

Healthy Communities Count!



Indicators of Community Health along the
Central Corridor Light Rail Transit (LRT) Route

Minnesota Department of Health
September 28, 2010



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September 2010

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ABOUT THIS REPORT

The Minnesota Department of Health (MDH) is the state's primary public health agency, charged with "protecting, maintaining, and improving the health of all Minnesotans." MDH, through the Site Assessment and Consultation (SAC) Unit in the Environmental Health Division, works with local, state, and federal agencies, tribal governments, and with communities to help prevent or reduce exposures to hazardous substances and to educate the public regarding possible health concerns associated with contaminated sites, including "brownfield" sites. The U.S. Environmental Protection Agency (EPA) website defines a brownfield as "...real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."

MDH typically conducts this work through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) in Atlanta, Georgia. ATSDR is the principal federal public health agency charged with evaluating the human health effects of exposure to hazardous substances in the environment. In 2008, ATSDR issued a separate grant opportunity entitled "Community Health Project Related to Brownfield/Land Reuse" to better address public health issues in communities with brownfield sites. MDH applied for and was awarded a grant to conduct a baseline assessment of community health-related indicators for the planned Central Corridor Light Rail Transit (CCLRT) route, an 11-mile transit corridor along University and Washington Avenues between the downtowns of St. Paul and Minneapolis, Minnesota.

Light rail transit, including the CCLRT, has been on the drawing boards in the Twin Cities area for decades, seemingly since the dismantling of the once-thriving streetcar system in the early 1950s. However, it was only realized with the 2004 completion of the Hiawatha Line, connecting downtown Minneapolis with the Twin Cities International Airport and the Mall of America. After years of debate, the regional planning authority that operates the public transit system in the Twin Cities, the Metropolitan Council, recently completed planning, obtained initial funding, and began preliminary construction of the CCLRT, which is scheduled to begin passenger service in 2014. The CCLRT will consist of 18 new transit stations, and connect to (and share 5 stations with) the Hiawatha Line in downtown Minneapolis.

This report focuses on MDH's involvement with community organizations, local and regional planners, and state and local environmental agencies working on the CCLRT in Minneapolis and St. Paul, Minnesota. This area is surrounded by neighborhoods and was once home to a number of vibrant commercial and industrial operations such as car dealerships, warehouses, and manufacturing facilities but now contains a disproportionate number of brownfield sites.

MDH has and will work with residents, community groups, developers, and other parties to ensure that public health issues are considered as construction of the CCLRT line and subsequent redevelopment proceeds, especially around brownfield sites. MDH followed a process established by ATSDR (known as the "Action Model") to characterize the baseline community health status of the Central Corridor. The information in this report should assist the Central Corridor communities to make sound redevelopment decisions that benefit health and may be revisited in future years to quantify the different ways that redevelopment activities might have contributed to changes in the health and quality of life among Central Corridor residents. The information can also be useful in preparing other studies such as Health Impact Assessments (HIA), one of which is being conducted on the City of St. Paul's Central Corridor planning strategy by a partnership that includes ISALAH, a faith-based organization, TakeAction Minnesota's Hmong Organizing Program, and PolicyLink, a national research and policy institute.

INTRODUCTION: Welcome to the Central Corridor!



The Central Corridor Light-Rail Transit (CCLRT) line will serve as a vital artery between the downtowns of Minneapolis and St. Paul, Minnesota, through the historic heart of the Twin Cities. Most people think of it as a way to improve transit... but, it is possible that the CCLRT and related changes along University Avenue could also impact the health of people who live and work there. Information that can impact community health and quality of life will be useful in tracking the impact of changes that result from the construction of the CCLRT and related changes on people's health. It will also be helpful for communities, local planning agencies, businesses, and other interested parties to guide redevelopment, share resources to address specific issues, improve people's health or build capacity for future work.

Much of the data presented in this report already existed and were collected independently by a number of federal, state, and local agencies. This report represents an effort by MDH to compile this information in one place to document the "pre-construction" community health status of the Central Corridor. The information is presented in a series of 18 "counts" along with supporting references.

The Central Corridor is home to numerous community, ethnic, religious, and social organizations. In preparing this report, MDH contacted a number of these organizations to solicit their input and held a community workshop.

other areas. For many of the counts, the smallest geographic area with sufficient population was selected for data analysis (see Figure 3: Geographic Boundaries Hierarchy).

Figure 2: Project Area Zip Codes and Census Tracts

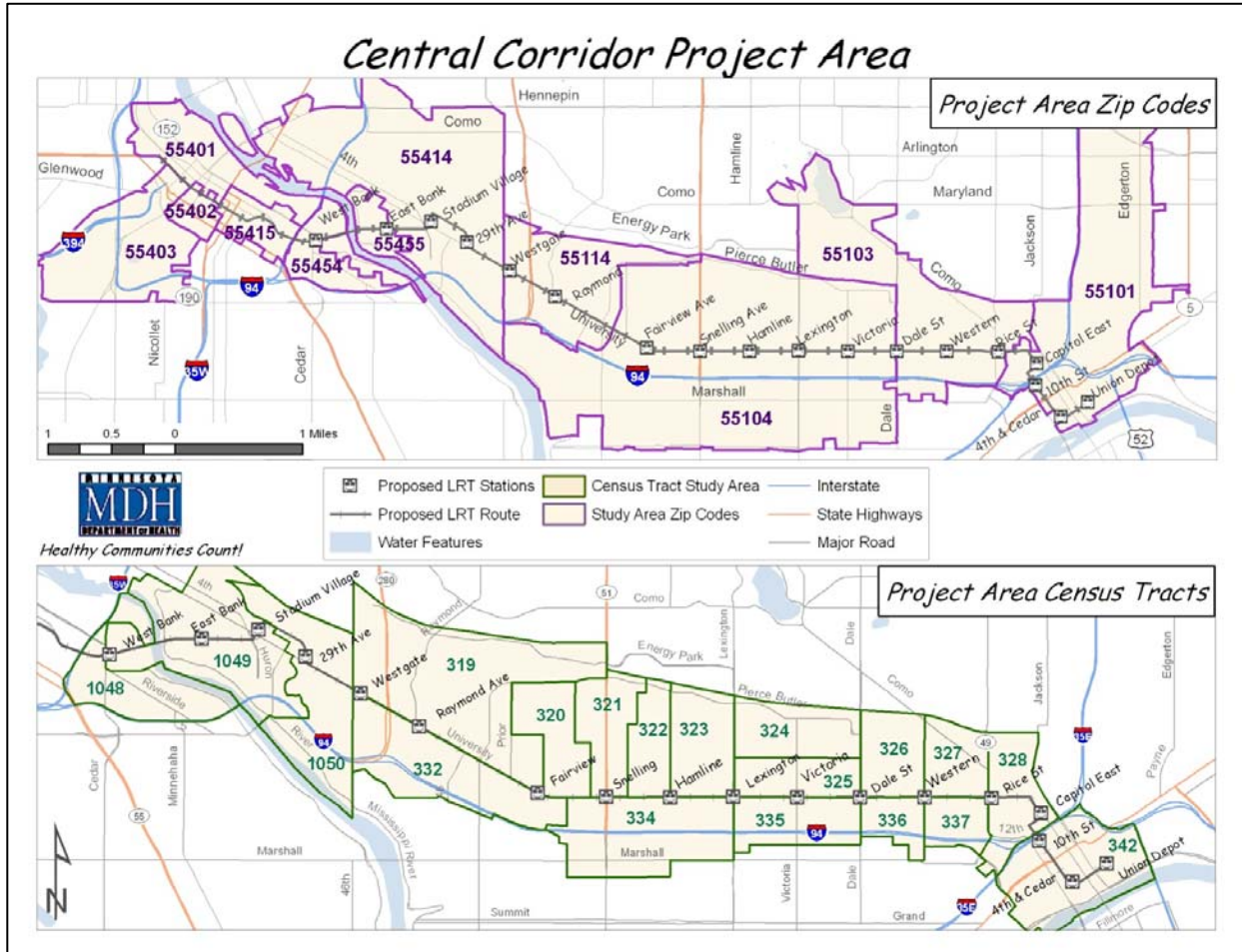
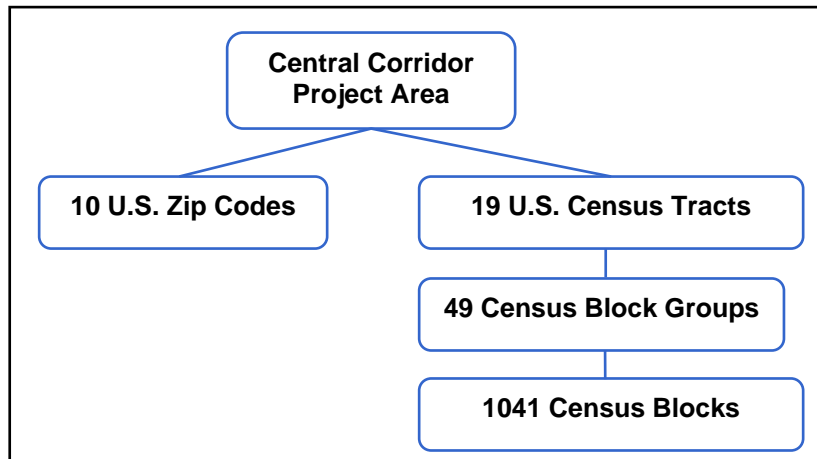


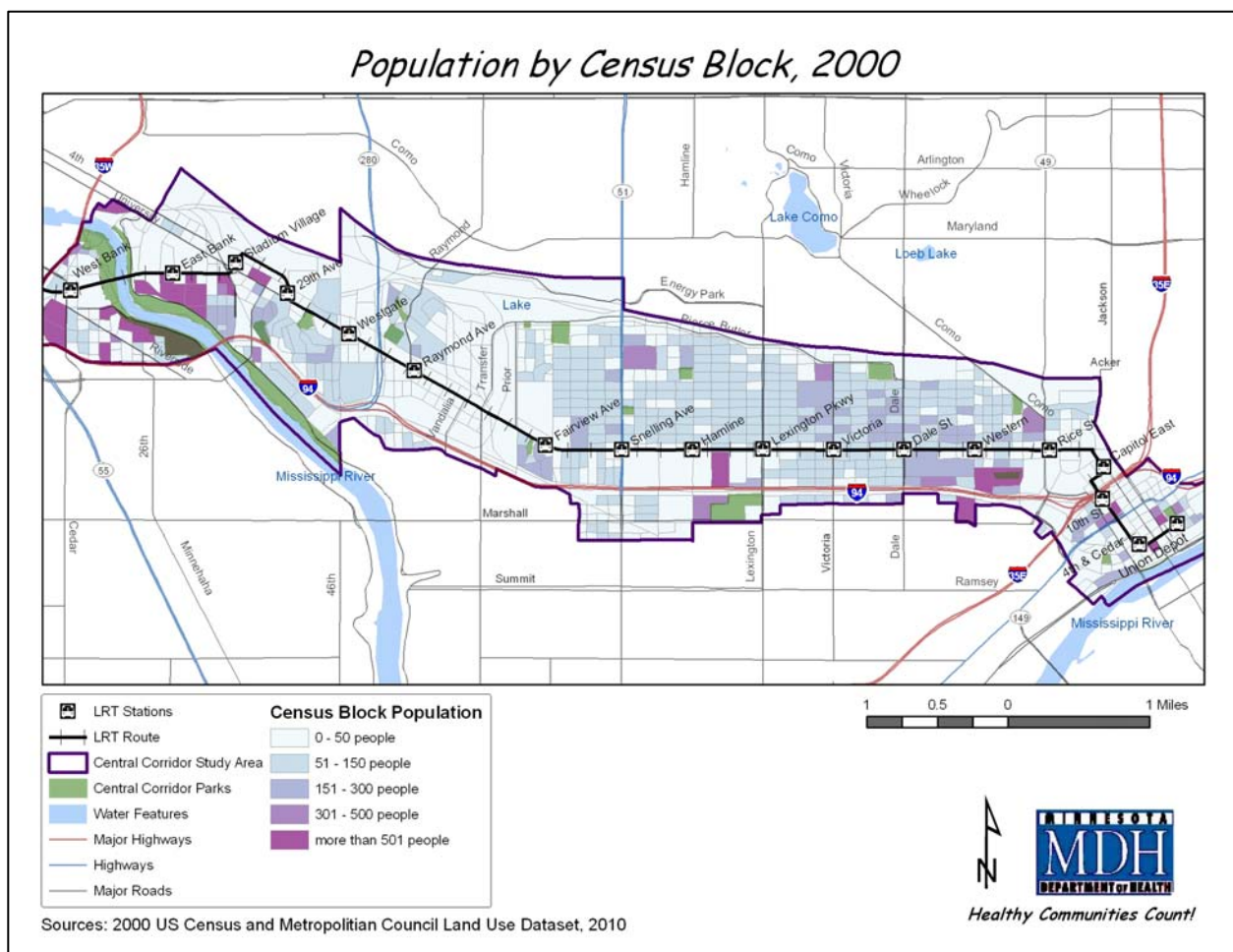
Figure 3: Geographic Boundaries Hierarchy



Population:

Based on data from the 2000 U.S. Census, 63,889 people lived within the Central Corridor study area, an average of 61 people per block (Bureau, 2000). Figure 4 shows the number of people per block in the Central Corridor based on the 2000 Census. Although most of the project area lies within Ramsey County, the Hennepin County portion has a higher population density at 81 people per block compared to Ramsey County's average of 19 people per block. The University of Minnesota's campus lies within this part of Hennepin County and contains many areas of high-density student housing. The racial make-up of the Central Corridor area is based on individuals who define themselves as belonging to only one race. According to the 2000 Census, 53% identified themselves as white, 21.8% as black, 16.2% as Asian, and 1% American Indian (Bureau, 2000). It has historically been an economically challenged area, with an average household income roughly \$20,000 below the Twin Cities average (Bureau, 2008).

