable objectives to improve health as a function of each County department.



Background

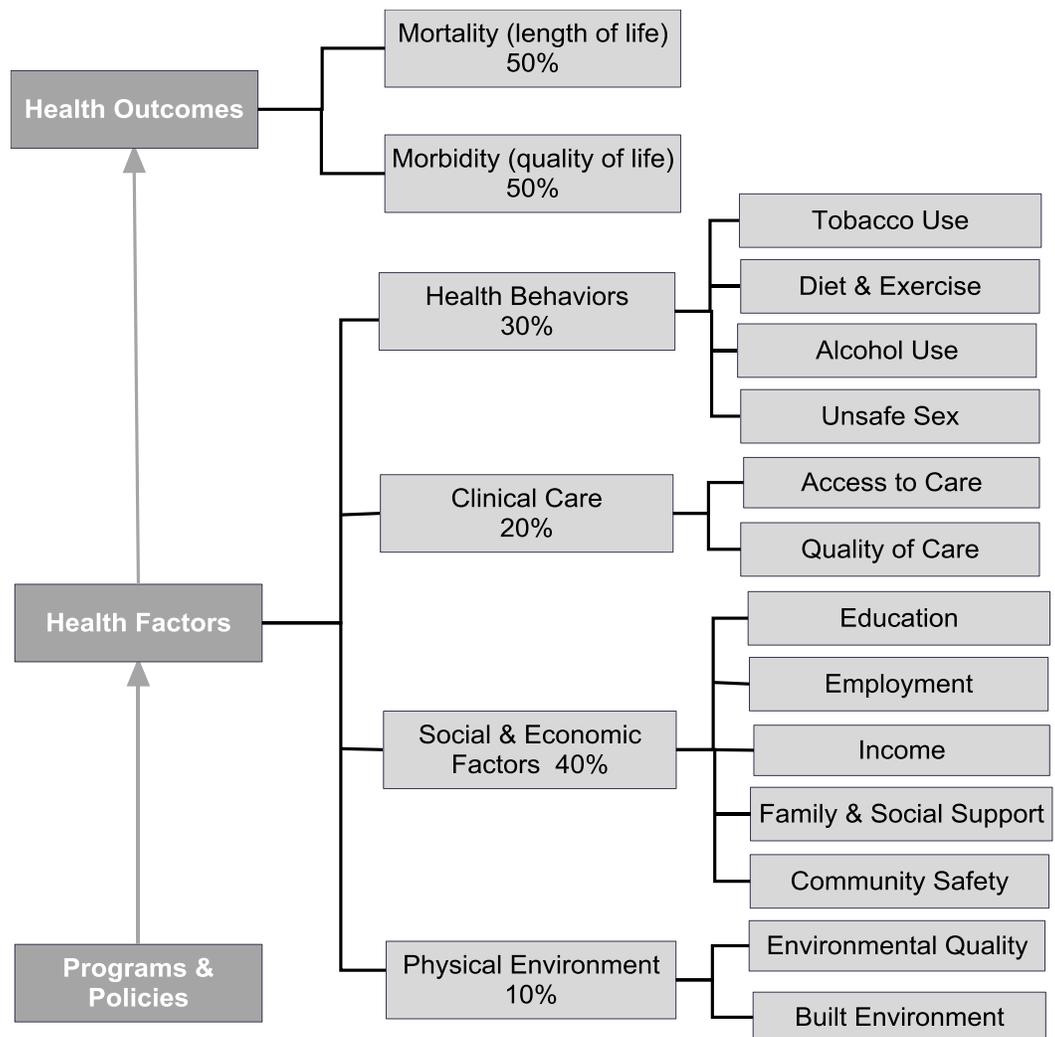
The journey of working on health disparities as a goal had its beginning 30 years ago. *Healthy People* is a nationwide health promotion and disease prevention guide set by the U.S. Department of Health and Human Services. The original goal to “increase quality and years of healthy life” was first set in 1979 for the decade of the 1980s. In 1990, *Healthy People 2000* added the goal of “reducing health disparities” which are defined as differences in the burden of disease and other health status indicators between different population groups (e.g. race, age, gender, income)¹. That goal was strengthened ten years later in the year 2000 for *Healthy People 2010*, by changing it to “eliminate health disparities.” These two nationwide goals remain unchanged in *Healthy People 2020* and continue to be worked on at the National, State and local levels, including by St. Louis County Public Health and Human Services (PHHS).

Why did “inequality” come to be included as a National, State and local public health goal? Research over the past two to three decades has demonstrated that the opportunity for health goes beyond the choices we make as individuals. It also begins long before we are struck by illness. Health is rooted in our families, neighborhoods, schools and jobs². These conditions have been referred to as “social determinants” of health. It has been estimated that these “social determinants” have a larger impact on our health than do the more traditional factors previously considered as major determinants of health.³

The traditional view concluded that our access to health care, the quality of that health care, as well as our own genetics and individual behaviors determined all of our health outcomes - our quality of life (morbidity) and how long we live (mortality).

Research has now shown that health starts in our homes, schools and jobs. The social conditions in which we are born, live, and work actually get under our skin as surely as genes, germs, and viruses, and play a large part in determining our health outcomes.⁴ The model by the University of

Wisconsin Population Health Institute estimates that these “social determinants” of health may have a larger impact (40%) than either clinical care (20%) or individual behavior (30%). In this model, the schools we attend, the



Source: University of Wisconsin Health Institute (www.countyhealthrankings.org)



jobs we do, the money we are paid, the extent of our family, social networks and the neighborhoods in which we live impact our health as much or more than if we smoke, are an overweight couch-potato, or do not have access to high quality health care.

If we want to use our resources more wisely, develop sound policies and take advantage of all the opportunities we have to improve the quality of life for St. Louis County residents, we will need to pay closer attention to where health starts:

- In our homes with loving families that are living in neighborhoods with sidewalks safe for walking and grocery stores with fresh fruits and vegetables;
- In our schools that educate children for jobs of the 21st century and that feed them healthy foods;
- In jobs that allow us to have time and financial resources to play at the end of a day's hard work to relieve chronic stress that takes a toll on our hearts and immune systems;
- In workplaces free of unnecessary hazards and that we can get to without long commutes in cars or buses.

All of us should have the opportunity to make choices that allow us to live a long healthy life, regardless of our income, education, ethnic background or zip code⁵. For this report, we started by taking a close look at the health of residents in St. Louis County, MN, including the city of Duluth.

Report Methodology

A Closer Look at Selected Social & Economic Factors

Our socio-economic status (how much money we have) and the distribution of resources (how money and other resources are shared within society) has been found to be the strongest predictors of health. This can be measured in a number of ways but the conclusion is the same - those with the most resources and opportunity to control their environment, on average live longer and healthier lives.⁶ For this study, we looked at the impact of three factors (indicators) on the health of the residents of St. Louis County and Duluth. Data for these indicators was obtained from the 2000 U.S. Census as the best match to our mortality data.

Education: For many years, the achievement of a high school diploma was a path to a middle-class living, especially on the Iron Range through employment in the mines. However, in today's economy, a high school diploma is often seen as a bare minimum and may no longer ensure a middle class standard of living. Many better-paying jobs now require a college degree or at least some post-secondary education. The educational measure used in this report is the percentage of persons, aged 25 and over, who have achieved more than a high school diploma.

Income: A person's level of education will certainly impact the amount of resources he or she has to live a longer, healthier life. A person's overall wealth also has an important impact. Wealth may include a number of different resources, such as property, pension, or investments. For this study, we chose to limit this measure to income, specifically Median Household Income. The 2000 U. S. Census defines this indicator as mid-point where half of the households are above and half are below the income at the mid-point.

Chronic Stress of Racism: Research has made it clear that chronic stress has a negative impact on one's health outcomes. We have all had the experience of a sudden or unexpected threat which triggers our bodies to go on high alert in order to deal with the threat. Physically, we experience an increased heart rate, rising blood pressure and glucose flooding the blood stream. We respond to the threat either through fight or flight. When the threat is past, our physical response returns to what is normal for us as an individual. However, researchers have learned that some threats are constant and unrelenting. In the face of this chronic stress, our physiological systems remain on constant alert and never return to a non-stressed (normal) state. Over time, this constant state of arousal, even if at a low-level, wears our systems down and leaves us at increased risk for chronic health conditions or disease. Perhaps one of the best examples of chronic stress is the experience of racism, as it adds an additional burden on top of the other social and economic factors making-up the "social determinants" of health (see page 6).



What do we mean by “racism?” Racism is more than individual prejudice based on race. Racism is the collective power of one (dominant) group, through a system of laws, rules and institutions, to enforce their view of history, their values, practices, and beliefs on others in society. This system of power and privileges advantages those in the dominant group and disadvantages those who are not. This is structural racism and it is a source of chronic stress for those experiencing it.

The “Unnatural Causes: Ten Things to Know About Health” fact sheet presents the issue this way:

“Racism imposes an added burden. Past and present discrimination in housing, jobs, and education means that today people of color are more likely to be lower on the class ladder. But even at the same rung, African Americans typically have worse health and die sooner than their white counterparts. In many cases, so do other populations of color. Segregation, social exclusion, encounters with prejudice, the degree of hope and optimism people have, differential access and treatment by the health care system - all of these can and do impact the health of individuals and populations.” We felt it was important to look at the impact of racism in this report; however, there were significant challenges in looking at racial categories in St. Louis County and in Duluth.

Racial Categories	St. Louis County Population	Percent	Duluth Population	Percent
White	190,211	94.9%	80532	92.7%
Black	1704	0.8%	1415	1.6%
American Indian	4074	2.0%	2122	2.4%
Asian	1333	0.7%	993	1.1%
Hawaiian	54	0.0%	25	0.0%
Other Race	451	0.2%	251	0.3%
Two or More Races	2701	1.3%	1580	1.8%
Total	200,528	100.0%	86,918	100.0%

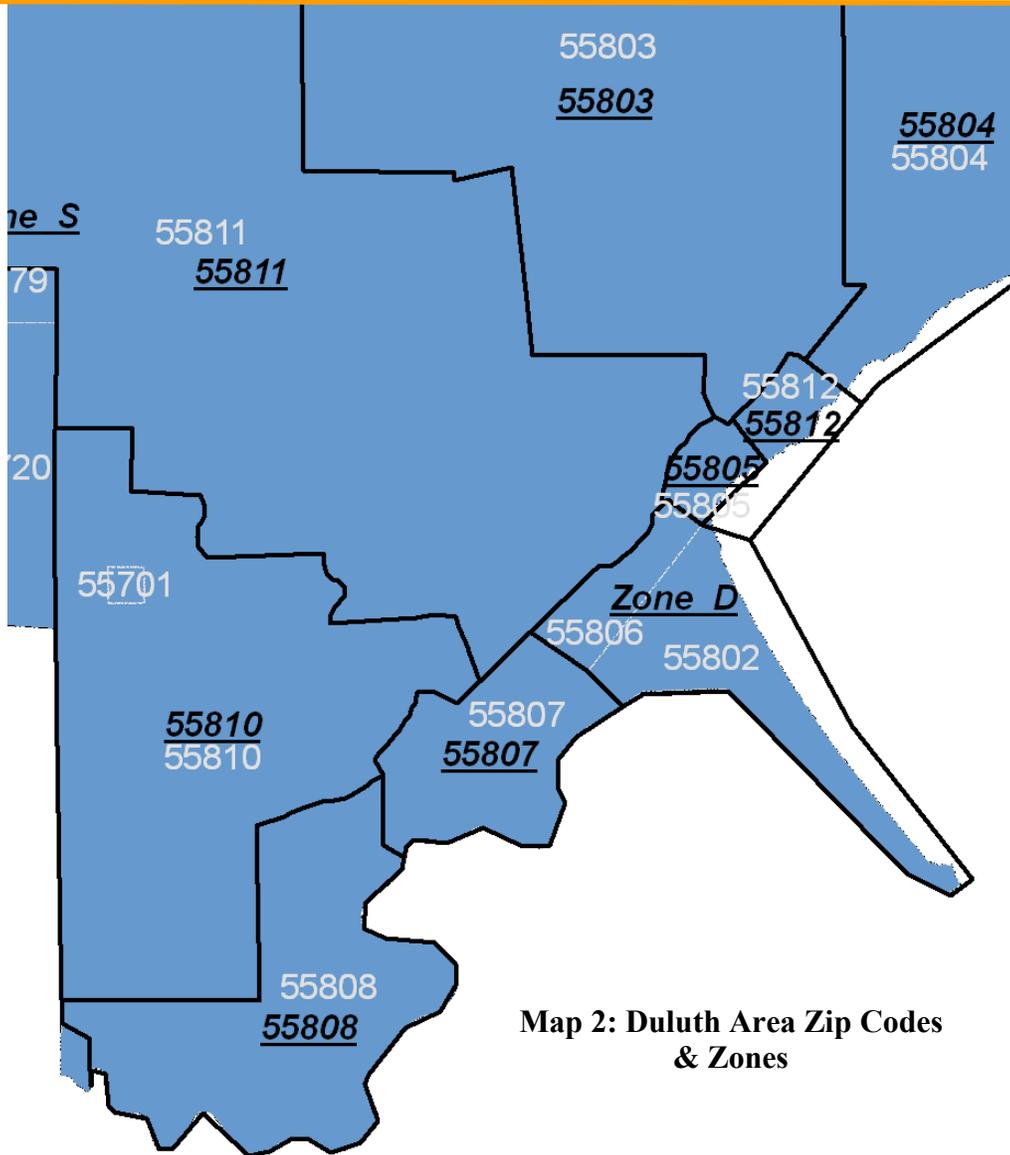
Residents know that St. Louis County and Duluth are overwhelmingly white, with a much higher proportion of whites than many other places in our State and in the Country. A statistical problem occurs when making some of the calculations required for this report using members of the different population groups. It is difficult to draw conclusions from calculations based on low numbers. See TABLE 1 for details on the different populations by racial category within St. Louis County and Duluth.

In order to prevent the problem created by low numbers, we found it necessary to use only two racial groups in our calculations. We used “White” (the “white only” category in the census data) and “People of Color” which grouped all non-white categories into one larger group reflecting a higher percentage of the total population. This methodology maintained the validity of the work.

We understand that creating a grouping such as “People of Color” is a proxy; it is a substitute for something else. We know that this substitute that does not reflect reality, as health outcomes between all racial categories are different and unique to each group. The proxy “People of Color” was used solely to allow us to examine the issue of health outcomes by racial categories at the local level. We understand that this is a controversial approach that will be offensive to some. However, an analysis by individual racial category was not feasible.

Health Outcomes

In order to explore disparities, we need measures that generally represent “health”. We chose two health outcomes for our report, **life expectancy** and **mortality** to help us explore the impact of the three social conditions on residents.



Map 2: Duluth Area Zip Codes & Zones

about what neighborhoods are and what they look like.” This report provides an opportunity to explore how place impacts the health outcomes of our own friends and neighbors.

We begin to look at place through our postal zip codes. Zip codes are a convenient way to organize data geographically. The mortality data included addresses with zip codes for the person’s residence at the time of their death. The data from the Census was also available by zip code. However, the use of zip codes presented two challenges.

First, zip code boundaries are not the same as County boundaries. So we needed to choose which zip codes to include in our data and which to exclude. We found 58 zip codes in St. Louis County, as seen on Map 1 on page 9, including in Duluth on Map 2 on page 10. A zip code was included

only if more than half of the area was in St. Louis County. If more than half of the area of a specific zip code was outside of St. Louis County, that data was excluded. Six of the zip codes had a majority of their area located in a different county.

The second challenge came as a result of the requirements for calculating life expectancy. In order to be statistically significant, each geographical area that was the focus of the calculation needed to have at least 5000 people. However, we found only 10 zip codes in St. Louis County that had the minimum number of 5000 people required. These single zip codes with over 5000 people were either in Duluth or the larger cities in the northern part of the County (Ely and Virginia).

In order to meet the minimum population requirement for calculating life expectancy in the rest of the County, we created a total of 8 “zip code zones” out of the 40 single zip codes. It should be noted the naming of these zones was arbitrary. The zones were combined with the 10 single zip codes to provide the basis for “place” in this report. Again, this is a proxy for reality that helped us achieve our goal. We understand that zip codes do not follow town or neighborhood boundaries. In some instances, especially in Duluth, two very different neighborhoods may



be combined into a single zone which serves as the basis for the calculation. This raises questions and creates concerns that can hopefully be addressed in any future reports.

See Appendix 1 on page 29 for a listing of all 58 zip codes and their population, as well as the 8 zip codes zones and their total zone population, that were created for this report.

There are limitations to the data presented in this report which hopefully will be addressed in future reports. Suggestions for future analysis include:

- ⇒ Use of census tracts (which follow County boundaries) as a better unit of measure for the GIS mapping than the zip codes and zones used in this report
- ⇒ Use of the more recent 2010 census data, not yet available when we started this study
- ⇒ Inclusion of ethnic categories, especially data on Hispanics.



Table 2: Life Expectancy in St. Louis County and Duluth

Geographic Area	Life Expectancy
55812	84.65
55731	81.76
55803	81.43
55804	80.73
55810	80.33
55808	79.91
55811	78.26
Zone E	78.25
Zone C	78.21
Zone G	77.85
Zone N	77.5
Zone H	77.13
Zone S	76.8
Zone W	76.54
55805	76.08
55792	76
55807	75.1
Zone D	73.44

Life expectancy is the age to which a child born today could expect to live. It is important to remember that as a projection, these calculations are not intended as a factual assertion about how long any one person may live. Many factors combine to determine if an individual person lives longer or shorter than what is projected.

This report uses the life expectancy calculation on large groups of people (5000 or more) as a proxy for “health.” As a measure of health, it can help us see that where we live, how educated we are, how much we earn, the choices and resources we have, all have an impact on our ability to live a long and healthy life.

TABLE 2 presents the age-adjusted life expectancy by zip code and zone in St. Louis County and Duluth. They are ordered from the zip code/zone (55812) with the highest life expectancy of 84.65 years descending to the lowest life expectancy found in Zone D with a life expectancy of 73.44 years. There is a difference of 11.2 years between highest and lowest projected life expectancy. This is the largest gap in projected life expectancy found in this study.

Maps 3 and 4 on page 13 show the ranges of life expectancy by zip code and zone. Note that both of the extremes (highest and lowest life expectancy) in St. Louis County are located in Duluth adjacent to each other.

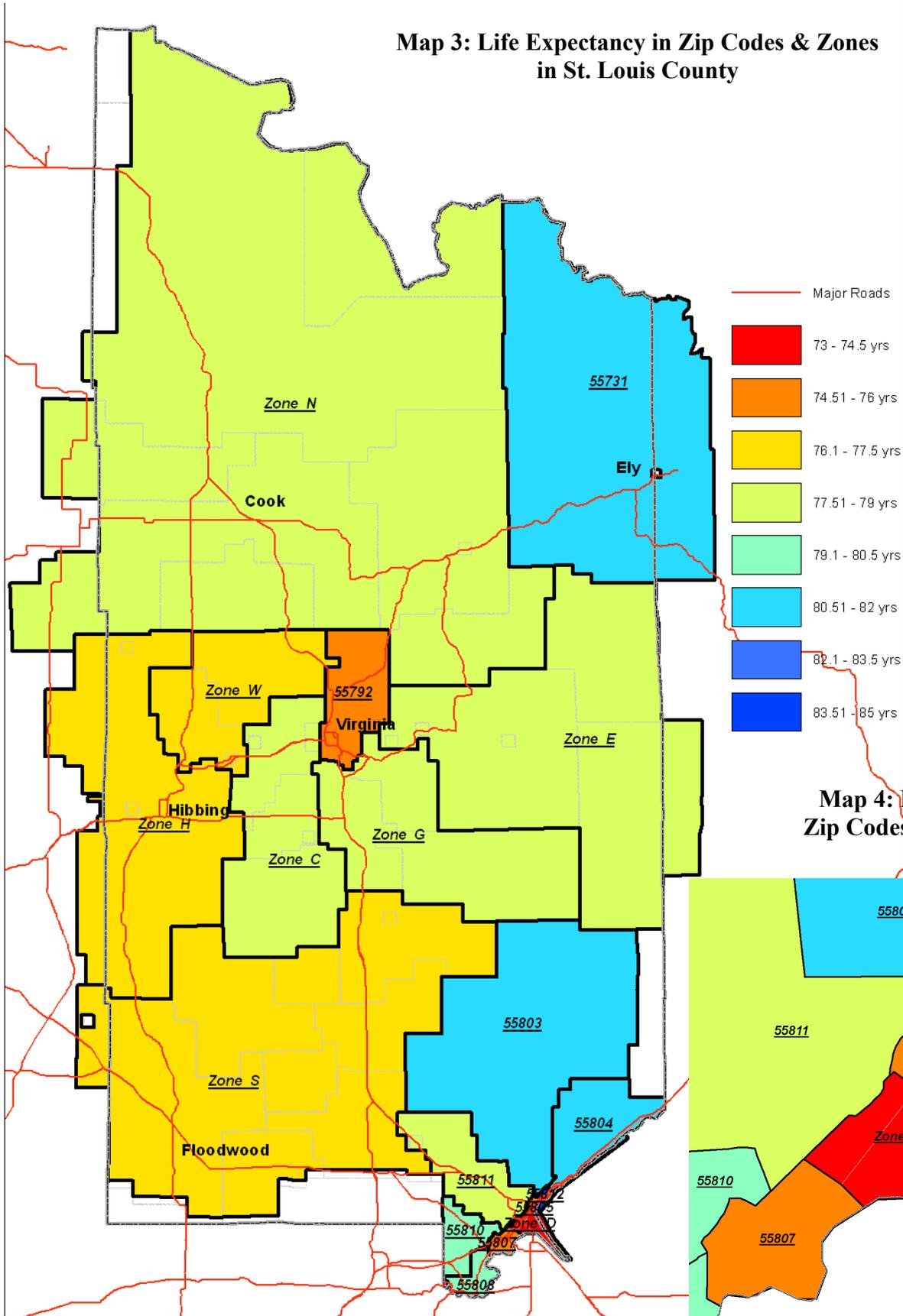
The 11.2 year difference is the result of many factors, including personal characteristics, genetics, wealth and the neighborhood we live in. The chronic stress of racism is an added burden for people of color that results in diminished capacity to live longer and healthier lives. However, even a rough comparison of the two zip codes demonstrates the potential impact of social conditions and the physical environment have on life expectancy.