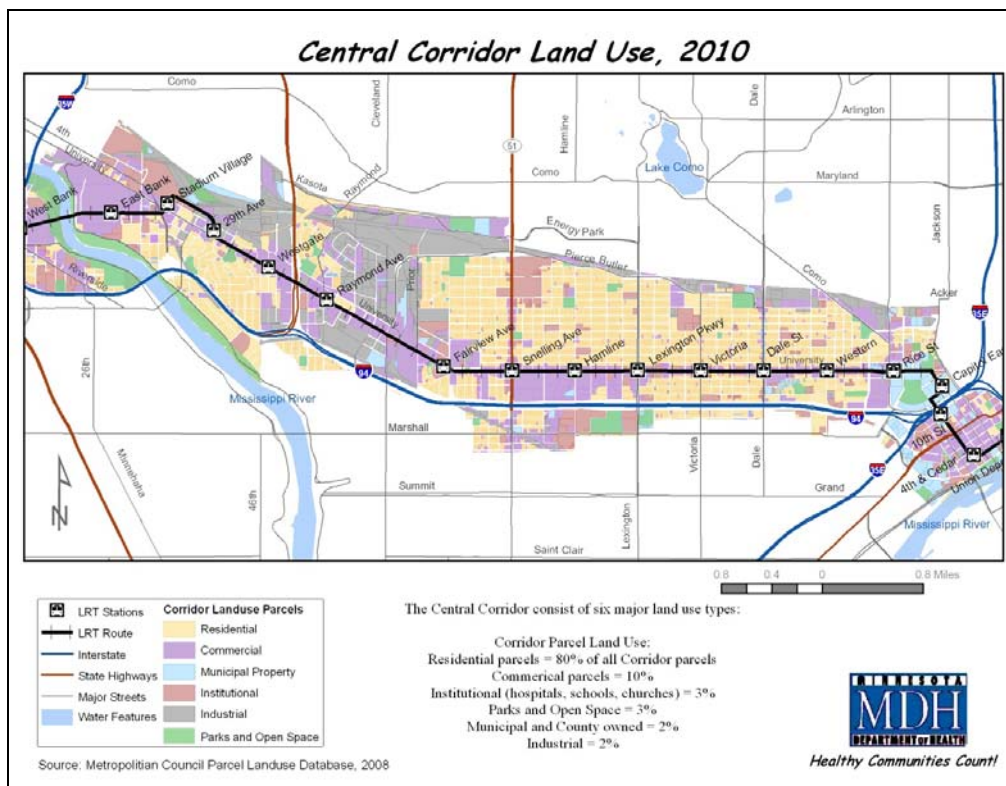
Figure 4: Central Corridor Census Block Population, 2000



Land Use:

The Central Corridor's land use is highly residential with a strong commercial/retail sector along University Avenue. Of the Central Corridor area's nearly 13,500 land parcels, approximately 80% are residential properties, 10% commercial buildings, 3% parks and open space, 2% industrial spaces, 2% are owned and operated by government entities, and 3% are institutions such as churches, schools, and medical centers (see Figure 5: Corridor Land Use).

Figure 5: Corridor Land Use



The Central Corridor has a diverse range of housing units, built during many different eras, with a wide range of home values. In total, 10,316 residential properties are located within the Central Corridor project area, and 56% of all Census blocks in the project area contain one or more housing units (Council, 2009). Of the Census blocks that contain housing, the average number of people living on each block is 107 (Bureau, 2000).

The commercial-business district is the defining characteristic of the Central Corridor project area. The character of the commercial district is rooted in ethnic and cultural history. The

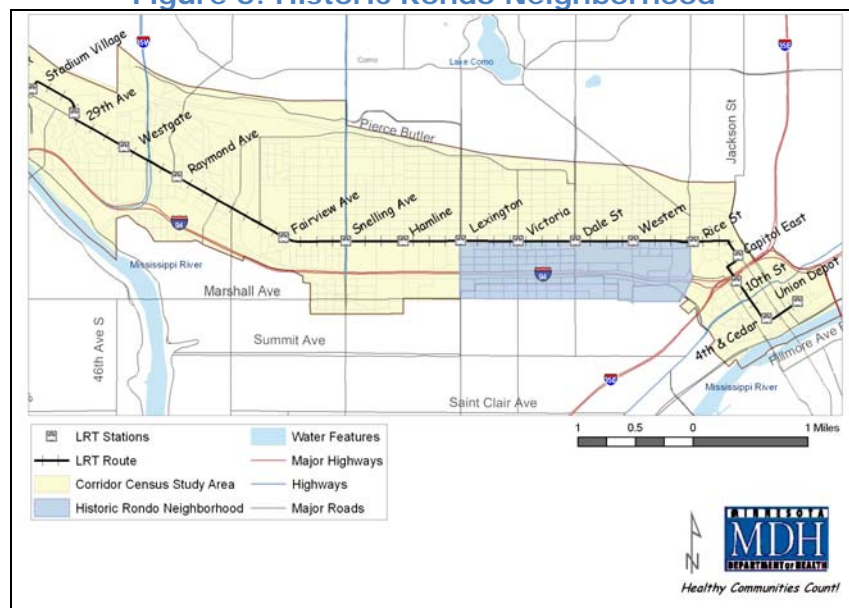
commercial businesses along University Avenue supply food, clothing, household items, and other necessities that are familiar and needed by the diverse population within the Central Corridor.

The Central Corridor project area has an industrial sector on the north-northwest corner. A rail system transports products through networks north of the study area, and the area is well served by major highways and streets. It is also home to a number of schools and other educational, social, and community institutions.

History:

Perhaps the most historic part of the Central Corridor project area is now roughly bordered by University Avenue, Rice Street, Marshall Street, and Lexington Avenue (see Figure 6).* This area, known as the historic “Rondo” district, was first settled in the 1800s. The area had been originally purchased by Joseph Rondeau, and the main commercial street – Rondo Avenue – was named after him. The neighborhood went through a number of demographic changes when various waves of immigrant populations settled there: Russians, Germans, Jews, Irish, and eventually African-Americans. By 1910, although less than half the total population of Rondo, the neighborhood contained two-thirds of the African-American population of St. Paul.

Figure 6: Historic Rondo Neighborhood



*For more information see “Western Park Neighborhood Assessment — Section 3.0 Neighborhood History,” <http://www.publicartstpaul.org/downloads/westernhistory-1.pdf> and the Minnesota Historical Society website, “Rondo Neighborhood and the Building of I-94,” http://www.mnhs.org/library/tips/history_topics/112rondo.html.

The Rondo of the 1920s, 30s, and 40s was a tightly-knit, fully integrated, and highly interactive neighborhood. People had access to jobs via the Rondo-Stryker Streetcar line and numerous bus routes. Churches were active parts of the community, and the African-American community formed many social clubs, which met in people's homes.

Gradually the neighborhood became more predominately African-American, and, due to a subsequent lack of investment, the housing stock, streets, and infrastructure started to decline. Many tenements and homes with tarpaper siding could be found there. The streetcar lines ceased operation, effectively restricting access to employment opportunities and limiting traffic for small businesses. The area was finally targeted for urban renewal and redevelopment with the 1952 "Western Redevelopment Project" that ultimately displaced 608 families, 35 percent of whom were African-American. In place of the homes that were lost, the city built a public school, a park, and designated 24 acres for commercial development, but only 11 acres for new residences.

On the heels of this redevelopment came the construction of Interstate 94 (I-94). The decision was made to locate the freeway essentially on top of Rondo Avenue. Area residents did not have a voice in this decision. Another 400 homes were lost, 300 occupied by African-Americans. The consequences of the construction of I-94 were even more far-reaching than previous urban renewal efforts. In addition to displacing people, this limited-access road split the community in two, cutting off connections to businesses, churches, and other centers of activity on either side of the freeway. The social, economic, and physical effects of that split are still felt today by many residents.

Four blocks to the north of I-94 is University Avenue, a bustling commercial street that is part of what was once the Rondo area. Currently, many small businesses operate on University Avenue, with a mix of businesses and residences located in the area between I-94 and University Avenue. While not replacing Rondo Avenue, this area has become a distinct community. The neighborhood continues to attract many of Minnesota's immigrants, more recently people from a number of different Asian, African, and Central American countries.

With the coming of the CCLRT, the community has expressed concern that past events not repeat themselves. Just as with the construction of a freeway, the effect of the LRT line will be

felt most strongly in the neighborhoods that it runs through. In response, the City of St. Paul has developed a strategy for how the CCLRT can contribute to growth and positive change along University Avenue over the next decade. A goal expressed by community groups is to make sure that the implementation of that vision (for example, rezoning the land along the Central Corridor) is racially, socially, and economically balanced to make sure that it does not benefit some groups to the detriment of others, particularly populations of color and those of limited means.

THE ATSDR BROWNFIELD/LAND REUSE ACTION MODEL

The ATSDR Brownfields/Land Reuse Action Model used by MDH for this project is a tool to assist the members of the “development community” – local officials, developers, community supporters, and residents, to find ways to ensure health is considered as part of the redevelopment process. Communities can use the Action Model to identify common goals and to incorporate these goals in strategic planning. The Action Model consists of four key questions to assist with planning:

Step 1: What are the issues in the community that may impact health?

Step 2: How can development address these issues?

Step 3: What are the corresponding community health benefits?

Step 4: What data are needed to measure change?

The action model encourages people to think about broad topics connected to community health:

Health – physical and mental health as measured through prevalence of disease or adverse health effects that may result (at least in part) from exposure to harmful substances in the environment

Community – education, economy, and food security factors that can affect public health and overall quality of life

Land and Environment – contaminated soil/water/air and public parks, which can contribute to exposure to contaminants and positively provide opportunities for health improvement

Buildings and Infrastructure – building types, housing quality, and access to transit which represent the condition of housing stock, mix of land use, community investment, and access to basic services through mass transit

ATSDR has applied the Action Model in a number of communities in the U.S. and partnered with state and local agencies to tailor it to specific projects centered around brownfield sites or

other change events. For more information on the ATSDR Action Model, please see <http://www.atsdr.cdc.gov/sites/brownfields/>.

CENTRAL CORRIDOR CORE COUNTS

To develop the list of “counts” for this project, MDH modified the Action Model approach used by ATSDR in other communities. MDH determined that a standard set of common “counts” of community health, many used successfully by ATSDR in other projects, would be researched and applied to the entire Central Corridor project area (called “Core Counts”). Other indicators of interest to specific communities in parts of the project area were also planned as “Community Counts” (see Central Corridor Community Counts section below). The list of Core Counts, which provide a “snapshot” in time of conditions in the Central Corridor, was broken down by the topic areas as follows:

Table 1: MDH Core Counts

<u>Health</u>	<u>Community</u>
<ul style="list-style-type: none"> ● Asthma Hospitalizations ● Infant Mortality Rate ● Babies Born with Low Birth Weight ● Lead and Copper in Tap Water ● Lead Poisoning in Children 	<ul style="list-style-type: none"> ● Easy Access to Healthy Foods ● Education ● Employment ● Average Household Income
<p style="text-align: center;"><u>Land and Environment</u></p> <ul style="list-style-type: none"> ● Acres of Parks ● Vacant Building and Lots ● Under-used or Polluted Land ● Air Pollution 	<p style="text-align: center;"><u>Buildings and Infrastructure</u></p> <ul style="list-style-type: none"> ● Residential and Non-residential Permits ● Cleaning Up Sources of Lead for Children ● Asbestos Abatements ● Housing Density ● Access to Transit

Each of these Core Counts provides information on an area of identified or potential health concern along the Central Corridor that may change as a result of redevelopment and community investment associated with the construction of the CCLRT line. With the information developed for these Core Counts, community members, planners, and developers can monitor the effects on community health over time. MDH hopes that the process and methods used to develop these Core Counts will be easily replicated by others in the future.

MDH accessed the most recent available data from federal, state, and local sources to generate the individual Core Counts. References and data sources for each Core Count can be found in Appendix 1. Temporal trends have not been considered, except where data from multiple years are included. For most Core Counts, comparative data from the Twin Cities, state of Minnesota, or other reference areas are provided for context. It is important to remember that these comparative data include the data from the Central Corridor – the two data sets are not mutually exclusive. Each Core Count presented in this report contains the following basic information:

- Introductory text: one or more paragraphs that explain the purpose and context of the Core Count, describe how it relates to individual and/or public health, and identify the data sources used.
- What the information/map shows: a presentation of the data in text, figures, or maps.
- Limitations: where applicable, MDH has noted the limitations of the data used, or the methods used to present the data. These limitations should be considered when reviewing, interpreting, or communicating the information.

In some cases, MDH developed additional maps that portray the Core Count information in slightly different ways or incorporate additional data that may be useful. These additional maps can be found in Appendix 2.

The approximately \$1 billion investment in the CCLRT line represents a unique opportunity to leverage public and private funds for improvements in the communities along the Corridor. Such investments and associated redevelopment can be used to clean up contaminated or abandoned properties, create new housing or improve existing housing, create new business and job opportunities, improve access to parks and transit, and improve the overall quality of life for residents and workers.

To address the land use, economic, and social development impacts that may result from the investment in the CCLRT line, the City of St. Paul has developed the Central Corridor Development Strategy (CCDS; www.stpaul.gov/index.aspx?NID=156). The CCDS will provide guidance over the next decade on a range of public and private development decisions. It was developed by several task forces organized by the City to be representative of communities along the planned LRT route. Its vision statement states “...the Corridor will invite residents, shoppers, employees and visitors to linger on safe, pedestrian-friendly, attractive, tree-lined boulevards; establish a home and sense of community in stable and diverse

neighborhoods; and work and invest in an area that provides a range of employment and economic opportunities”.