Zip code 55812 is 1.8 square miles located on the east side of Duluth, extending from the shores of Lake Superior to the University of Minnesota, Duluth located “up the hill.” Income and Education data in this report indicate that residents in this zip code are well educated and solidly middle class. The neighborhoods are considered safe and include student housing. There are multiple types of opportunities for exercise, as well as easy access to grocery stores with affordable fruits and vegetables.

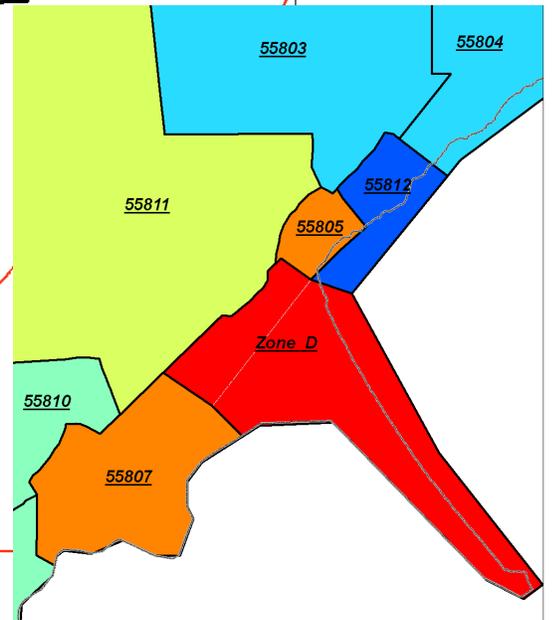
Zip Code Zone D is made up of two zip codes, 55802 and 55806. Zip code 55802 is 2.5 square miles and includes the downtown business district, the lower portion of the Central Hillside and the more affluent Park Point neighborhood which is a narrow strip of land that separates Lake Superior and the harbor. The Central Hillside neighborhood and its neighbor to the west, Lincoln Park, have many of the social conditions that negatively impact life expectancy. Both neighborhoods have high concentrations of low income people with lower education levels, a higher concentration of People of Color, older housing stock with substandard conditions, limited or no access to affordable healthy food choices and limited or no access to safe places for exercise. This contrasts sharply with the other end of the zip code 55802 which includes the more affluent Park Point neighborhood. Zip code 55806 is 3.6 square miles and is primarily a working class neighborhood. It extends west from Lake Avenue, over



Map 3: Life Expectancy in Zip Codes & Zones in St. Louis County



Map 4: Life Expectancy in Zip Codes & Zones in Duluth





Observation Hill through Lincoln Park. The concentrated poverty of the Central Hillside neighborhood in Zip code 55802, along with the lower income in 55806, appears to overwhelm the resources that may exist in the more affluent Park Point neighborhood and the slowly growing downtown condominium homes, leading to an overall lower life expectancy within the Zone.

The Iron Range also has a range of Life Expectancy projections in the larger urban areas (Ely, Hibbing, and Virginia), as well as in the less populated northern and north central areas of St. Louis County.

The Ely area (zip code 55731) has the second highest Life Expectancy estimate in St. Louis County at 81.76 years, just about three years less than the highest estimate of 84.65 years in Duluth's Zip Code 55812. Located in the northeast corner of St. Louis County, Ely is distinct from other Iron Range communities. The economy in the area is focused on tourism, outdoor recreation, and timber rather than on mining.

Life Expectancy estimate projected for Hibbing (Zip Code Zone H) is 77.13 years. This is 4.63 years less than Ely's Life Expectancy and 7.5 years less than Duluth's Zip Code 55812. Mining is one of the major industries in this area which has a number of well-known associated health risks, including shift work and lung disease that may negatively impact life expectancy.

The Life Expectancy estimate of 76 years for Virginia (Zip Code 55792) is 5.76 years less than Ely's and 8.65 years less than Duluth's Zip Code 55812. It should be noted that it is only 1.13 years less than Hibbing. The two towns are only about 25 miles apart. The age ranges for this report were created on an arbitrary basis. So, although the two cities fall into different categories, the differences between the two are actually not very large. It is likely that the forces impacting Hibbing are very similar to those impacting Virginia.

It should also be noted that this report's discussion of life expectancy and attempts to clarify the results are just the beginning of understanding what the report means. It remains for citizens, along with government and community leaders, to hold discussions to further understand what the assessments mean and to take actions to address those most in need.



Table 3: Mortality Rate per 1000 in St. Louis County and Duluth

Geographic Area	Age-Adjusted Mortality Rate
55812	9.19
55731	10.57
55803	11.35
55804	11.8
55808	12.17
55810	12.41
Zone G	14.02
Zone C	14.04
Zone N	14.33
Zone H	14.55
Zone E	14.7
Zone W	15.08
55811	15.09
Zone S	15.15
55805	15.93
55792	16.42
55807	16.93
Zone D	18.9

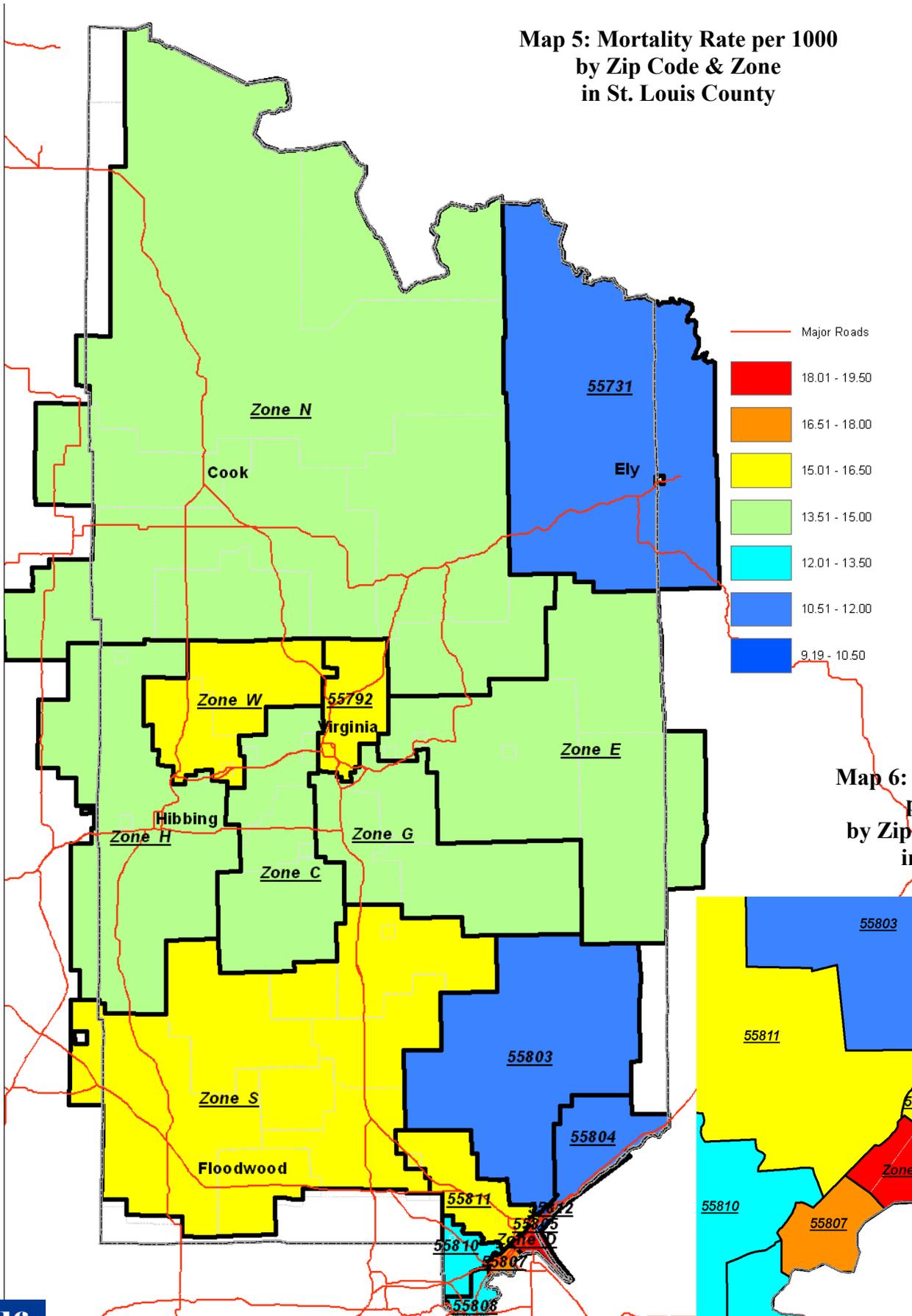
Age-adjusted Mortality Rate is the number of deaths per 1000. This report uses the age-adjusted mortality rate as a proxy for “health.” The lower the rate means there are fewer deaths per 1000 people. The inference is fewer deaths mean a longer healthier life.

TABLE 3 shows the age-adjusted mortality rates by zip code and zone. Range is from a low of 9.19 deaths per 1000 in Zip Code 55812 to a high of 18.9 deaths per 1000 in Zone D. That is a difference of 9.71 deaths per 1000 individuals. These results are very similar, although not exactly reversed, to those seen in Table 2 on life expectancy.

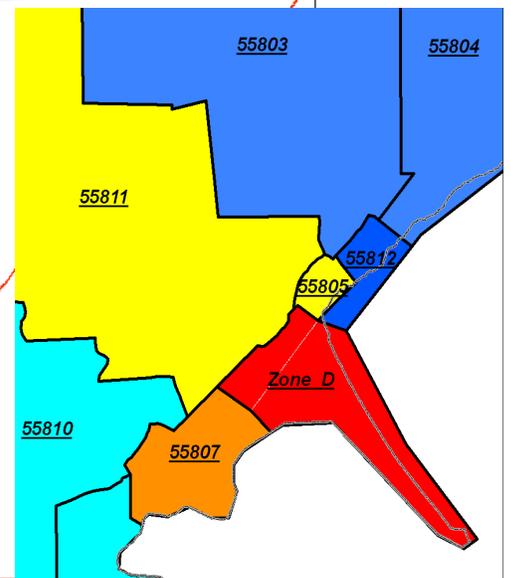
Maps 5 and 6 on page 15 show the mortality rates in St. Louis County and Duluth, respectively. Again, high and low areas for mortality are located adjacent to each other in Duluth.



**Map 5: Mortality Rate per 1000
by Zip Code & Zone
in St. Louis County**



**Map 6: Mortality Rate
per 1000
by Zip Code & Zone
in Duluth**



Impact of Education on Health



Education has been seen by many as a way to move up the socio-economic ladder, a pathway to greater wealth and resources. You would expect that higher levels of education would result in higher levels of wealth and would lead to increased life expectancy and decreased mortality.

In order to look at the relationship between education and health in St. Louis County, we worked with census data for education, using the percent of the population over age 25 that, after attaining a high school diploma, went on to attend college but did not receive a degree, as well as those who did receive a college, university or professional degree. In the past, a high school education could be relied on to lead to a middle class life style. However, that is not as reliable a pathway as it once was. It is expected in the future that the number of jobs that require a high school diploma will have no growth or will shrink and jobs, especially those in new growing fields, will require more education than they once did.⁷

In order to map the education data, we needed to create a set of ranges for the *percent of the population* which had a high school diploma within a specific area, zip code and/or zone. The seven separate ranges are shown in TABLE 4. We also included how much of total population of St. Louis County that range represented*.

TABLE 4 lists the specific zip codes and/or zones that combine to make up the seven ranges. The lowest range was 40.1%-45% of the population in the combined area of Zip Code 55808 and Zone S having more than a high school diploma. This combined area represents just under 7% of the total population. The highest range was in a single zip code, 55812, with 75.1% to 80% of that area's population having more than a high school diploma. This zip code is just under 5% of the total population. There was no zip code or zone where between 60.1 to 65% of the population had a high school diploma.

To establish the relationship with health, we calculated the life expectancy and mortality rate of the seven ranges which had data. The last two columns in TABLE 4 show the life expectancy and the age-adjusted mortality rate for the seven ranges.

The study's assumption was that those areas where a low percentage of the population had obtained more than a high school diploma would also have lower life expectancy and higher mortality rates. The people with only a high school diploma or who dropped out would not have the necessary resources to maintain a healthy lifestyle and this

Zip & Zone	Percent of Population with High School Diploma	Range of Percent of Population with High School Diploma**	Percent of St. Louis County	Life Expectancy	Age-Adjusted Deaths per 1000
55808	42.2	40.1 - 45%	6.8%	78.26	13.67
Zone S	43.3				
Zone C	47.5	45.1 - 50%	7.1%	78.13	14.59
Zone E	49.2				
55810	50.2				
55792	51.2	50.1 - 55%	35.0%	76.82	15.19
Zone G	51.3				
Zone N	52.1				
Zone W	52.5				
Zone D	53.2				
55807	53.9	55.1 - 60%	21.3%	78.27	14.2
55805	56.9				
55811	57.9				
55731	59	65.1-70%	17.5%	78.67	13.21
Zone H	63.7				
55803	64.8				
55804	71				
55812	78.1	75.1 - 80%	4.9%	84.65	9.17

**No data fell in the 60.1 to 65% range in our study, so that range is not included in the table

* See Appendix 1 on page 29 for the total population figures for the zip codes and zones used for mapping St. Louis County.

Impact of Education on Health



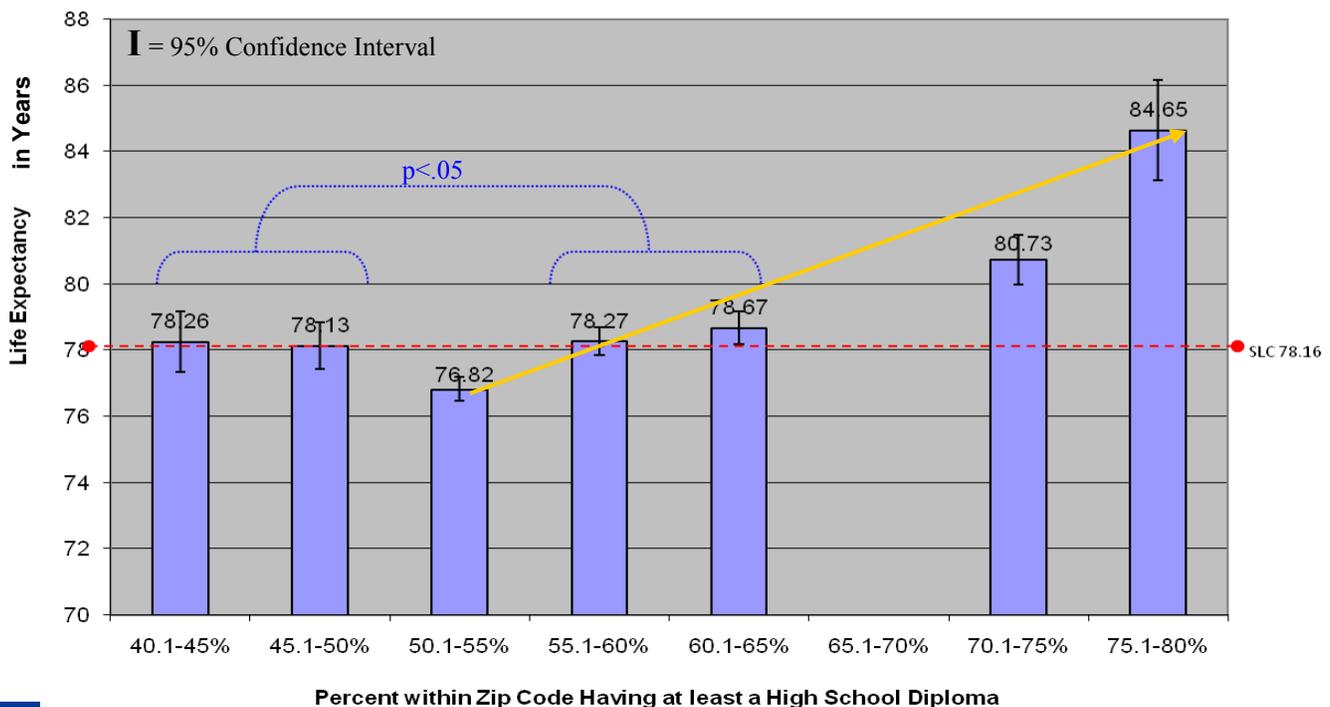
would be reflected in the life expectancy and mortality data. CHART 1 shows that our assumptions were correct at the upper ends of the range. Those areas where the clear majority of the population had more than a high school diploma (range 70.1-75% of the population and 75.1-80% of the population) also experienced a higher projected life expectancy and a lower mortality rate. These two ranges were statistically different from each other, as well as the five lower ranges at the 95% confidence level. See Appendix 2-A on page 30 for more detail on confidence levels.

However, there was an anomaly at the lower end of the range where the expected pattern is not followed. The 3rd highest of the seven ranges, where 50.1% - 55% of the population had more than a diploma, showed a *lower* life expectancy than either of the two ranges below it in the continuum. The expected pattern would have been for it to be higher.

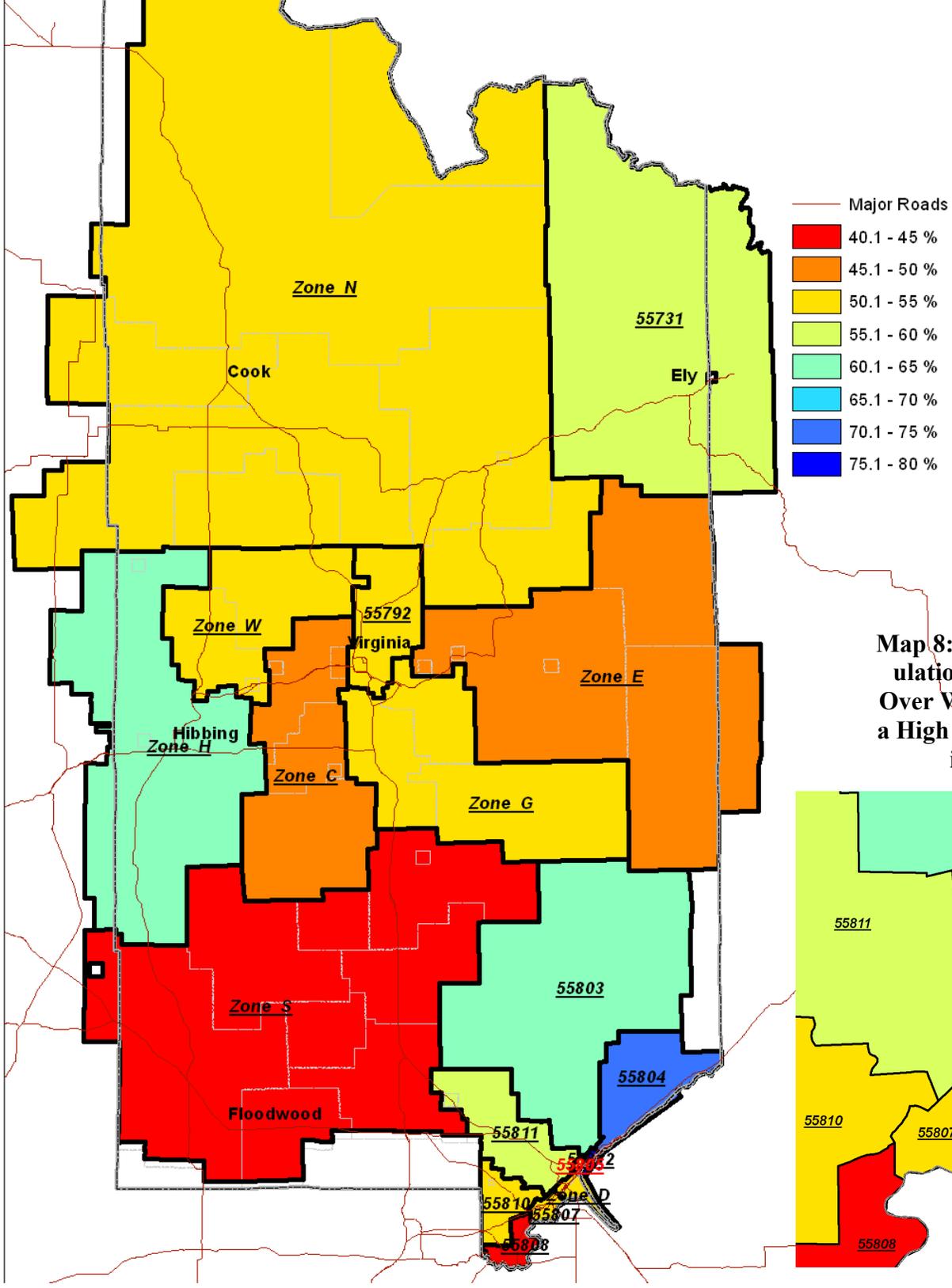
In addition, looking at the five lowest ranges on CHART 1, no statistical significance was found between the two ranges below 50.1%, nor the two above it. It is only the lower range in the middle, (50.1-55%) that is unique and statistically different from the other four. It is not clear why it does not follow the expected pattern and is unique. This range does represent the largest portion of the total population, at 35% (See TABLE 4).