An example of a community-based group involved in planning the future of the Central Corridor is the District Councils Collaborative (DCC; www.districtcouncilscollaborative.org/). The DCC is comprised of St. Paul District Councils and Minneapolis Neighborhood Associations and was formed to facilitate neighborhood participation in shaping the direction of future CCLRT development. Their purpose can perhaps best be summarized in the following statement from a community summit held in March 2009: “To be successful, the light rail line must not only improve mobility, but must also serve as a catalyst to strengthen and enhance existing and future neighborhoods, workforces and businesses along the line.” One example of the DCC’s efforts is the creation of a comprehensive Community Statement that could become the basis for a written agreement(s) among governmental entities, community members, businesses, and organizations to coordinate efforts and hold parties accountable as CCLRT work and associated development takes place.

MDH recognizes that investments in the physical environment or redevelopment activities are not the only means of improving the environmental, economic, and social conditions of a community. As a result, the relationship between these activities and any changes observed in the Core Counts or other indicators of community health over the coming years is likely to be complex and difficult to interpret. As an example, a reduction in the prevalence of elevated blood levels in children could be related to improvements made to housing stock or the cleanup of lead contaminated brownfield sites, but could also result from increased education of residents in preventing lead poisoning at home or removing sources of lead. MDH therefore urges readers to keep this in mind when reviewing the Core Counts, especially for predicting future trends. See page 22 for individual Core Counts.

CENTRAL CORRIDOR COMMUNITY COUNTS

On August 17, 2009 MDH held a “*Healthy Communities Count!*” workshop for community members and local officials at the Amherst H. Wilder Center located near the intersection of University Avenue and Lexington Parkway in St. Paul. The purpose of the workshop was to describe the overall *Healthy Communities Count!* project, the Core Counts selected by MDH, and solicit feedback for potential “Community Counts” in specific areas of the Central Corridor. Attending the workshop were representatives of the following organizations:

Table 2: Workshop Participants

Active Living! Ramsey County	Agency for Toxic Substances & Disease Registry (ATSDR)	Blue Cross-Blue Shield Foundation
Central Corridor LRT Project Office (Metropolitan Council)	City of Saint Paul	District 7 Planning Council
District Councils Collaborative	Health Advocates	HealthPartners
Mentoring Young Adults (MYA)	Ramsey County Commissioner's Office	Saint Paul - Ramsey County Department of Public Health
Sharon Seventh Day Adventist Church	Twin Cities LISC	United Hospital
University United	Vietnamese Social Services of Minnesota	

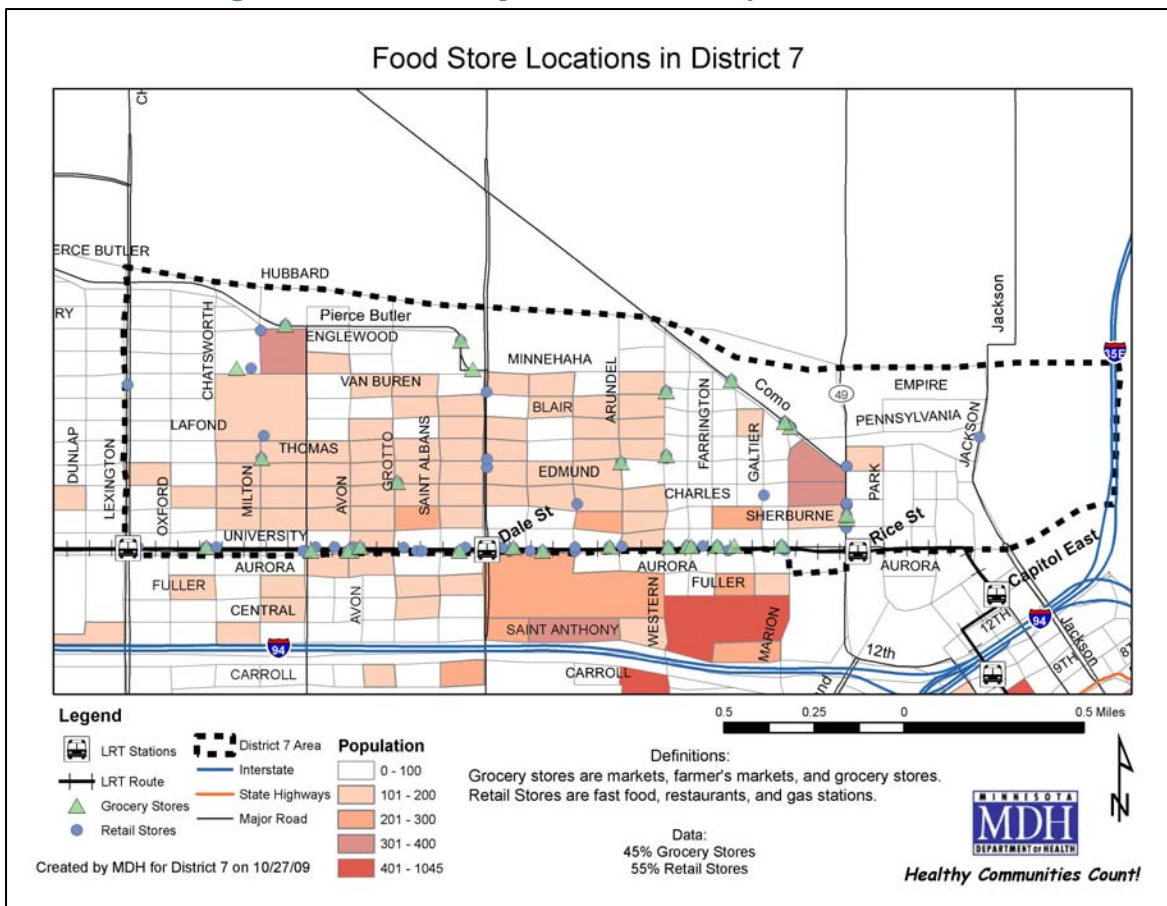
The concept of external factors and their potential for positive and negative impact on personal and community health was introduced through the use of an interactive game, “The Last Straw.” The game, developed in 2004 by public health graduate students at the University of Toronto, is a useful and fun approach to introducing these concepts, sometimes referred to as “social determinants of health.” Following the game, community concerns that could become Community Counts were identified through table and group discussion. The list of community concerns and Community Counts identified at the workshop can be found in Appendix 3.

Because of limited staff resources and the intense effort needed to research, develop, and document the Core Counts, MDH had difficulty moving forward with the proposed Community Counts. MDH did meet several times with representatives from the District 7 Planning Council

(a neighborhood in St. Paul) regarding potential Community Counts including: location and occurrence of illegal dumping of solid wastes, access to healthy food and availability of community garden space, and the rate of pest (rat) control calls received by the City of St. Paul for District 7. The concern associated with pest control calls was the potential for an increase in rats moving into homes as a result of vibrations from CCLRT and associated construction work along University Avenue. MDH identified contacts and established a procedure for documenting pest control calls in District 7 and passed that information along to District 7 staff for follow-up.

In addition, MDH prepared a map showing access to healthy food for Districts 7 and 8, and based on its success repeated the effort for another District Council outside the Central Corridor project area. Figure 7 shows the food access map made for District 7. Because there seemed to be widespread appeal for this information and the data were readily available, it became a Core Count for the entire Central Corridor under the “buildings/infrastructure” category.

Figure 7: Community Count Food Map for District 7



Data Source: Minnesota Department of Health, Environmental Health Business and Finance Operations Unit

CONCLUSIONS

This report is a summary of MDH's effort to characterize selected aspects of the health status of the communities in the Central Corridor prior to the start of major construction on the CCLRT line and associated redevelopment. Collectively, the 18 Core Counts provide valuable information and data for an area of the Twin Cities that has faced many challenges in its history. MDH has also provided a framework for repeating part or all of this work in the future to determine if there have been changes, either positive or negative, in the health status of the communities. MDH hopes that the information in this report will assist people living and working in the Central Corridor in realizing their goals for the future of their community. The HIA being led by ISAIAH is one example of an effort that can benefit from the information in this report.

RECOMMENDATIONS

- 1) The information in this report should be considered by state, city, and local authorities or community organizations in planning for future investments in the Central Corridor with the goal of using the information to improve public health.
- 2) The Core Counts should be reevaluated or reexamined in the future to determine if changes in the health status of the communities along the CCLRT have occurred. To the extent possible, such work should consider other factors beyond the CCLRT line and associated redevelopment that could influence health outcomes.



Healthy Communities Count!

Asthma Hospitalizations

April 2010

Asthma

Asthma is now the most common long-lasting childhood disease. A person with asthma may have wheezing, shortness of breath, or coughing episodes. Asthma symptoms or “asthma attacks” may lead to hospitalization and, if untreated, in rare cases, death. Although the causes of asthma are not completely known, we do know that children who live in cities are more likely to be hospitalized for asthma. We also know that “triggers” (such as mold, allergens, tobacco smoke, or air pollution) can cause asthma attacks. There is not a cure for asthma, but medication can help control symptoms. Reducing triggers in the child’s environment is very important to reduce the frequency and severity of asthma attacks.

Asthma and Health

Health studies show a clear link between traffic, air pollution, and asthma in children. Children who live in homes close to heavy traffic for long periods of time are more likely to develop asthma. They breathe in traffic-related pollutants, which can be a trigger for an asthma attack. Exhaust from traffic can be a trigger if children live or go to school within 500 feet of a busy road.

Other environmental factors related to asthma include: indoor air quality, tobacco smoke, mold/allergens, age of housing, density of housing, living in rental housing, and pests like cockroaches, dust mites and rodents. Children who had a low birth weight or are currently obese are more likely to have asthma.

Asthma affects many parts of a child’s life. Children with asthma may be absent from school more often or have difficulty with exercise and sports; they also may be hospitalized more often than other children. However, with proper care, people with asthma should be able to live healthy, active lives.

Counting Asthma Hospitalizations

In Minnesota, we can count the number of hospitalizations for asthma by the zip code where the patient lives. The information includes all asthma hospitalizations for people of all ages.

What the Information Shows

When we count hospitalizations for asthma by zip codes along the Central Corridor, there are about 17 hospitalizations for every 10,000 people. If we do the same kind of count for the Twin Cities, there are about 11 for every 10,000 people. For the state of Minnesota, there are about 9 hospitalizations for every 10,000 people. Counting hospitalizations does not tell us how many people have asthma because one person might be hospitalized more than once. Also, some people with asthma may avoid hospitals because they do not have health insurance.

For other “counts” check out our website @ www.health.state.mn.us/cc/rtr

To request this document in another format, call (651) 201-5000 or TDD (651) 201-5797.

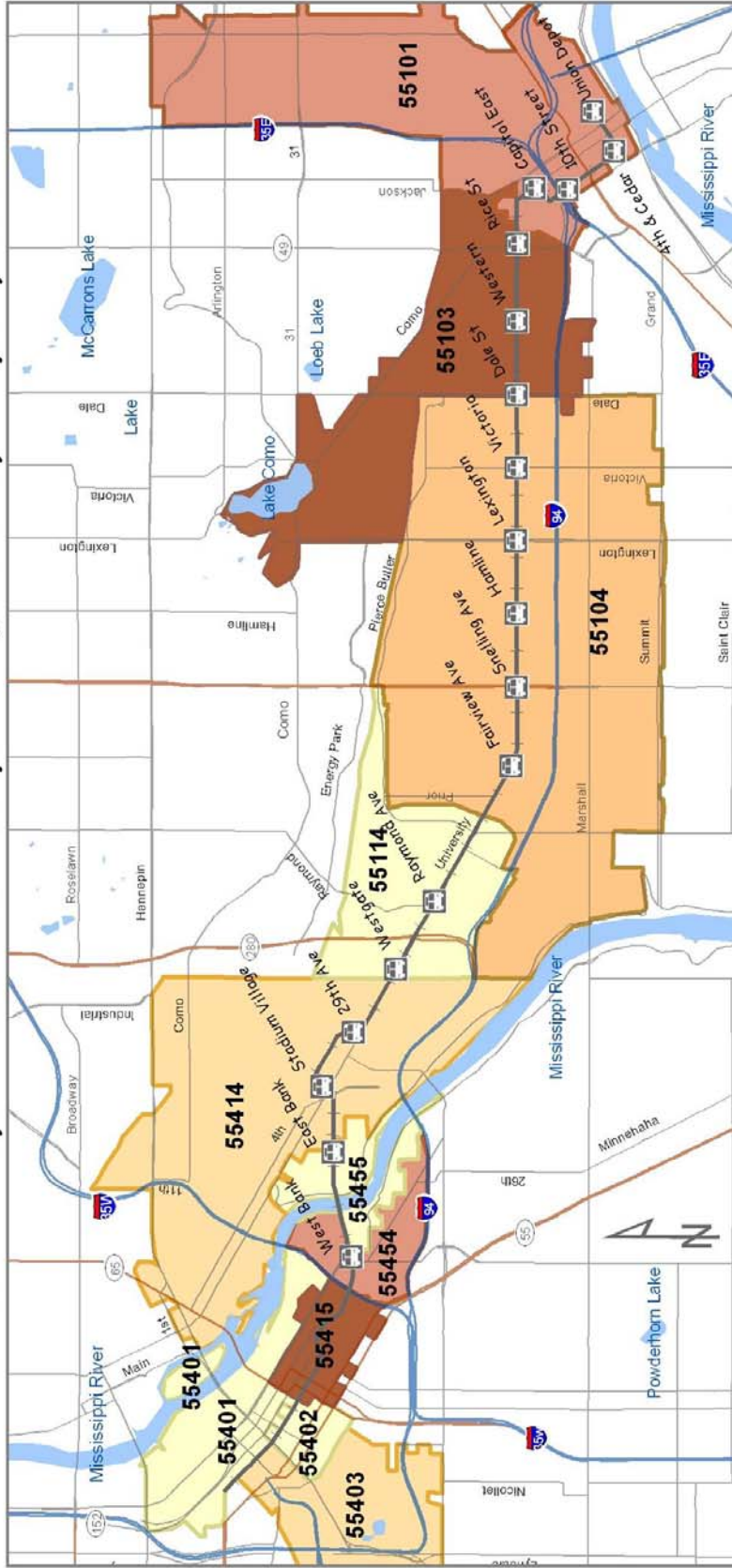
This information sheet was prepared with partial support from the federal Agency for Toxic Substances and Disease Registry (ATSDR). This statement does not imply that ATSDR has endorsed this information sheet.