Although we don't have a definitive answer regarding what caused our findings, the data may suggest that there is a positive impact on life expectancy when somewhere between 65.1-70% of the population has more than a high school diploma. An alternative speculation may be that more people in the two lowest ranges with lower levels of education may also be eligible for governmental income and medical supports aimed at providing stability for these populations. If so, these additional resources may account for the higher life expectancies in those two lower categories⁸. The 50.1-55% range may be the point at which many people no longer qualify for government supports and must rely on their own resources to meet all of their basic needs and medical expenses.

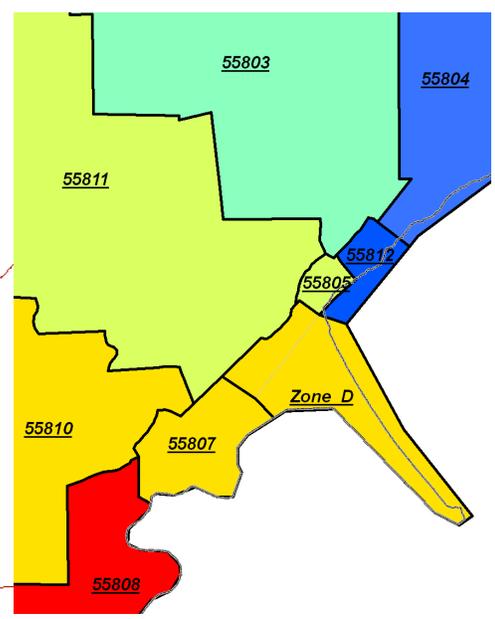
Chart 1: Life Expectancy and Percent of Population With More Than a High School Diploma



Map 7: Percent of Population Aged 25 and Over With More Than a High School Diploma in St. Louis County



Map 8: Percent of Population Aged 25 and Over With More Than a High School Diploma in Duluth





Research has established that the single strongest predictor of our health is our position on the social class pyramid - upper class, middle class, or lower class. As “Unnatural Causes: Ten Things to Know about Health” puts it, “Whether measured by income, schooling or occupation, those at the top have the most power and resources and on average live longer and healthier lives. Those at the bottom are most disempowered and get sicker and die younger. The rest of us are somewhere in between.”

In order to look at the relationship between income and life expectancy in St. Louis County, we chose to use median household income as the indicator. The Census Bureau defines a “household” as including all the people who occupy a housing unit as their usual place of residence, these residents may or may not be related. The median household income would be the midpoint in the range of all household incomes within a zip code or zone. For example, the median household income found in Zone G was \$37,345 (2000 Census).

The data was organized into a continuum with six groupings of median household incomes. The lowest grouping had median household incomes under \$25,000. The highest grouping had median household incomes over \$50,000. See TABLE 5 for median household income by zip code and zone.

Table 5: Median Income, Life Expectancy and Mortality Rates

Zip Code & Zone	Median Household Income	Income Grouping	Percent of St. Louis County	Life Expectancy	Age-Adjusted Deaths per 1000
Zone D	\$20,129	Under \$25,000	11.60%	74.47	17.62
55805	\$21,561				
55792	\$30,782	\$30,000-\$34,999	16.80%	77.41	14.52
55807	\$31,497				
55731	\$31,781				
55808	\$32,433				
Zone E	\$35,810	\$35,000-\$39,999	30.00%	78.27	13.65
Zone N	\$36,286				
Zone C	\$36,761				
55812	\$37,026				
Zone G	\$37,345				
Zone W	\$37,392				
Zone S	\$38,982	\$40,000-\$44,999	13.70%	78.23	13.65
55810	\$41,866				
Zone H	\$43,137	\$45,000-\$49,999	19.70%	78.99	14.01
55811	\$45,768				
55804	\$49,018	Over \$50,000	8.20%	81.43	11.35
55803	\$51,715				

Our findings generally follow what you would project: lower life expectancy and higher mortality for those in the lowest median household income category. Zone D and Zip Code 55805 had median household incomes under \$25,000; the projected life expectancy for the “Under \$25,000” category was 74.47 years with a mortality rate estimated to be 17.62. At the opposite end of the continuum, Zip Code 55803 had the highest median household income of \$51,715, categorized as “Over \$50,000.” The projected life expectancy for Zip Code 55803 was 81.43 years with a mortality rate of 11.35. The difference between the lowest and highest projected life expectancies was 6.96 years. See CHART 2 on page 20 for more detail on life expectancies. The life expectancies for the lowest and highest median household income categories are significantly different from one another at the 95% confidence interval. See Appendix 2-B on page 30 for more detail on confidence levels.

The projected life expectancy of people in the 2nd lowest category of \$30,000 to \$34,999, was found to be significantly different from the life expectancy of the 2nd highest category of \$45,000 to \$49,999 at the 95% confidence interval. However, the four middle income range groupings were found to be more similar to each other and not significantly different. See CHART 2 on page 20 for more detail.

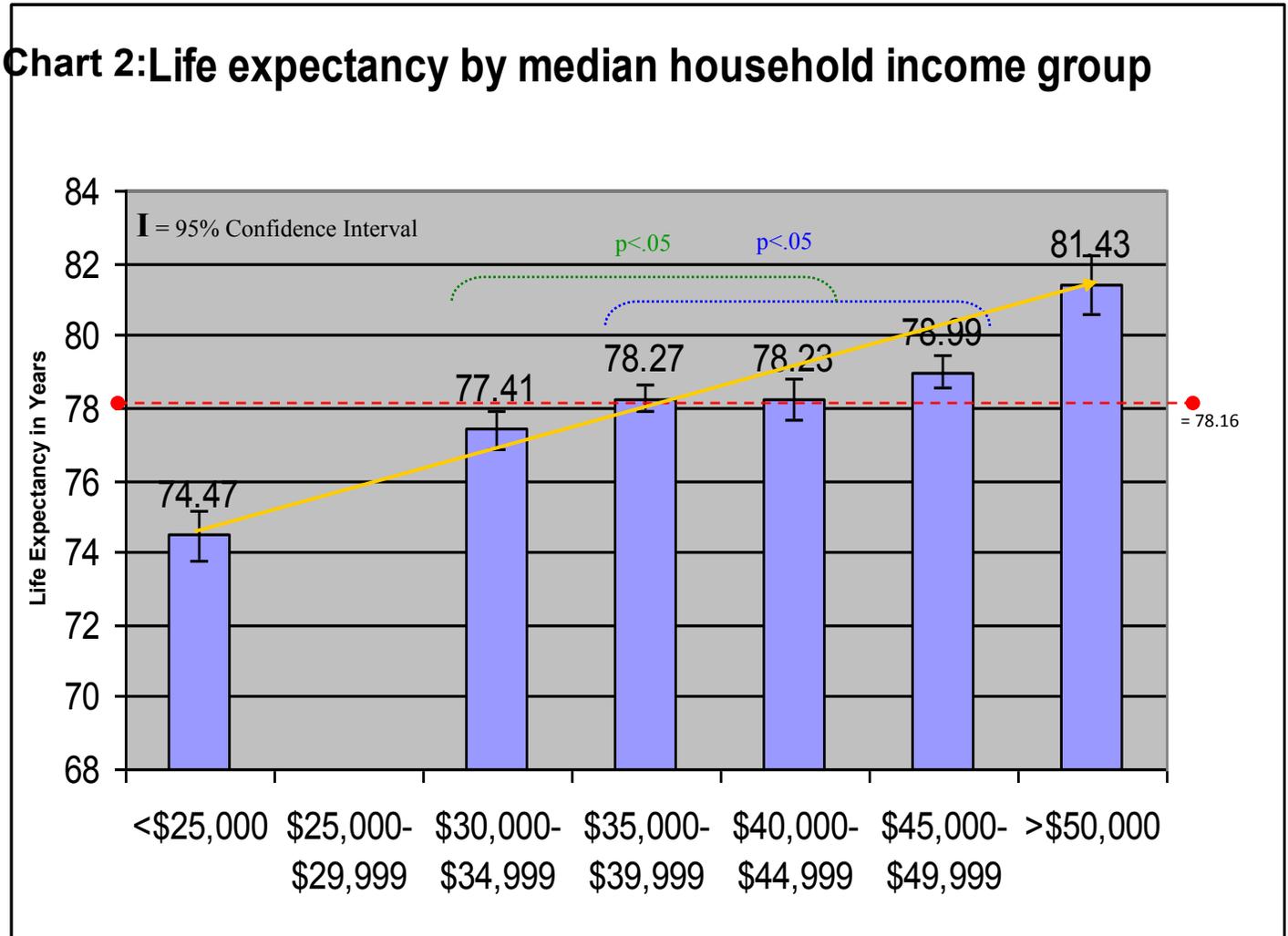
Impact of Income on Health



None of the single zip codes nor any of the Zones had a median household income that fell in the \$25,000 to \$29,999 range. It is not clear why this occurred.

The gold line in CHART 2 approximates a “trend line.” Although data is not perfectly aligned, the trend appears to be what you would project - a positive relationship between higher median household income and higher life expectancy. The more resources you have, the more control you can exert over your life circumstances and environment to help off-set any internal or external stressors.