Minnesota Department of Health ♦ Division of Environmental Health ♦ Site Assessment and Consultation Unit

651.201.5000 or 1.800.657.3908, press 0 ♦ www.health.state.mn.us

Asthma Hospitalization Rates per 10,000 People by Zipcode



Proposed LRT stations
 Proposed LRT Route
 Highways
 US Highways
 Major Streets
Asthma Hosp. Rate
 Not enough information
 1 - 10
 11 - 15
 16 - 20
 21 - 35

Asthma Hospitalization Rates per 10,000 People from 2005 - 2007

- Average Minnesota rate = 9 per 10,000 people
- Average Twin Cities rate = 11 per 10,000 people
- The Central Corridor average rate = 17 per 10,000 people



Healthy Communities Count!

Data Source: Minnesota Department of Health Environmental Tracking Program



Healthy Communities Count!

Infant Mortality Rate

September 2010

Infant Mortality Rate

The infant mortality rate (IMR) is used around the world as a measure of health. The IMR rate counts the number of infants born alive who die before their first birthday. This number is counted for every 1,000 live births

How is the Infant Mortality Rate Related to Community Health?

The leading causes of death for infants are birth defects, problems resulting from premature birth, infection, injury, low birth weight, and sudden infant death syndrome (SIDS). Other factors that may affect the IMR are the age of the mother, prenatal care, race, nutrition, insurance, and contact with lead and other chemicals in the environment. Some studies find a link between the IMR in a community and socioeconomic status, access to health care, general health status, and the mother's education level.

Minnesota's IMR has been 4.8 since 1995. This is the lowest IMR in the United States. This is largely due to strong maternal and child health programs, high insurance coverage, lower poverty levels, and overall healthier lifestyles. However, from 2003-2005, the IMR in Minnesota varied by race and ethnicity: for whites it was 4.3, for African-Americans it was 8.7, for American Indians it was 8.6, for Asians it was 3.8, and for Hispanics it was 4.3 (each is for every 1,000 live births). The Minnesota Department of Health (MDH) is actively involved in programs to reduce these health disparities.

What the Map Shows

The map shows the IMR in the Central Corridor for 2002-2006. Because the number of infant deaths in the Central Corridor is small for each individual year, infant deaths from 2002-2006 were combined in each Zip code to show the IMR. In the Central Corridor, the IMR was 7.1 compared to 6.4 for the Twin Cities, 4.8 for Minnesota, and 6.6 in the United States for every 1,000 live births.

Limitations

Death certificate information reported by physicians and hospitals to the Center for Health Statistics at MDH is used to calculate the IMR. Because the numbers of infant deaths are so small, this map does not show the race or ethnicity of the child.

For other "counts" check out our website @ www.health.state.mn.us/cclrt

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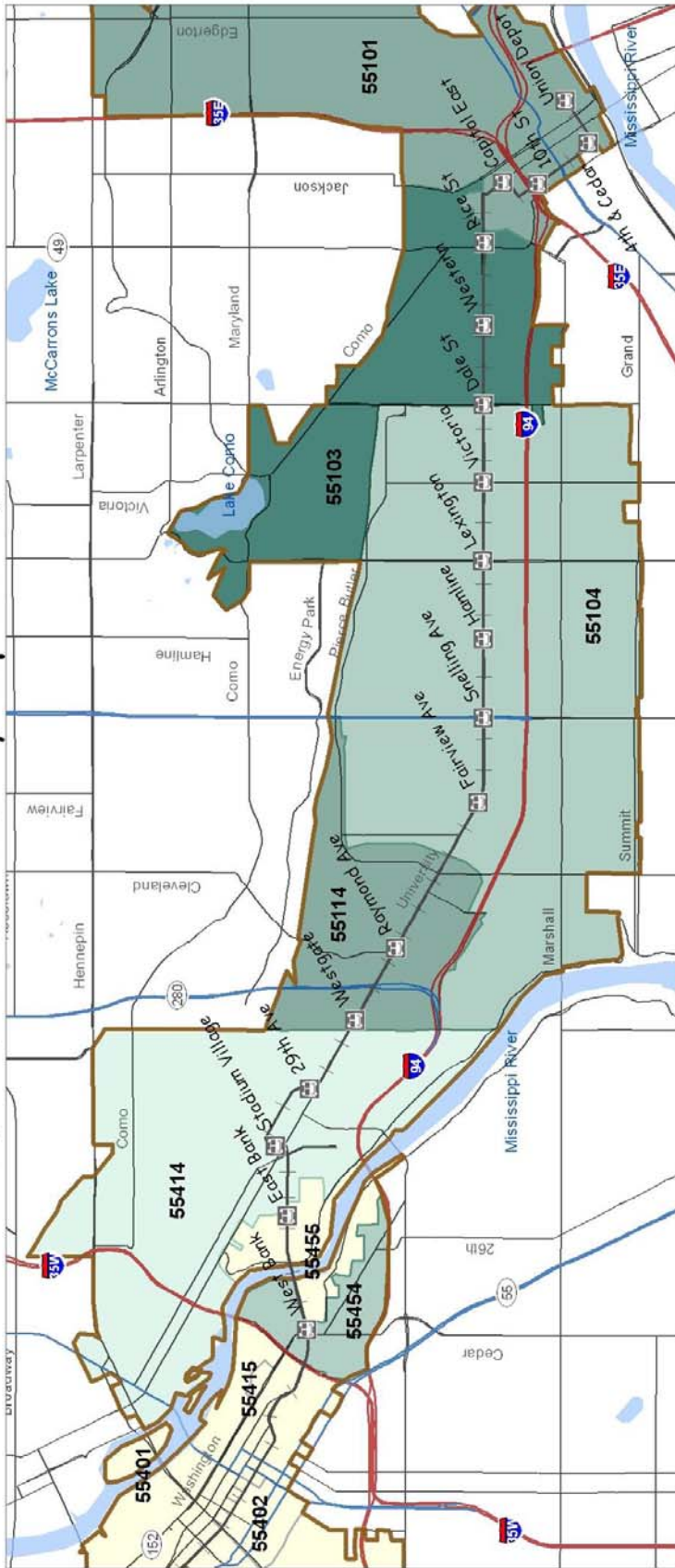
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Rate of Infant Deaths by Zip Code, 2002-2006



- Proposed LRT Stations
- Proposed LRT Route
- Central Corridor Study Area
- Water Features
- Major Highways
- Highways
- Major Roads

Rate of Infant Mortalities by Zip Code

- 5 - 6 per 1,000 live births
- 6 - 7 per 1,000 live births
- 7 - 8 per 1,000 live births
- 8 - 9 per 1,000 live births
- 9 - 10 per 1,000 live births
- Zip Codes with no additional information

Infant Mortality = a death before 12 months old

Infant Mortality Rate (IMR) = the number of infant deaths for every 1,000 live births.

2002-2006 IMR Data Analysis per 1,000 live births	
Location	Rate per 1,000
U.S.	6.6
Minnesota	4.8
Twin Cities	6.4
Central Corridor	7.1

Data Source: Minnesota Center for Health Statistics



Healthy Communities Count!



Healthy Communities Count!

Babies Born with Low Birth Weight

September 2010

What is Low Birth Weight?

A baby is considered to have a low birth weight if he or she weighs less than 2,500 grams (5 pounds, 8 ounces) at birth. Often a low birth weight baby is born prematurely or several weeks before his or her “due date”.

How are Low Birth Weight Babies Related to Community Health?

Like the infant mortality rate, the number of low birth weight babies born is an important measure of health around the world. In 2006, 8.3% of babies born in the United States were low birth weight. The United States has a goal to reduce the number of low birth weight babies to less than 5%. Low birth weight in babies is thought to be related to the mother’s health, prenatal care, access to health care, education, and income. Other risk factors for low birth weight babies are the mother’s nutrition and age, and contact with cigarette smoke, alcohol, and lead during pregnancy.

About 30% of low birth weight babies are born to mothers who live alone and another 30% are born to families with three or more siblings. Statistically, low birth weight babies are more likely to die during their early years and are also more likely to develop physical and mental disabilities. As with the infant mortality rate, there are disparities in the percent of low birth weight babies by race and ethnic groups. In Minnesota, for example, the percentage of low birth weight babies born to whites in 2006 was 6%; for African-Americans, 10.3%; and Hispanics, 5.9%.

What the Map Shows

The map shows the percent of low birth weight babies born in the Central Corridor between 2002-2006. Because the number of babies in the Central Corridor is small, low birth weight babies born between 2002-2006 were combined in each Zip code. From 2002-2006, the percentage of low birth weight babies born in Minnesota was 4.8%, 7.1% in Ramsey County, and 7.4% in the Central Corridor. Between 2002 and 2006, 698 low birth weight babies were born in the Central Corridor.

Limitations

The data for low birth weight babies are reported by physicians and hospitals on birth certificates. Although there may be some errors, data are believed to be very accurate. The data may not be accurate for home births.

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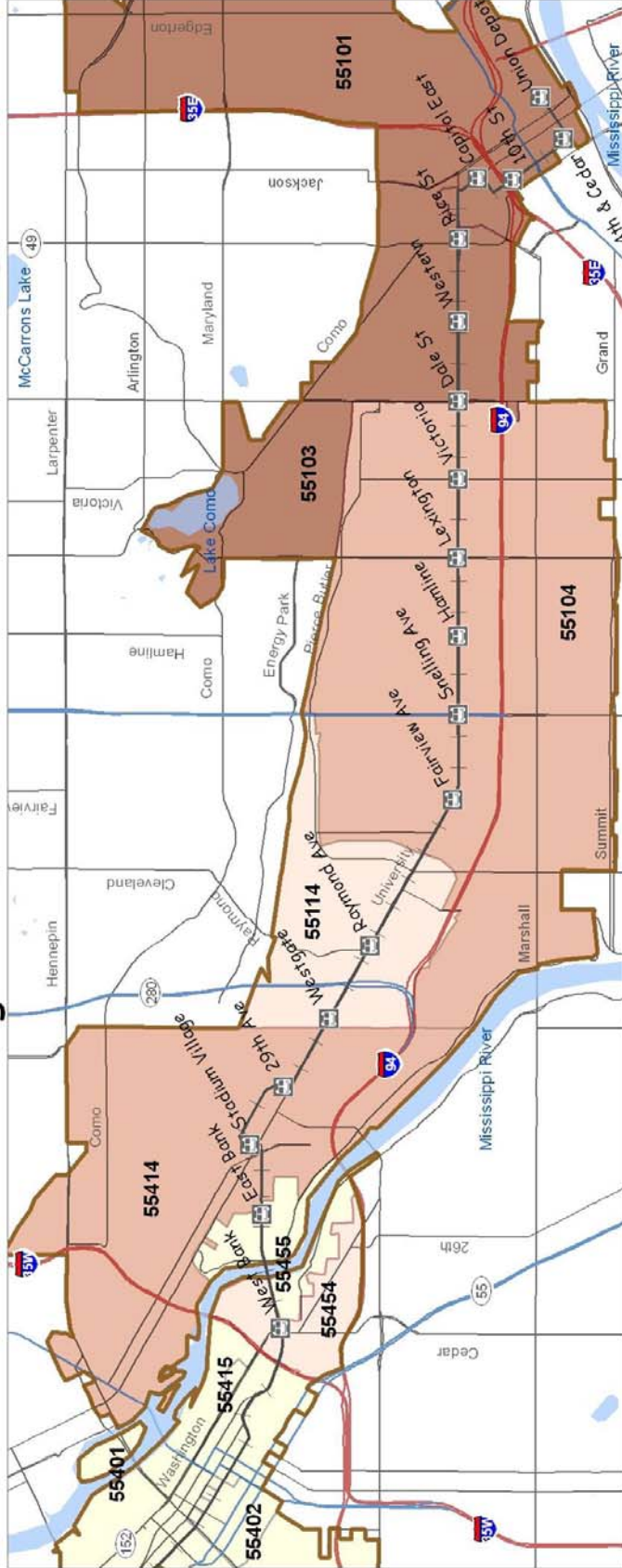
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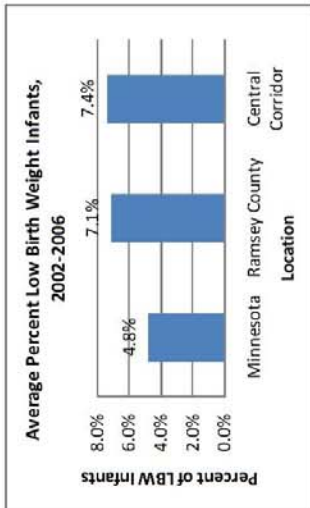
Percent of Low Birth Weight Infants in the Central Corridor, 2002-2006



Low Birth Weight (LBW) infants weigh less than 2,500 grams or 5lbs 8oz at birth.

Zip Code Percent Low Birth Weight = (the number of low birth weight infants / all live births) * 100

- Proposed LRT Stations
- Proposed LRT Route
- Central Corridor Study Area
- Major Highways
- Highways
- Major Roads
- 2002-2006 Percent of Low Birth Weight Infants by Zipcode
- 6 - 7%
- 7.1 - 8%
- 8.1 - 9%
- more than 9.1%
- Zip Codes with No Further Information



Healthy Communities Count!

Data Source: Minnesota Center for Health Statistics



Healthy Communities Count!

Lead and Copper in Tap Water

September 2010

Lead and Copper in Tap Water and Health

Common plumbing materials can contain lead and copper, which are both metals. As the plumbing materials get old and corrode, lead and copper can get into the drinking water. Both metals are toxic. Lead can cause damage to the nervous system and learning disabilities, especially in children. Lead in water can be a serious problem for infants, who mostly ingest liquids, such as baby formulas or canned juices mixed with water. Copper is an essential trace nutrient, but high levels can cause nausea, vomiting, and diarrhea.