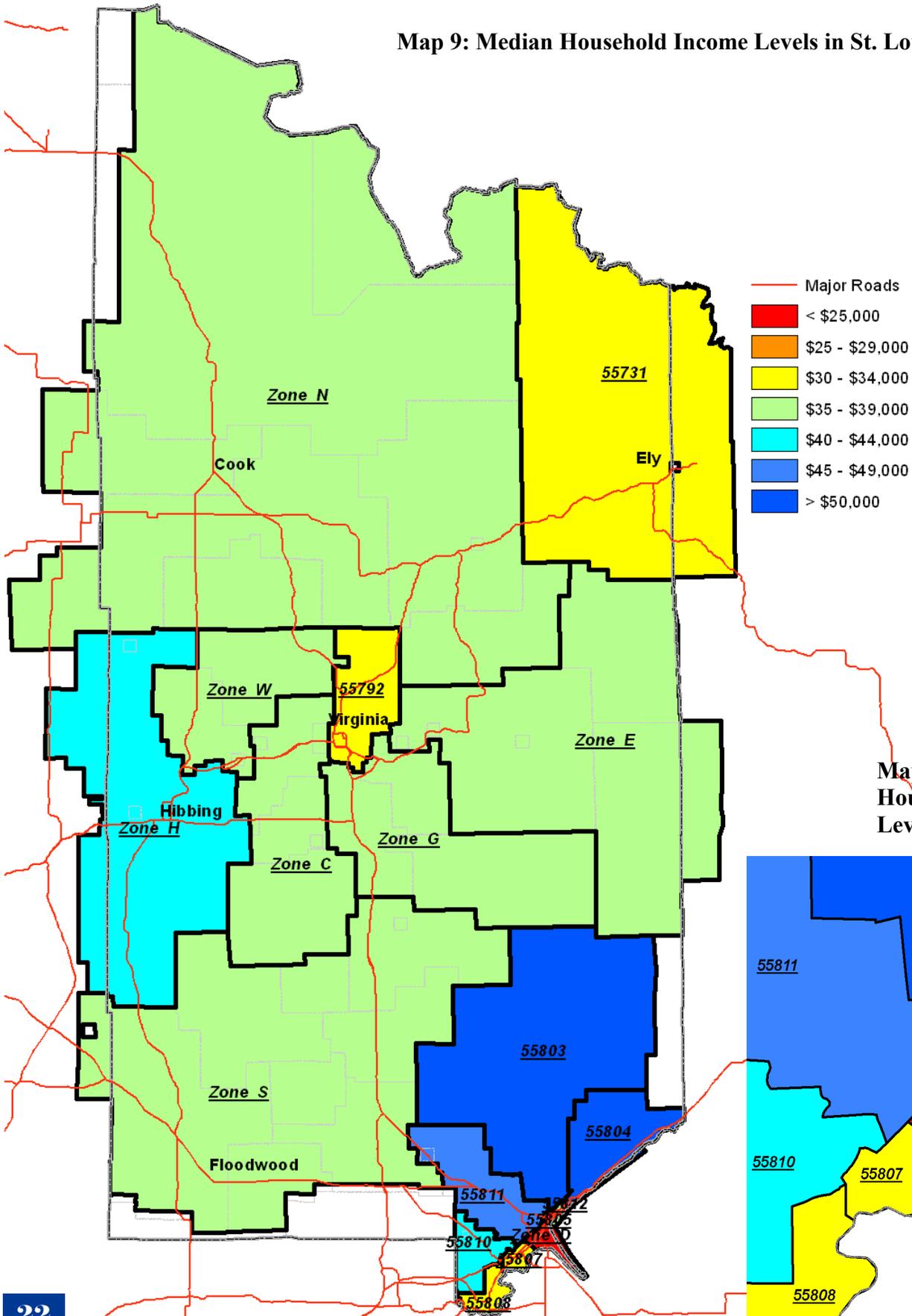
Chart 2: Life expectancy by median household income group



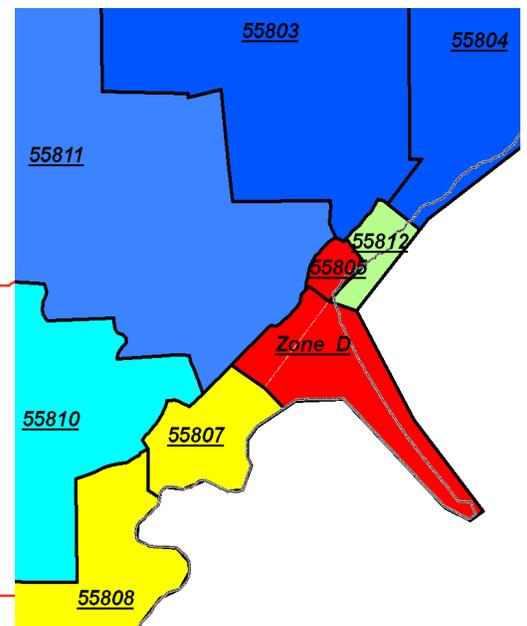
Red Line Comparison: St. Louis County Life Expectancy = 78.16



Map 9: Median Household Income Levels in St. Louis County



Map 10: Median Household Income Levels in Duluth



Impact of the Chronic Stress on Health



Research has established that when stress is chronic and unrelenting, our physiological systems remain on constant alert, never returning to their non-stressed state. Over time this constant state of arousal, even at a low level, wears down our physiological systems and leaves us at increased risk for chronic health conditions or disease. Perhaps one of the best examples of chronic stress is the experience of racism. Experiencing racism adds an additional burden on top of other chronic stressors in our environment, such as low income, stressful job conditions, unsafe neighborhoods, etc.

In order to explore the impact of the chronic stress related to racism on life expectancy and mortality in St. Louis County, it was necessary to abandon using zip codes and zones, as well as to combine all People of Color into one grouping. The People of Color racial category is intended as a proxy. This creates a large enough group of people that allows an analysis by race while avoiding the problems created by small numbers/low percentages in each of the individual “nonwhite” racial categories in our predominantly White County. This combined “People of Color” category does not reflect reality. Health outcomes by individual racial categories may in fact be different and unique. For this study, using the larger County and City geographies, as well as creating one group for all “People of Color,” allowed an exploration of the impact of chronic stress related to racism on health outcomes while avoiding possible threats to the validity of the work.

TABLE 6 presents life expectancy calculations by the two racial categories. In St. Louis County, and especially in Duluth, the chronic stress experienced by People of Color negatively impacts their life expectancy. In St. Louis County, the difference in projected life expectancy between Whites and “People of Color” was 2.31 years. In Duluth, the difference was 4.32 years.

TABLE 7 shows the age-adjusted mortality rates per 1000 by racial categories. Duluth’s People Of Color have the highest rate per 1000 of 19.29. This is somewhat higher than the mortality rate for Zone D in TABLE 3 on page 13. We know that Duluth has higher concentrations of People of Color than the rest of the County. In addition, Duluth’s Central Hillside neighborhood, located in Zone D, has the highest concentration of People of Color in the City.

Racial Categories	Life Expectancy
St. Louis County Overall	78.16
St, Louis County White	78.3
St. Louis County “People Of Color”	75.99
Duluth Overall	76.89
Duluth White	77.17
Duluth “People Of Color”	72.85

Racial Categories	Mortality Rate per 1000
St. Louis County Overall	13.91
St. Louis County White	13.8
St. Louis County “People Of Color”	16.07
Duluth Overall	15.28
Duluth White	15.09
Duluth “People Of Color”	19.29

Impact of the Chronic Stress on Health

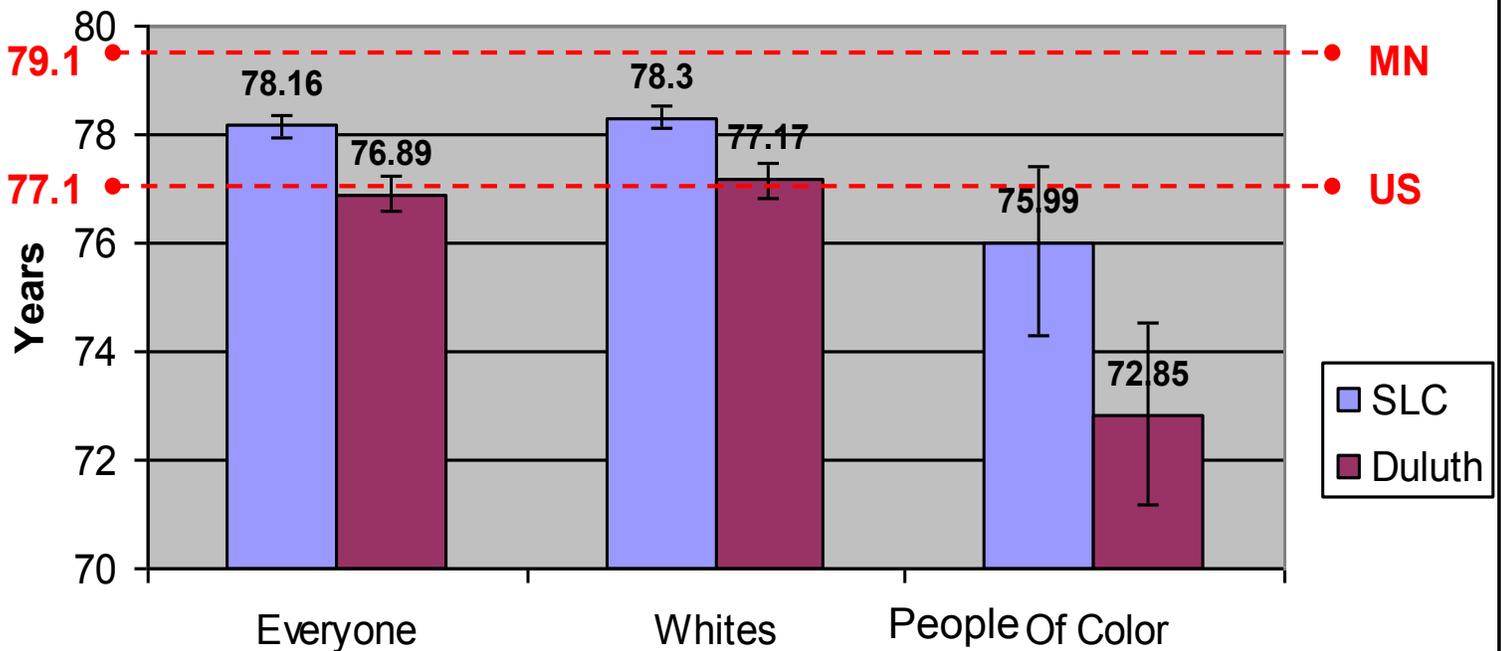


CHART 3 makes an even stronger connection between the health outcome of Life Expectancy and the impact of the chronic stress of racism experienced by People of Color. Life expectancy is significantly different in Duluth and St. Louis County for all populations at the 95% Confidence Level. People of Color have significantly longer life expectancy than both Whites and Everyone. Increased variability in the upper and lower confidence intervals for the People of Color category is likely due to a smaller population size. See Appendix 2-C on page 30 for detail on confidence levels.

CHART 3 also includes two comparisons: Life Expectancy for people in Minnesota at 79.1 and in the US at 77.1 according to the 2000 Census. All people in St. Louis County and in Duluth have a lower life expectancy than people in Minnesota in general.

Numerous factors impact life expectancy, including personal characteristics, genetics, wealth, and where we live. The chronic stress of racism is an added burden for people of color and results in diminished capacity to live the longer and healthier lives experienced by the dominant white population in St. Louis County and especially in Duluth. Zone D in Duluth is made up of two zip codes: 55802 and 55806. The 55802 zip code covers downtown Duluth and a portion of the Central Hillside neighborhood which has some of the highest concentrations of low-income and racially diverse populations in the City of Duluth and St. Louis County. Zip code 55806 extends down into Duluth's Park Point and includes a larger portion of households with higher incomes. However, the protective impact for those with more economic privilege is probably muted by the higher concentrations of poor racially diverse people when the two zip codes are combined into Zone D.

Chart 3: Life Expectancy by Racial Categories



Impact of the Chronic Stress on Health



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Impact of Social Conditions: Conclusion



If we want to use our resources more wisely, develop sound policies and take advantage of all the opportunities we have to improve the quality of life for St. Louis County residents, we will need to pay closer attention to the social conditions around us, including:

- Our homes with loving families that are living in neighborhoods with sidewalks safe for walking and grocery stores with fresh fruits and vegetables.
- Our schools that educate children for jobs of the 21st century and that feed them healthy foods.
- Jobs that allow us to have time and financial resources to play at the end of a day's hard work to relieve chronic stress that takes a toll on our hearts and immune systems.
- Workplaces free of unnecessary hazards and that we can get to without long commutes in cars or buses.

All of us should have the opportunity to make choices that allow us to live long healthy lives, regardless of our income, education, ethnic background or zip code. This study confirmed that life expectancy is negatively impacted by social conditions, including where you live, your income and if you experience the chronic stress of racism, and on your ability to live a long and healthy life.

It is not sufficient to simply confirm the impact of the “unnatural causes” locally on St. Louis County residents. It is incumbent upon Public Health and Human Services to respond to this data by developing policies and practices that will improve the opportunities of all residents to make choices that increase life expectancy.

Creating a Local and Regional Response

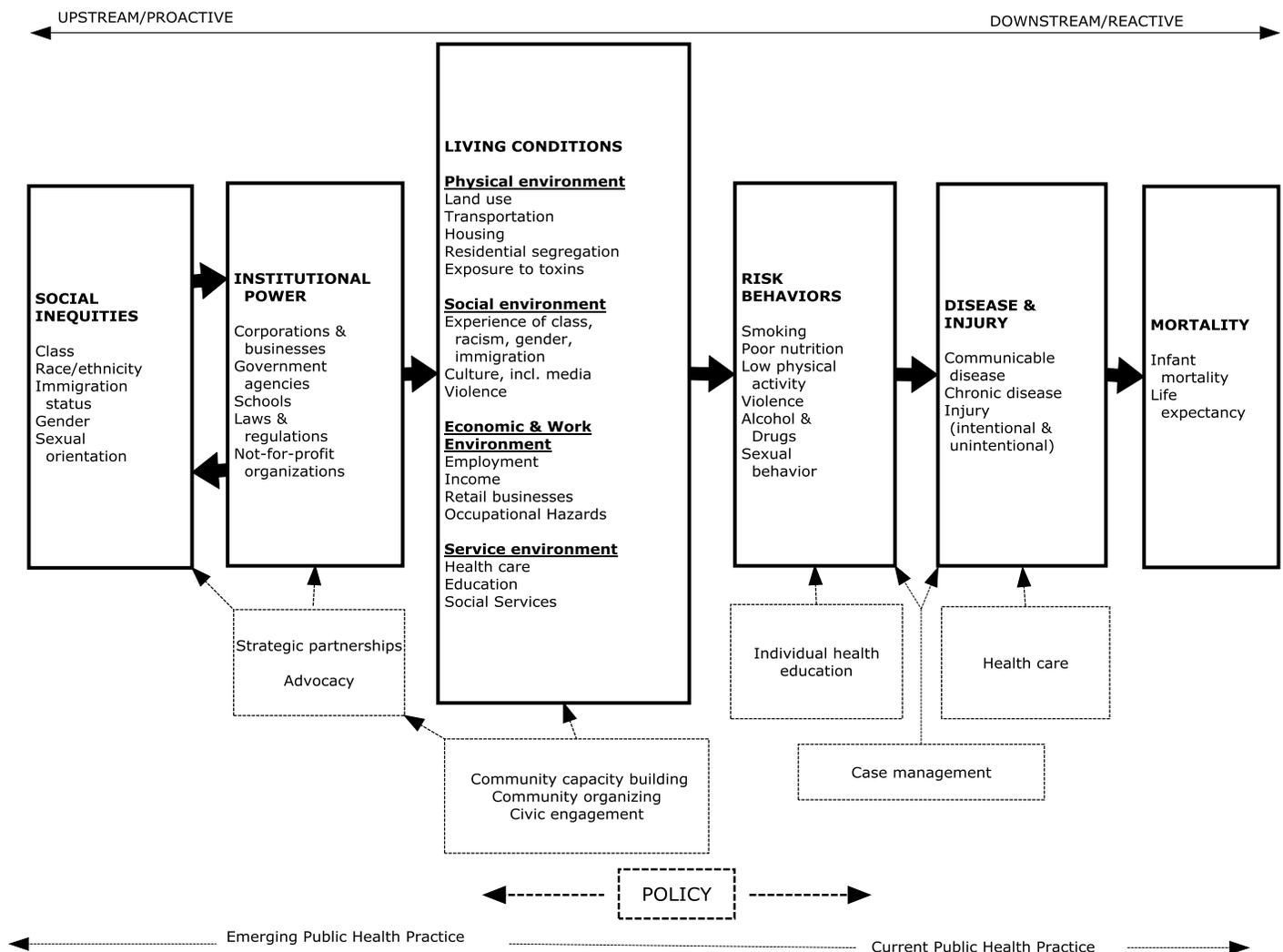


It is critical to fashion a local response to the data presented in this report. The next step will require Public Health and Human Services to work differently if it is to be successful in achieving our ambitious goals. Public Health is in a transition from working mostly independently to frequently working with other organizations in a coordinated fashion to create opportunities for improving health. In the future, one should see many organizations working together to make our communities healthier places to live and work. All people should have the opportunity to make the choices that allow them to live long healthy lives, regardless of their income, education, ethnic background or zip code.

This journey for St. Louis County has been led and nudged by many factors. When our Nation's third 10 year blueprint for health, Healthy People 2000, established a second goal calling for the elimination of health disparities, it was a clear signal that we could and should no longer be complacent about people who do not have the same opportunities to make healthy choices. National, State and local public health agencies are adjusting their focus to developing more effective policies and practices to improve health by creating opportunities and eliminating barriers so that people are able to make better choices.

The primary catalyst for this St. Louis County health status report was Blue Cross Blue Shield Foundation sending all public health agencies in Minnesota a DVD of the Public Broadcasting Service documentary, Unnatural

A PUBLIC HEALTH FRAMEWORK FOR REDUCING HEALTH INEQUITIES (Bay Area Regional Health Inequities Initiative & California Department of Public Health)





Causes: Is inequality making us sick? That documentary and its accompanying robust website stimulated much thought and action within PHHS and in Duluth. It led directly to the decision to educate Public Health staff and to begin mapping health outcomes in St. Louis County.

Alameda County, CA created a diagram “A Public Health Framework for Reducing Health Disparities” (See page 24) that can help us more clearly understand all of the factors that interact to influence one’s health, as well as broad areas for creating opportunities. None of us consciously set out to keep some people poor and less healthy. But over the course of centuries, our institutions, both public and private, have made decisions that influence people’s health. How we make decisions as communities and nations has enormous power over people’s lives and ultimately their health and longevity. Communities hold the key that can unlock healthier lives and create a healthier society.

The results in “Health is Much More Than Health Care: St. Louis County Health Status Report” are not too different from similar efforts in Louisville, Kentucky and Alameda County, California as featured in **Unnatural Causes: Is inequality making us sick?**. Closer to home, Blue Cross Blue Shield and the Wilder Foundation recently produced the mapping of health outcomes in the Twin Cities Metro Area.

What drives us, and we hope moves our readers, is that the data in this report is local. We can no longer dismiss the data, because it is ours. As a community, we should try to fully understand what we now see. Our collective response to the data is what matters. We need to absorb the reality of the data and then take collective action. We need to enter into discussion with current partners. We need to reach out to new partners who have traditionally not been involved. For the best of outcomes, there needs to be a comprehensive process that encourages full participation to enrich both the community discussion and our response.

Research has been conducted within the last decade that identifies goals, characteristics and internal factors that have led to successful local responses around the Nation. Federal, State and local funders, both public and private, are stepping up efforts to boost activity and success.

Partnership Goals

- There are no barriers to accessing health care
- Communications are culturally friendly and appropriate
- Culturally competent and openly caring staff are present
- A supportive community exists
- There is adequate infrastructure to support the effort
- Safe neighborhoods and communities exist
- The physical environment is healthy
- Staff and the community have high health literacy levels
- Effective staff communication skills are present
- Work places and the community provide social support

These goals, or other locally developed similar goals, will make certain the entire effort is pointed in the same direction. They allow individuals and organizations to work more independently, knowing they are on the same path as others in the County or region. They provide direction for organizational assessment to take place. Partner organizations can ask themselves, “Are our organization’s goals aligning with the stated goals to eliminate health disparities in our community, County or region?”

Collaborations can succeed where less comprehensive efforts have failed. The key is to mobilize many people and organizations with a common purpose in mind. Successful collaborations have common characteristics.



Characteristics of Successful Partnerships

- Strong partnerships are present and nurtured
- Efforts target more than one population group
- The community is widely engaged and actively involved
- Needs assessments are conducted to determine priorities and direction
- Programming is developed locally to meet prioritized needs
- Cultural competency is a high priority and a strong focus

With strong locally-developed goals and strong collaboration, community efforts can still lead to a failed outcome. Collaborations that embody several internal factors are more likely to be successful.