Testing for Lead and Copper in Tap Water

In St. Paul, lead water pipes may exist in homes built before 1926 and in some homes built during World War II, when other metals were scarce. Copper in drinking water can be a



concern in homes containing copper pipes, which are very common. To protect the public from drinking water that contains too much lead and copper, EPA requires city water departments to test the tap water annually from several of the homes or businesses that get water from the city. The amounts of lead and copper in these samples may tell us something about the condition of plumbing in residential and commercial buildings across the city or city water mains.

What the Information Shows

This count includes information collected by St. Paul Regional Water Services. St. Paul Regional Water Services collects water samples from homes or businesses throughout the City each year to check on lead and copper levels.

In 2008, St. Paul Regional Water Services tested 52 homes for lead and copper citywide. Lead was detected at 32 homes at an average concentration of 11 parts per billion (ppb), although this average was skewed by one very high result. Four of the 32 homes exceeded the EPA action level of 15 ppb. Copper was detected in 26 out of 52 homes, averaging 44 ppb, well below the EPA action level of 1,300 ppb.

In the Central Corridor project area, four homes were tested for lead and copper. All four had detections of lead, at an average level of 9.5 ppb, and one exceeded the action level of 15 ppb. Copper levels averaged 32 ppb in the four homes.

Limitations

This information is collected as required by the Safe Drinking Water Act. It does not give an accurate picture of every house in the City. Some homes could have higher (or lower)

amounts of copper and lead in the drinking water. The City and MDH encourage people to

- test their own water if they are concerned,
- use cold water for drinking and cooking (cold water is less likely to leach lead), and
- let the water run for 2-3 minutes to flush the pipes before drinking it.

Continuing the yearly sampling program will ensure that water provided by St. Paul Regional Water Services meets federal standards and that the prevalence of homes with high amounts of copper or lead is known so that the plumbing can be fixed.

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Lead Poisoning in Children

May 2010

Lead

Children can come into contact with lead in soil, dust accidentally brought home from adult workplaces or hobbies, imported candies, traditional sickness remedies, pottery, or toys. However, the most common source of lead is from old paint in homes. Lead paint can be found in any home built before 1978, the year lead in paint was banned. Houses built before 1950 are more likely to have lead paint. While cracked, peeling paint is obviously a concern, even the dust created by opening and shutting windows with frames painted with lead paint may be enough to harm a child.

Lead and Health

Children tend to put their hands in their mouths. As they play, children may accidentally swallow dust, chips of paint, or soil containing lead dust from paint or other sources. Lead poisoning from these sources can lead to learning disabilities, problems in behavior, and at very high levels, seizures, coma, and death. Unfortunately, the effects of low level lead poisoning in infants and toddlers may not be seen until the child enters school. This means it is very important to take action to **prevent** contact with lead dust in and around the home. Health care providers can test a child or pregnant woman's blood for lead. If the result is higher than 10 micrograms per deciliter (ug/dL) of blood, it is considered "elevated." Local public health agencies work with families of children with elevated blood lead levels to find the source of lead and prevent further exposure. If the result is higher than 15 ug/dL for a child less than six years old or higher than 10 ug/dL for a pregnant woman, Minnesota law requires that the home where the child or woman lives be checked for sources of lead

Counting Lead Poisoning in Children

Minnesota has a Blood Lead Information System (BLIS). By law, when a laboratory analyzes a sample of blood for lead, the result is given to the Minnesota Department of Health (MDH). Children and pregnant women with elevated blood lead results are referred to local public health staff who help the families take action to lower their blood lead levels. The information from BLIS can also be used to find areas where children are more likely to be exposed to lead in soil and dust around their homes. Trends in blood lead levels can also be tracked through the years to see if lead poisoning prevention efforts are working. Across the United States and in Minnesota, the number of children with elevated blood lead results (greater than 10 ug/dL) is decreasing.

What the Information Shows

In 2007, about one child out of 100 children tested in Minnesota had elevated blood lead results (greater than 10 ug/dL). Three out of 100 children tested in St. Paul had elevated blood lead results. In 2006-2008 in the Central Corridor, about four out of 100 children had elevated blood lead results.

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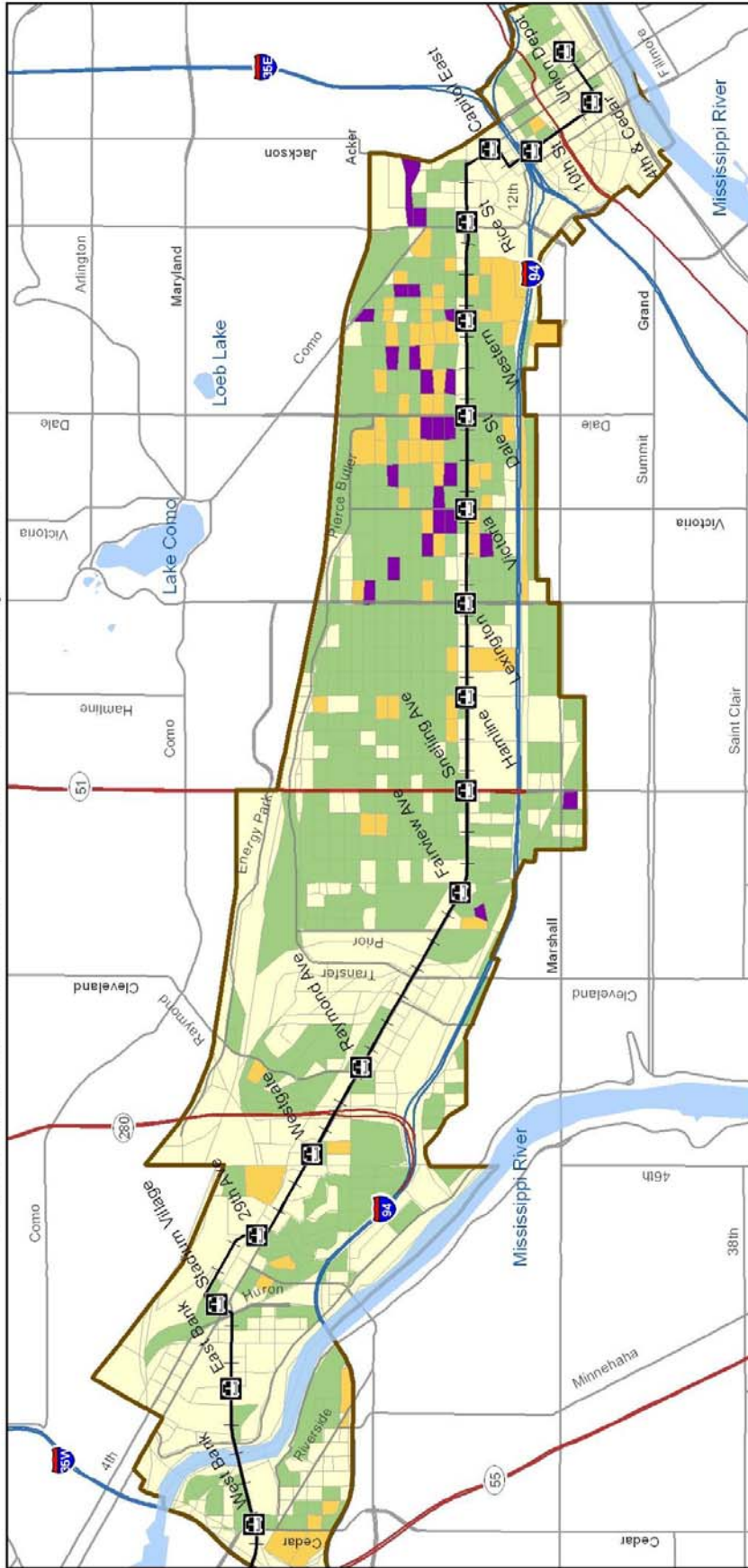
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Child Blood Lead Test Results, 2006-2008



1 0.5 0 1 Miles

- Proposed LRT Stations
- Proposed LRT route
- Interstate
- Highway
- Major Streets
- Central Corridor Study Area
- Blocks with at least 1 child tested
- Blocks with at least 1 child with a 10 -15 ug/dL blood lead result
- Blocks with at least 1 child with higher than a 15ug/dL blood lead result

Lead Testing Data Analysis:

In 2007, 1 out of every 100 children tested in Minnesota had an elevated blood lead result.

In St. Paul, 3 out of every 100 children tested had an elevated blood lead result.

In the Central Corridor from 2006-2008, 4 of every 100 children tested had an elevated blood lead level.

Source: Minnesota Department of Health Lead Program



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Easy Access to Healthy Foods



January 2010

Food and Health

Eating a variety of fresh fruits and vegetables every day is one key to healthy living. Studies show that when people do not eat fresh fruits and vegetables they are more likely to have a number of health problems, such as obesity, diabetes, hypertension, and arthritis. Eating too many meals that are prepared or ready-to-eat is also bad for a person's health. People who live in communities with grocery stores that sell fresh fruits and vegetables are less likely to be obese or have diabetes than people who live in areas with few grocery stores and many fast food choices.

Counting the number of stores that sell fresh food or produce in a specific area, or "food availability", is one way to show how accessible fresh fruits and vegetables are to people living in that neighborhood. Measuring food availability along the Central Corridor is important because it helps community groups, public health workers, and city planners identify areas that may need more grocery stores with healthy food choices to encourage healthy diets.

Food and Income

The availability of fresh fruits and vegetables can be related to the income level of people in the community. Large grocery stores are usually found in neighborhoods where people with higher incomes live. Studies show that there are fewer grocery stores in low income areas. These grocery stores often have higher prices because there is less competition. Since low income areas may have fewer grocery stores and higher prices, people living nearby may eat more prepared food because it is more convenient and less expensive than fresh fruits and vegetables.

Counting Food Availability

To count food availability in a community, health researchers count the number of people that live within 500 meters of a grocery store compared to the number of people that live within 500 meters of a store that sells prepared meals. Five hundred meters is about 10 blocks or a 10-minute walk for most people.

What the Information Shows

Information from the cities of Minneapolis and Saint Paul show there are 92 grocery stores and 364 stores that sell prepared meals in the Central Corridor. Sixty-four percent of people live within walking distance of a grocery store, and eighty percent of people live within walking distance to a store with prepared meals.

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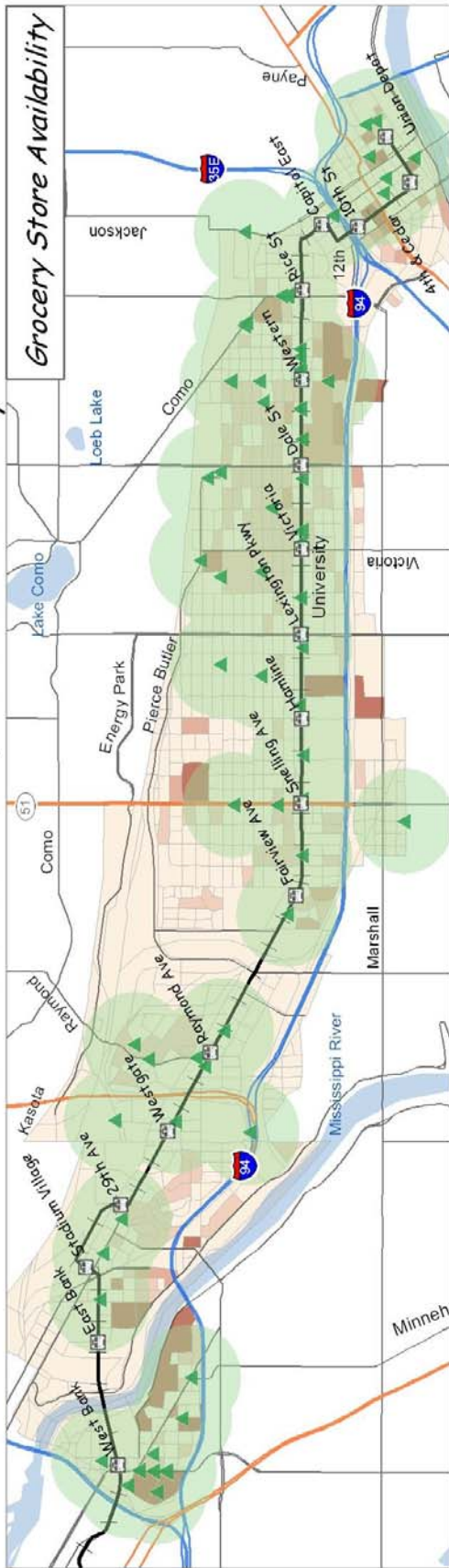
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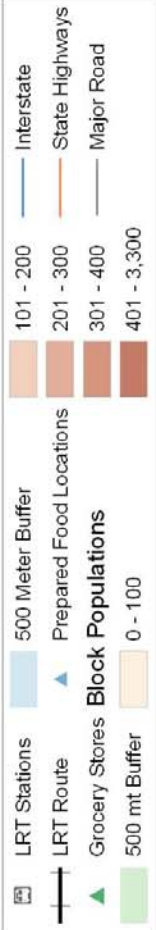
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Central Corridor Food Availability