Internal Factors Needed for Success

- Strong leadership
- There is one lead sponsor organization
- There is strong medical/health care provider involvement
- There are broad indigent care finance systems in place
- One-to-one outreach is present
- There are multiple strategies in operation to produce cultural competency

How does St. Louis County proceed?

Fortunately, other cities and counties have developed strategies that have become models for others to follow. As St. Louis County makes decisions about how to create opportunities to improve the health of all people in order to eliminate health inequalities within its borders, all models can provide food for thought, as we become the local model that best fits our County and our situation.

MODELS FOR CREATING A LOCAL & REGIONAL RESPONSE: – Public Health Agency Collaborations

Establishing a Center for Health Equity and Social Justice in a Local Health Department; Louisville, Kentucky – Under the leadership of Dr. Adewale Troutman, the Metro Louisville Health Department assessed health status of city council districts. That mobilized the community to create The Center for Health Equity, a unit within its Public Health agency. This building and its partners serve Metro Louisville and provide a tangible focus on health equity. When fully operational, it will combine community-based research, education, advocacy, services, staff training, and communication strategies toward the elimination of health inequality within a social justice perspective. The Center for Health Equity is primarily a service organization. As such, it will focus on rights, equity, social determinants, and justice as foundations for health. This is changing the current paradigm of health in Metro Louisville.

Tackling the Root Causes of Health Disparities Through Community Capacity Building; Alameda County, California – Dr. Anthony Iton, former Public Health Director for Alameda County, led an assessment of the health status of Alameda County. It is the largest city is Oakland. The assessment of Alameda County led directly to the creation of the Bay Area Regional Health Inequities Initiative, or BARHII. Much of what happens to residents of one area can be determined outside of that area. The desire to know the health status of all Bay Area residents and to understand how decisions made in one locality may affect other localities, was the impetus to the formation of BARHII.

“From Neurons to King County Neighborhoods: Partnering to Promote Policies Bases on the Science of Early Childhood Development” Seattle-King County, Washington – Public Health-Seattle & King County (PHSKC) focused on social and economic environmental factors affecting the family and the individual.



Through early childhood partnerships, a common knowledge base, a local policy agenda, community organizing, and monitoring of the policy environment, PHSKC worked with partners to change the environmental factors that shaped children. County Administrator Dow Constantine led the development of a five year strategic plan that created within County government both strategies and accountability measures that each department will implement to help create equity and social justice. The appropriate departments work with community partners to achieve policy and environmental change on needed community projects.

MODELS FOR CREATING A LOCAL & REGIONAL RESPONSE:– Healthcare Organizations

Community Health Centers – These are health care centers where people in affected neighborhoods can receive health care where they live. Its other focus is to influence the social determinants of health in a positive manner, so that the entire neighborhood or community can collectively better their lives and their health. It is a very tangible way for health care institutions to expand their influence in neighborhoods that need them.

RECOMMENDATIONS TO CREATE A LOCAL & REGIONAL RESPONSE

Creating opportunities to reach the goal of Healthy People 2020 to eliminate health disparities will require the persistent effort of many people and organizations before significant progress will be seen. It will require a strong collaboration of partners who are committed to changing both policy and practice within and across diverse systems to improve the health of all people.

The Public Health and Human Services Department recommends these steps in St. Louis County:

1. Develop and implement a multi-year strategic plan for St. Louis County Government that would set measurable objectives to improve health as a function of each County Department.
2. Form a Steering Committee to create new directions and opportunities to improve the health of all people in St. Louis County.
3. Public Health and Human Services will develop the Steering Committee and provide leadership in accomplishing the identified Steering Committee tasks.
4. Task the Steering Committee to:
 - Develop a comprehensive plan to improve health and eliminate health disparities, using a collaborative approach with participants from across the County and from a diverse range of organizations.
 - Engage a broader and more diverse range of partners to inform and explore opportunities to improve health within St. Louis County and across County borders in North-eastern Minnesota.
 - Begin a search for funding to create and implement a County-wide and a region-wide comprehensive plan for creating opportunities to improve the health of all residents and eliminate health disparities.
 - Replicate this study by 2015, including the resolution of this study's identified limitations.



RESOURCES TO CREATE A LOCAL & REGIONAL RESPONSE:

National Association of City and County Health Officials or NACCHO has a Health Equity and Social Justice program for local public health agencies. St. Louis County PHHS is a member through our Community Health Board. <http://www.naccho.org/topics/justice>

Unnatural Causes: Is inequality making us sick? is a California Newsreel produced PBS documentary. The DVD and its comprehensive associated materials are available at: <http://www.unnaturalcauses.org>

Prevention Institute is dedicated 1) to achieve health and safety for all, 2) to improve community environments equitably, and 3) to serve as a focal point for primary prevention practice <http://preventioninstitute.org>

Robert Wood Johnson Foundation is committed to working to improve health and health care for all Americans <http://www.rwjf.org/vulnerablepopulations/>

Minnesota Department of Health's Office of Minority and Multicultural Health and the Eliminating Health Disparities Initiative Grant Program. Addressing health disparities has become a prime focus of many department grant programs. <http://www.health.state.mn.us/ommh/index.html>

Tackling Health Inequities Through Public Health Practice: A Handbook for Action is available from the National Association of City and County Health Officials (NACCHO); Copyright 2007 <http://www.naccho.org/topics/justice>

The unequal distribution of health in the Twin Cities is a report commissioned by the Blue Cross and Blue Shield of Minnesota Foundation that was published in October 2010. It examines the extent to which social and economic factors impact health in the Twin Cities 7-county region. The study finds that income, race, education, and place all matter when it comes to health in the Twin Cities. <http://www.wilder.org/download.0.html?report=2337>

Institute for Alternative Futures (IAF) leads in the discovery and creation of preferred futures. People in organizations, communities, and governments benefit from our drive to constantly think beyond the edge. We develop and teach our methods and processes. We plant the seeds for endeavors which will be sustained beyond our lifetimes. IAF has a database of 176 activities, projects, programs, and interventions by 52 community health centers, and still is expanding its database. http://www.altfutures.org/health_disparities

Appendix I: Zip Codes & Zones



Zone N (Includes Cook)	Pop.
55703	794
55723	2523
55725	98
55732	1461
55740	0
55771	1835
55782	422
55790	1866
Total	8999
Zone W	Pop.
55710	1497
55713	914
55719	5903
Total	8314
Zone E	Pop.
55602	247
55705	3421
55706	2055
55708	885
55750	2149
Total	8757
Zone G	Pop.
55734	6598
55741	3112
55763	590
Total	10300

Zone C	Pop.
55738	618
55751	1730
55758	236
55768	2826
55773	0
55799	0
Total	5410
Zone D (Within Duluth)	Pop.
55806	9515
55802	2493
Total	12008
Zone H (Hibbing Area)	Pop.
55746	18088
55781	373
Total	18461
Zone S (Floodwood Area)	Pop.
55702	354
55711	515
55717	335
55724	866
55736	1487
55765	759
55755	0
55779	3489
55766	0
Total	7805

Single Zip Over 5,000	Pop.
55731 (Ely Area)	6260
55792 (Virginia Area)	10980
Duluth Area Totals	
55803	16395
55804	14301
55805	11155
55807	10371
55808	5828
55810*	8786
55811*	24942
55812	10177

Deleted Zips	Pop.
56649	10774
56669	315
55796	149
55616	6747
55720	15827
55798	776
Total	34588

* Note: Zip codes 55810 and 55811 have very small zip codes that have a “zero” population embedded within their boundaries. Zip code 55701 is within 55810 and 55791 is within 55811. These two zip codes (55810 and 55811) were presented as “single” zip codes to reduce the number of zip code zones and make the maps easier to read and understand.

The total St. Louis County Population in the Zip Codes and Zones which was used to calculate percentages of St. Louis County in Tables 4 and 5 was **199,249**. This is somewhat less than the 2000 Census total of 200,528 for St. Louis county, as the Zip Codes do not follow county boundaries.



Appendix 2-A: Educational Confidence Levels

Percent of Population With High School Diploma	Life Expectancy	Lower Level	Upper Level
40.1-45%	78.26	77.35	79.17
45.1-50%	78.13	77.42	78.83
50.1-55%	76.82	76.46	77.18
55.1-60%	78.27	77.84	78.7
60.1-65%	78.67	78.17	79.18
65.1-70%			
70.1-75%	80.73	79.97	81.48
75.1-80%	84.65	83.12	86.17

Appendix 2-B: Median Household Income Confidence Levels

Median Household Income	Life Expectancy	Lower Limit	Upper Limit
<\$25,000	74.47	73.77	75.17
\$25,000-\$29,000			
\$30,000-\$34,999	77.41	76.88	77.93
\$35,000-\$39,999	78.27	77.89	78.66
\$40,000-\$44,999	78.23	77.67	78.79
\$45,000-\$49,999	78.99	78.57	79.42
>\$50,000	81.43	80.62	82.23

Appendix 2-C Race Confidence Levels

Race	SLC	Lower Level	Upper Level	Duluth	Lower Level	Upper Level
Everyone	78.16	77.95	78.36	76.89	76.57	77.21
Whites	78.3	78.09	78.51	77.17	76.85	77.5
Of Color	75.99	74.6	77.39	72.85	71.15	74.55



1. Addressing Health Inequalities-The Role of Local Health Departments in Minnesota, MDH, Center for Health Statistics and Office of Performance Improvement, February, 2012
2. Vulnerable Populations Portfolio: A New Way to Talk About the Social Determinants of Health; Copyright 2010 Robert Wood Johnson Foundation
3. Source: University of Wisconsin Population Health Institute Schematic on Health Determinants
4. Unnatural Causes: Is inequality making us sick? Produced by California Newsreel with Vital Pictures, Inc. and Presented by the National Minority Consortia. Public Engagement Campaign in association with the Joint Center Health for Political and Economic Studies Health Policy Institute. "What is Health Equity?"
5. Vulnerable Populations Portfolio: A New Way to Talk About the Social Determinants of Health; Copyright 2010 Robert Wood Johnson Foundation
6. Unnatural Causes: Is inequality making us sick? Produced by California Newsreel with Vital Pictures, Inc. and Presented by the National Minority Consortia. Public Engagement Campaign in association with the Joint Center Health for Political and Economic Studies Health Policy Institute. "Ten Things to Know About Health" Copyright 2008
7. Drew Digby, DEED Regional Analyst, in an e-mail to Jane Gilley on 4/2/2012
8. Colleen M. Renier, Biostatistician, Essentia Health, Essentia Institute of Rural Health, in an e-mail to Jane Gilley on 6/15/2012.