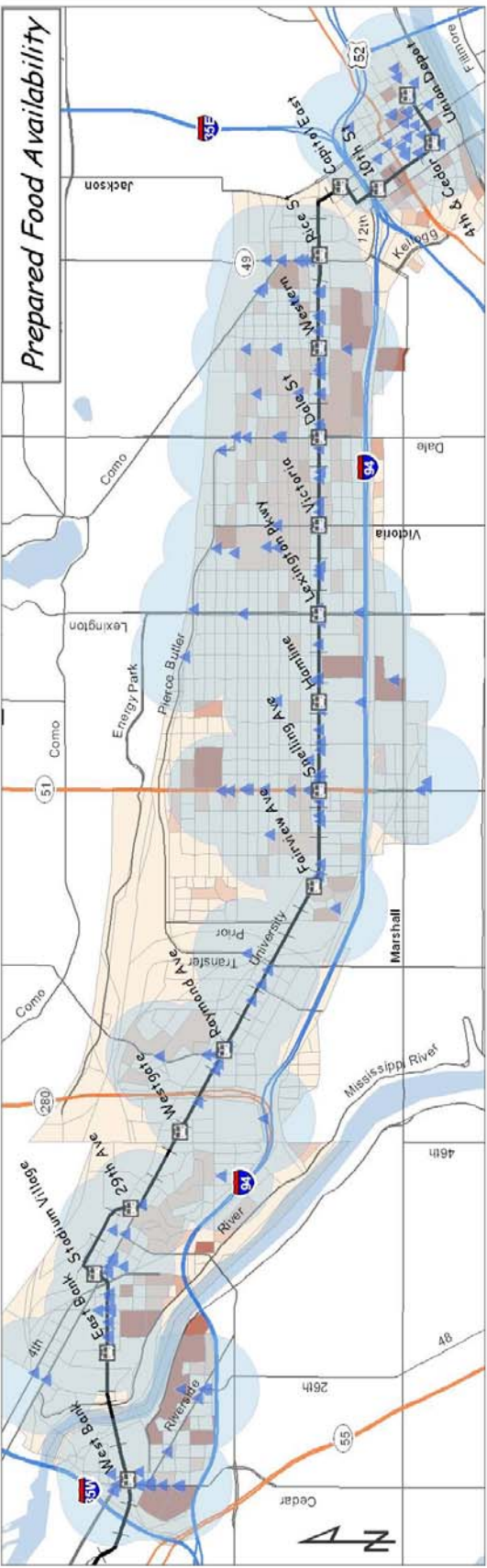
Grocery Store Availability



Note: Buffer = 500 meters
or a 10 minute walk



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Prepared Food Availability



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Education

September 2010

Education

The community in which a person lives can make a difference in how easy it is to finish high school and get higher education. Studies show that gender, race/ethnicity, school location, neighborhood features, and participation in a school lunch program are linked to a student’s attendance at school. People with more education can also make a difference in their communities. Being able to read, write, and do math are essential skills needed to find a job, get good housing, and make healthy choices.

Education and Health

Education is the strongest social factor (employment and income are others) that can influence a person or a community’s health. While we usually think of a disease, injury, or chemical causing a health problem, the amount of education a person has can indirectly affect their health. A person with more education will be more likely to choose healthy behaviors and lifestyles, get a job with health benefits, and able to find information and resources when faced with a health problem. People who cannot read are two times as likely to be hospitalized as people who can read. People who struggle with reading are less likely to be able to understand directions for taking medicine. They may also have a hard time understanding steps they can take to prevent future health problems.

What the Map Shows

The map shows the average years of education of residents in the Central Corridor. To “count” education, MDH calculated the average number of years of education for a specific area (Census block group). The average for a specific area was based on the number of years of formal education for all people over age 25 divided by the total number of people over age 25.

In 2000, the Twin Cities average years of education was 13.5 years. The average level of education in the Central Corridor Study Area was 12.5 years. The map shows that 35% of the Central Corridor area has average education levels above the Twin Cities, and 65% of the Central Corridor area has average education levels below the Twin Cities.

Limitations

In this analysis, education level among adults was determined from attendance in traditional academic settings, such as high schools and colleges. Not included were individuals who enrolled in or completed other types of adult education, such as trade or vocational schools, community education courses, apprenticeships, or specialty schools. The education data provided by the U.S. Census may not accurately reflect the local workforce.

This count differs from current local high school graduation rates because adult residents may not have attended school in the Central Corridor Study Area and because many adults surveyed in the Census finished school decades ago.

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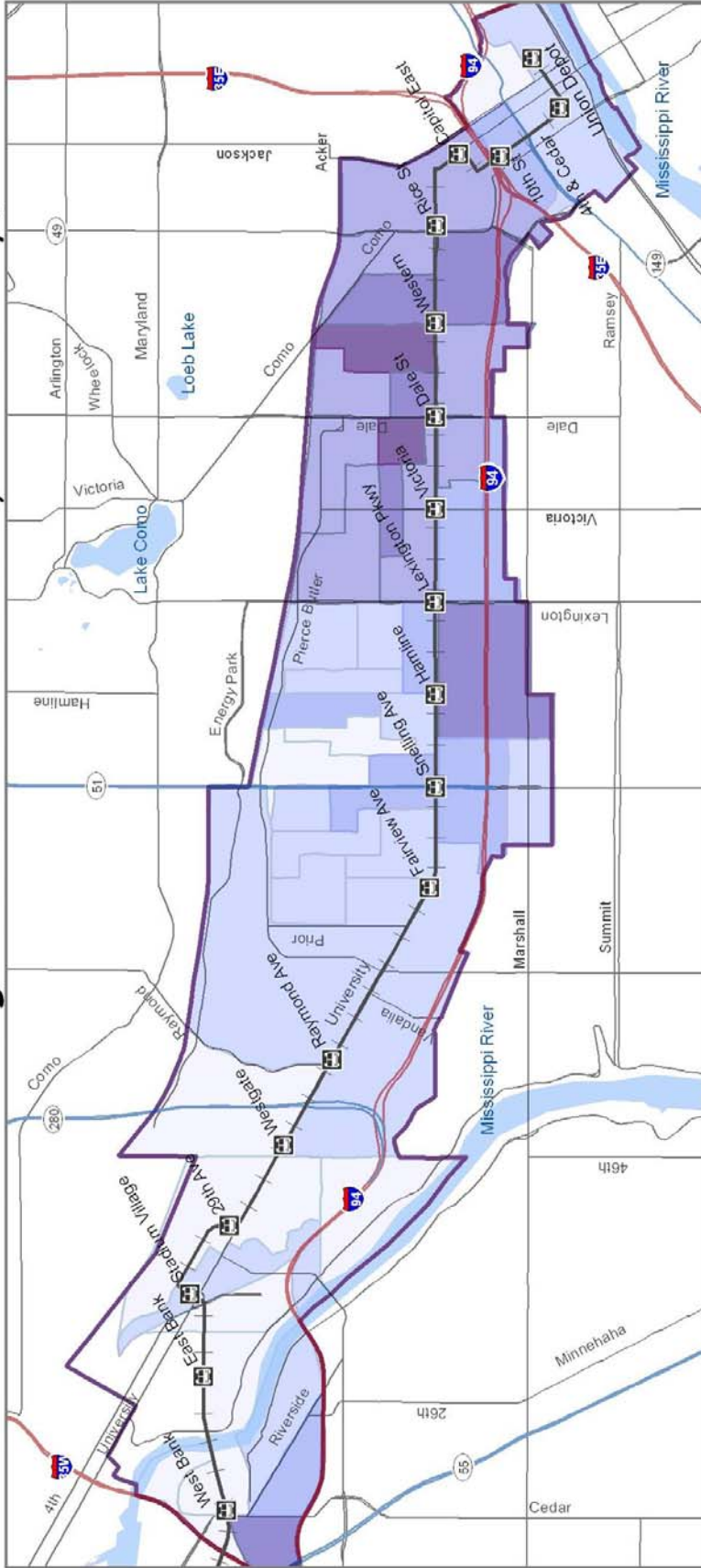
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Central Corridor Average Years of Education by Block Group, 2000



Average Years of Education Analysis

In 2000, the average number of years of education in the Central Corridor was 12.5 years.

The average number of years of education in the Twin Cities was 13.5 years.

65% of the Central Corridor area has an average education level below the Twin Cities average (13.5 years).

Sources: 2000 U.S. Census data and Block Group boundaries

- LRT Stations
- LRT Route
- Major Highways
- Highways
- Major Roads
- Project Study Area
- Average Years of Education**
- 9 - 10 years
- 10.1 - 11 years
- 11.1 - 12 years
- 12.1 - 13 years
- 13.1 - 14 years
- More than 14 years



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Employment

September 2010

Employment

Having a good job can provide a sense of security and improve quality of life. Often a good job will give access to health care and medical insurance. On the other hand, not having a job can have many negative impacts, including impacts on health. The number of people with jobs is considered to be a sign of the overall quality of life in a community.

Employment and Health

Like education and income, employment can influence personal and community health. While we usually think of a disease, injury, or chemical as causing a health problem, a person's or family's employment can indirectly affect their health. Employment, more education, and higher incomes are all closely linked to improved health.

People who don't have a job often say that they are in poor health and have more health symptoms but do not seem to have more severe illnesses. Some studies find higher death rates for people who don't have a job.

What the Map Shows

MDH used 2000 U.S. Census data to find the number of people in a specific area (Census block groups) who did not have a job. People who were looking for a job but stopped looking are not included in this number. The number of people without a job was divided by the total number of people for that specific area. Only people who are older than 16, who are not in the military and are looking for a job were included in these groups.

In 2000, the percentage of people without a job in the Central Corridor was 8.4%. This number may be elevated due to the University of Minnesota, where many full-time students presumably do not work. The percentage of people without a job in Minnesota was 4.1%, and in the Twin Cities it was 3.7%.

Limitations

The U.S. Census data used for this evaluation are ten years old, and much has changed economically since the year 2000. However, it is the only source of information available at the level of detail needed. A further limitation is that the information does not account for seasonal trends in employment. Census data also do not provide information on where people are working, so employment within the Central Corridor is not described. It remains, however, a useful tool for showing differences between the Central Corridor and the Twin Cities as a whole.

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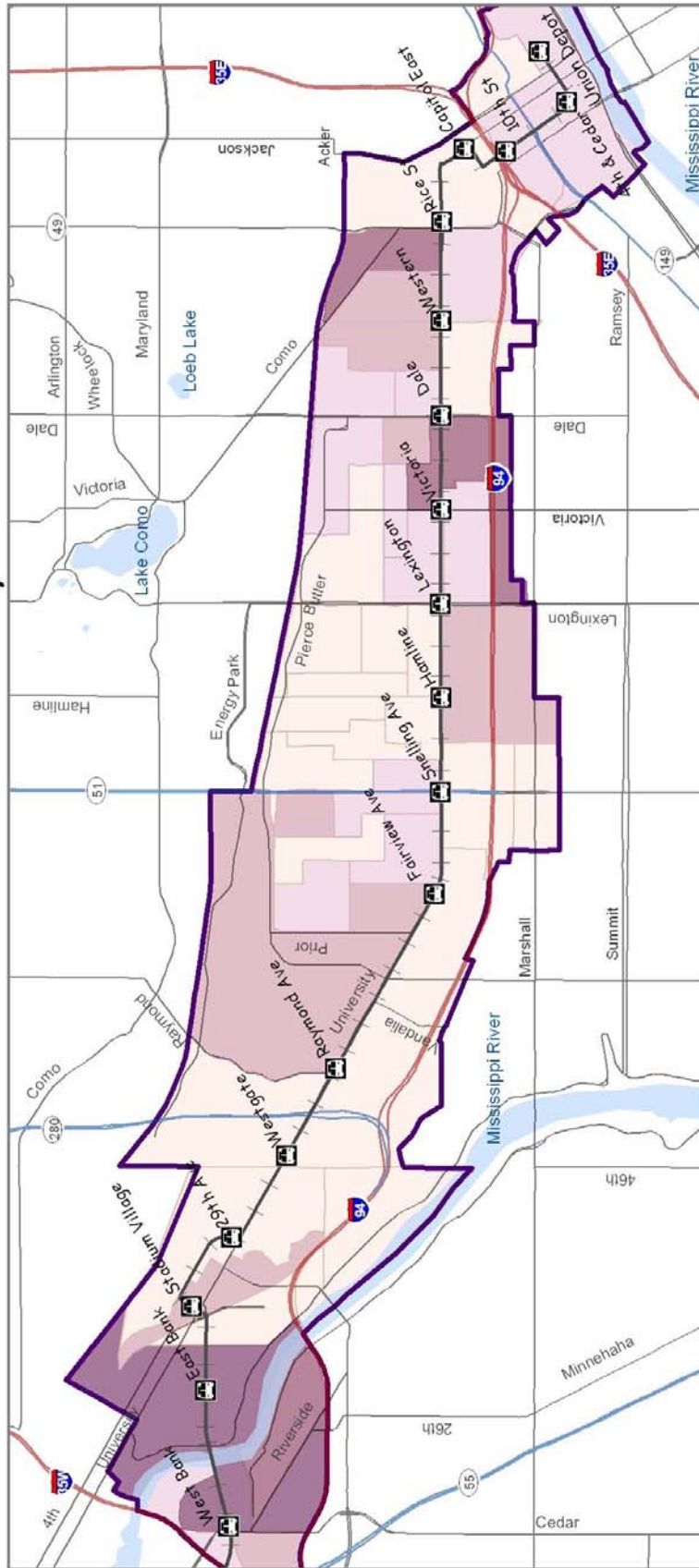
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Percent of Workers Unemployed in Central Corridor Block Groups in 2000



- LRT Stations
- LRT Route
- Major Highways
- Highways
- Major Roads
- Project Study Area

- 1% - 5%
- 5.1% - 10%
- 10.1% - 15%
- 15.1% - 20%
- 20.1% - 27%

Data Analysis of Unemployment:
 Minnesota = 4.1%
 Twin Cities = 3.7%
 Central Corridor = 8.4%



Sources: 2000 U.S. Census data and Block Group boundaries

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Average Household Income

September 2010

Income

A person's or family's (household) income affects their ability to pay for the basic needs of daily life; housing, food, clothes, health care, and education. People with low incomes have less access to nutritious food, good housing, and education. Higher incomes allow access to better quality housing materials that reduce the risk of contact with lead, asbestos, mold, rodents, and dust. Looking at household income in a community can help planners find areas that would benefit from better access to jobs, training, and improved job stability.

Income and Health

Like education and employment, income can influence personal and community health. While we usually think of a disease, injury, or chemical as causing a health problem, a person's or family's income can indirectly affect their health. Employment, more education, and higher incomes are all closely linked to improved health.

Low income is linked to higher rates of illness and death. Studies show that people with low household income living in communities with varied levels of household income tend to be healthier than people with low income who live in communities where everyone's income is low. Low income communities tend to have more businesses that sell fast food, alcohol, and cigarettes. Over reliance or abuse of these products can cause serious health problems.

What the Map Shows

The map shows that most of the areas in the Central Corridor have average annual household incomes that are less than \$63,500 (Twin Cities average annual income). MDH used information from the 2000 U.S. Census to calculate the average income for a specific area. The average for a specific area was based on the total income from all the households in the specific area divided by the number of households in that area. MDH compared the average income for specific areas (Census block groups) in the Central Corridor with the average for the Twin Cities. Of the 50 specific areas that MDH looked at, only 4 have average household incomes that are higher than the Twin Cities' average (\$63,500). Three of these areas are located near the University of Minnesota; one is near Hamline University. The average household income for the entire Central Corridor Study Area was \$41,400.

Limitations

The information used for this count comes from the 2000 U.S. Census and is likely to be outdated. However, more recent income data for the Central Corridor that would be directly comparable to the Twin Cities as a whole are not readily available at the census tract level. An updated analysis using data from the 2010 U.S. Census, when it is available, would be more reflective of current conditions.

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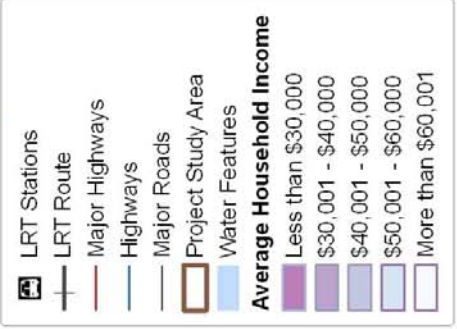
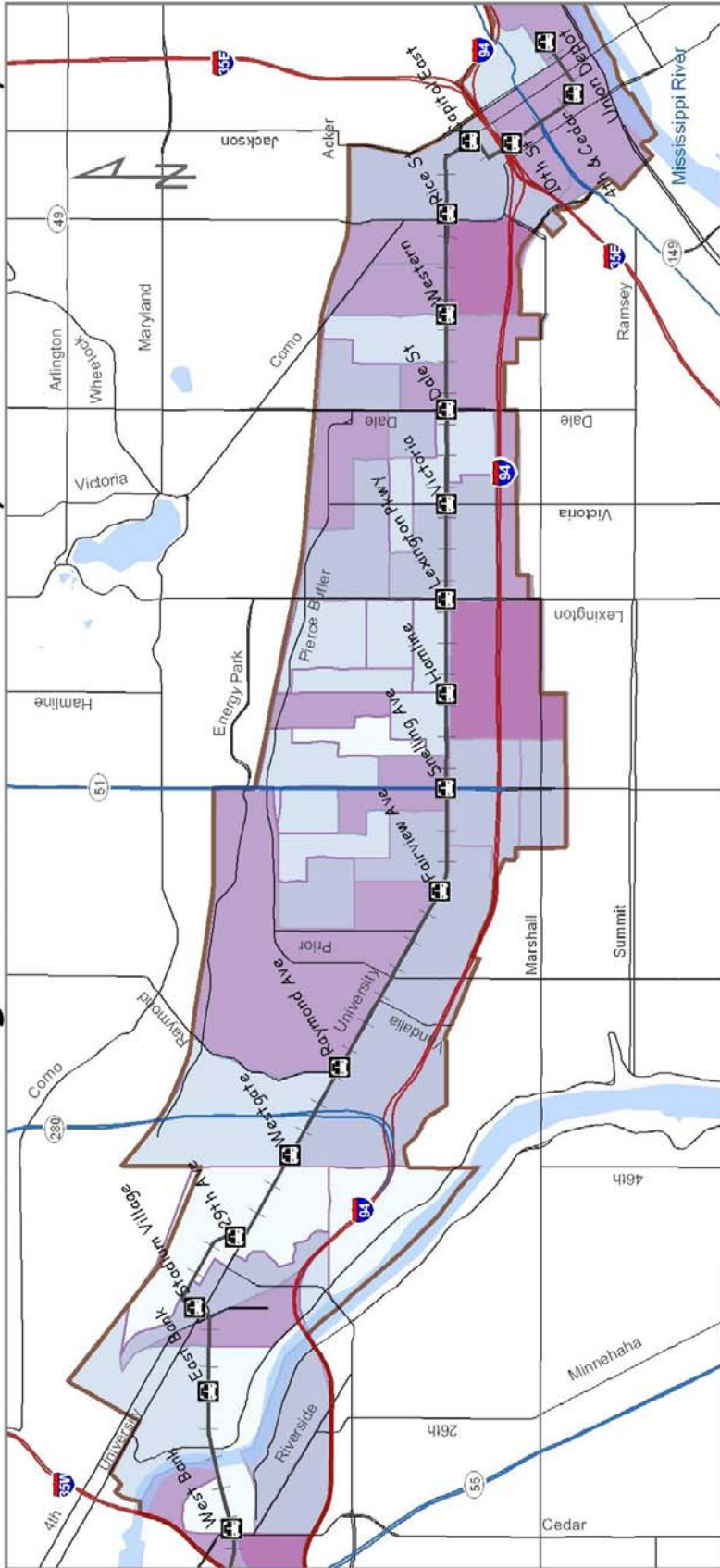
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Central Corridor Average Household Incomes by Census Block Group



Twin Cities and Central Corridor Average Incomes:
 The average annual income for Twin Cities households is \$63,500.
 The average annual income for Central Corridor households is \$41,400.
 Most of the households in the Central Corridor have household incomes below \$63,500.

Sources: 2000 U.S. Census data and Block Group boundaries



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Healthy Communities Count!

Acres of Parks



September 2010

Why are Parks Important?

Parks and open, green space play an important role in the health of the community, especially in large cities. Parks provide places for children and adults to play, gather, exercise, and hold community events. The number and size of parks in a community can influence the health and well-being of residents. Counting the number of parks, their size, and condition can help public health and community experts understand why some neighborhoods have higher rates of obesity or less people participating in community activities.

Neighborhood parks provide many additional benefits to the community. Communities with parks and gardens encourage people to live in the neighborhood longer and improve how people view the neighborhood. Parks and gardens in good condition can also help reduce crime in the area. Studies have found that neighbors of parks and gardens that are in good condition report fewer drug and alcohol related crimes, reduced graffiti, and a safer environment.

Parks and Health

Parks and recreation areas provide many health benefits. Research shows that spending time outdoors increases physical activity, improves recovery from illnesses, relieves stress, and can reduce obesity, heart disease, high blood pressure, and diabetes.

What the Map Shows

The Central Corridor has 24 parks that total over 696 acres of parkland. One way to count parks and the influence of parks on a community is to count the number of park acres for every 1,000 residents. The National Recreation and Parks Association recommends a minimum of 6 - 10 acres of parkland for every 1,000 residents. In 2007, St. Paul ranked the highest on a list of 12 U.S. cities with over 18 acres of parks for every 1,000 residents; Minneapolis had 16 acres of parkland for every 1,000 residents. In 2008, the Twin Cities had 15.8 acres and the Central Corridor had 11.8 acres for every 1,000 residents.

Limitations

This count includes formal public parks only. Other public spaces used for recreation, such as school playgrounds and community centers, are not included.

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Vacant Buildings and Lots

September 2010

Vacant Buildings and Lots

A property is usually considered vacant by a city when it has been abandoned, been inspected and found to not meet city building codes, or is a public safety or health hazard. Like most cities, St. Paul and Minneapolis have ordinances about vacant buildings and lots. For example, in St. Paul owners must register these buildings and lots with the Department of Safety and Inspections if the building/property is vacant and at least one of the following:

- not locked
- dangerous
- has many housing or building code violations
- stays empty for more than a year and there is an order to correct a nuisance condition
- secured in an unusual way
- condemned
- condemned and illegally occupied

Why are Vacant Buildings and Lots a Concern?

Properties may be more likely to become vacant during difficult economic times, such as the current recession. Vacant properties in urban areas may be associated with increased crime rates, decreased property values, and negative influence on the quality of life for residents in the surrounding neighborhood. Vacant buildings and lots may have a greater effect on people who are house-bound because they are elderly, disabled, or unemployed.

Vacant lots and buildings also can be opportunities for positive change because they can be transformed into community gardens, playgrounds, and new residential or commercial buildings. Sometimes this occurs “unofficially,” such as when neighbors use a vacant lot for gardening, or children play in it without permission of the landowner or city. Reusing vacant properties in urban areas can also reduce the pressure for new suburbs, preventing or slowing urban sprawl.

What the Map Shows

As of August 2010, there were 873 vacant lots in the Central Corridor, ranging in size from a very small part of an acre to almost 10 acres in size. This is equal to 5% of all lots in the Central Corridor. Together, these vacant lots cover an area of 290 acres, or about 4% of all land in the Central Corridor. The vast majority of the vacant properties (75%) are zoned for residential use (see map).

Limitations

Some lots may have been developed since the data was collected but are still marked “vacant” in the city and Metropolitan Council databases. Other lots that are currently vacant may not have been correctly identified in the databases. This is more likely now because of the economy and foreclosure rates. While these databases are the best sources available, they may not be entirely accurate.

For other “counts” check out our website @ www.health.state.mn.us/cclrt

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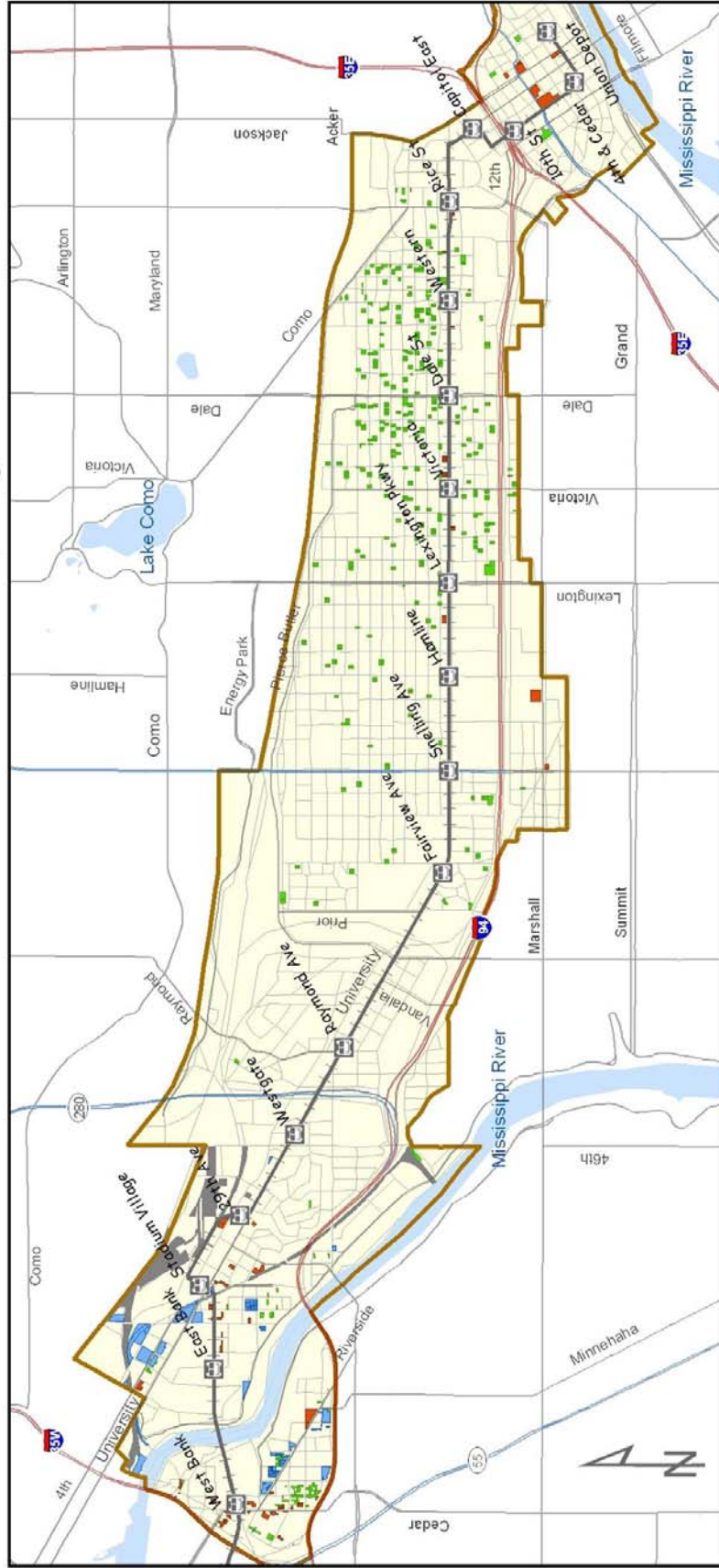
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Vacant Lots in the Central Corridor, August 2010



- LRT Stations
 - LRT Route
 - Major Highways
 - Highways
 - Major Roads
 - Corridor Study Area
- Vacant Parcels**
- Commercial
 - Industrial
 - Institutional
 - Residential

Vacant lots include properties without a building or buildings that are poorly maintained.

There are 873 vacant lots in the Central Corridor. Vacant lots equal 5% of all properties and total 290 acres.

Vacant lots in the Central Corridor: 75% are Residential properties, 9% Commercial lots, 5% Industrial space, and 11% Institutional uses.

Source: Cities of St. Paul and Minneapolis Vacant Properties List, Metropolitan Council Landuse Parcel Dataset, 2010



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Under-used or Polluted Land

January 2010

Brownfields

The way land was used in the past can make it unhealthy for people. Land may become polluted or contaminated by chemical spills or leaks. A 'brownfield' is land or property that stays vacant or unused because it is either contaminated or seems to be contaminated.

Brownfields and Health

Brownfields may have contamination in old buildings, soil, or in water in the ground underneath the surface. There can also be physical dangers like broken windows. Action should be taken to prevent health problems if people can come into contact with the chemical contamination and the amount of chemical contamination is high enough to potentially make someone sick. Concerns about dangers to health or clean-up costs may discourage property owners from redeveloping the land. Once hazards in a brownfield are identified, city planners, public health workers, and the community can work together to create a plan to address the contamination. Community participation, including neighborhood organizations, schools, and residents, is important to help planners understand how best to develop a new use for the land. Changing an old industrial site into a playground, park, farmers' market, or cultural center can have great benefit for people's health.

Counting Brownfields in the Central Corridor

The Minnesota Pollution Control Agency (MPCA) keeps track of many different types of contaminated land. If contamination has been discovered, the MPCA also makes sure that it is either cleaned up or people are protected from the contamination. The MPCA Web site has "What's in My Neighborhood" maps that show where different types of land contamination are found in Minnesota (www.pca.state.mn.us/wimn/index.cfm). The types include: high priority clean-up areas on state and national Superfund lists, voluntary investigation and clean-up sites, petroleum tank leak sites, and sites where solid waste disposal or demolition has lead to contamination. The Metropolitan Council has also identified a set of "high priority" sites for investigation.

What the Information Shows

According to MPCA data, over 20% of Minnesota's known or possible (non-petroleum) contaminated sites are in the Twin Cities. Seven percent of Minnesota's contaminated sites are located within the Central Corridor area. The information shows that areas along University Avenue have more possible brownfield sites than other areas of the Twin Cities.

For other "counts" check out our website @ www.health.state.mn.us/cclrt

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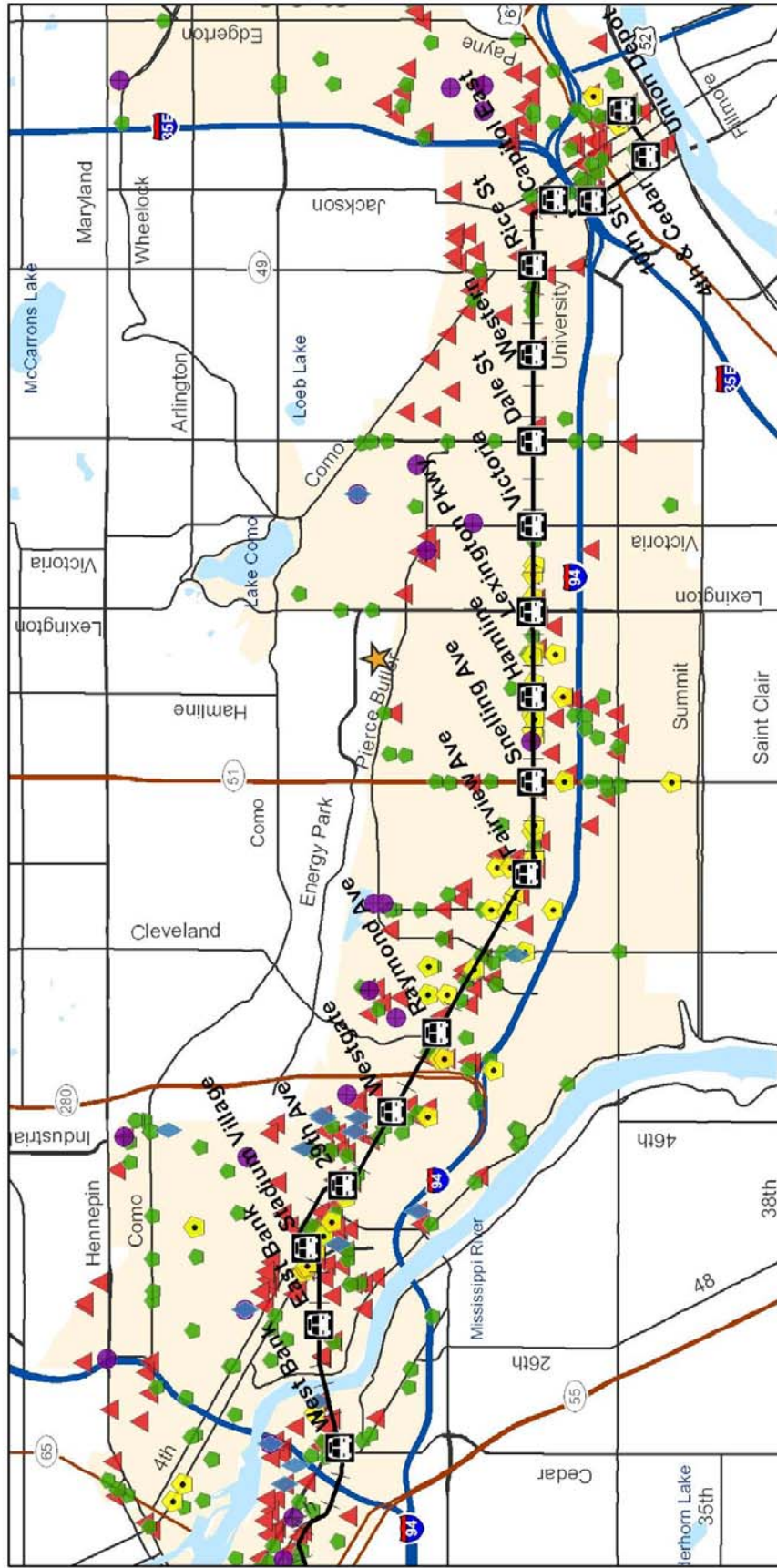
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Potential Brownfield Sites in the Central Corridor



- Legend**
- Federal Superfund
 - MN Superfund
 - Unpermitted Dumps
 - Voluntary Invest. Cleanup
 - High Priority Central Corridor Sites
 - Petro Tank Leaks
 - LRT Stations
 - Rail Line
 - Corridor Area
 - Water Features
 - Interstate
 - State Highways
 - Major Road

Note: High Priority Central Corridor Sites were identified by the Metropolitan Council during Phase 1 activities

Source: Minnesota Pollution Control Agency:
Master Entity System



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Air Pollution



September 2010

Air Pollution

Residents living near the Central Corridor are concerned about exhaust from the many cars and trucks that use the Corridor every day. Air pollution is partly related to dust and exhaust from traffic. The Minnesota Pollution Control Agency (MPCA) monitors the amount of air pollution across the state, including in the Central Corridor.

The federal Clean Air Act and Amendments require all states to monitor air quality. The good news is that since 2002, air pollution in Minnesota, including the Central Corridor, has been lower than all national outdoor air quality standards. Changes in fuel, cleaner operating cars, and reduced emissions from industry have all helped reduce pollution.

Air Pollution and Health

Breathing in air containing pollutants like carbon monoxide, ozone, nitrogen oxides and fine particles from cars and trucks (and other sources), can make existing breathing problems such as asthma worse. Breathing in polluted air is also linked to an increased risk of death from heart attack, stroke, and cancer. Children, the elderly, and those with heart or breathing problems are the most sensitive to air pollution. Polluted air has also been linked to low birth weight in babies. These findings have led to stricter air quality standards, resulting in more days classified as having poor air quality. MPCA issues alerts when the air quality index (AQI) reaches a level where sensitive groups (mainly children and those with heart or breathing problems) should take extra care to protect their health. Since the AQI is the main way that the MPCA informs people about air quality, the increase in alert days has led many Minnesotans to believe that air quality is getting worse, when in fact it has steadily gotten better, especially when compared to the 1960s and 1970s.

What the Information Shows

To look at air pollution levels in the Central Corridor, MDH used two methods. First, we used data collected by the MPCA at four places in or near the Central Corridor. MPCA measured two air pollutants commonly associated with motor vehicles and industrial sources: carbon monoxide and fine particles [defined as Particulate Matter <10 microns in diameter (PM₁₀) and Particulate Matter less than 2.5 microns in diameter (PM_{2.5})].

The first map shows the four places where carbon monoxide (CO), PM₁₀, and PM_{2.5} were measured and the hourly (CO) and weekly (PM₁₀ and PM_{2.5}) averages in 2004-2009. The national outdoor air quality standards are also shown for comparison. Like all of the Twin Cities, levels of these air pollutants in the Central Corridor are well below the federal standards.

Second, to estimate how far from the heavily travelled roads traffic-related air pollution might reach, MDH used a model developed by MPCA staff that is based on traffic volume in 2008 (see second map). The model results show that, as expected, air pollution levels are lower further away from busy streets. Areas near the busiest roads (such as I-94) will likely have higher levels

of traffic-related air pollution. The map also shows the total result of air pollution from traffic when there are many busy streets nearby.

Limitations

MPCA's outdoor air monitoring network is designed to monitor overall trends in air quality in the Twin Cities. It is also used to see if air pollution levels meet federal air quality standards under the Clean Air Act. The results from each location where pollution is measured may not be exactly true for other nearby areas. This way of measuring will not show if there is a sudden increase in air pollution for a short period of time. It still is the best way we have to measure air pollution in Minnesota. The model used to estimate traffic-related air pollution cannot be used to determine actual concentrations of air pollutants and does not consider weather or local differences in air patterns. It still is a useful tool for showing the potential impact of busy traffic on local air quality.

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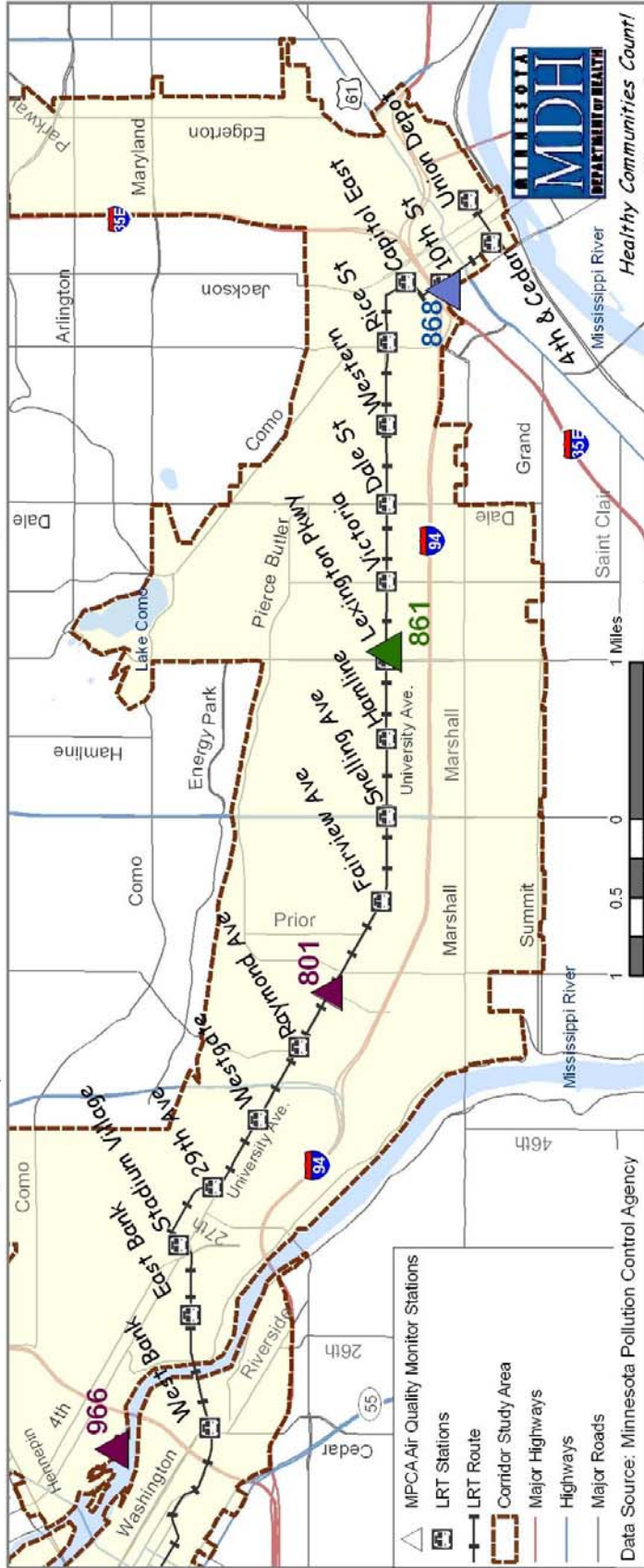
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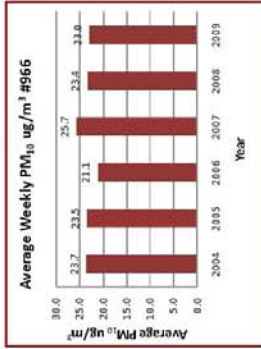
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Air Quality in the Central Corridor, 2004-2009



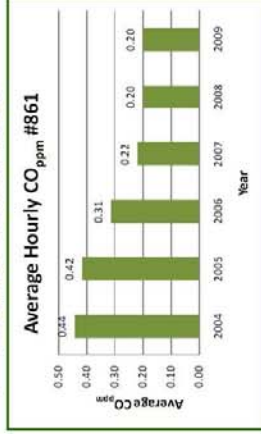
Data Source: Minnesota Pollution Control Agency

▲ **PM₁₀ Monitor Stations # 966 and 801**



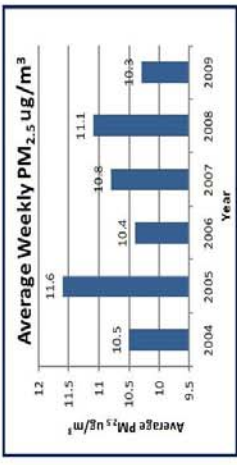
Particulate Matter₁₀ or PM₁₀ are particles in the air that are less than 10 microns in diameter. The national PM₁₀ standard concentration is 150 ug/m³ in 24 hours. PM₁₀ is measured one day per week at MPCA monitors #966 and 801.

▲ **Carbon Monoxide Monitor Station #861**



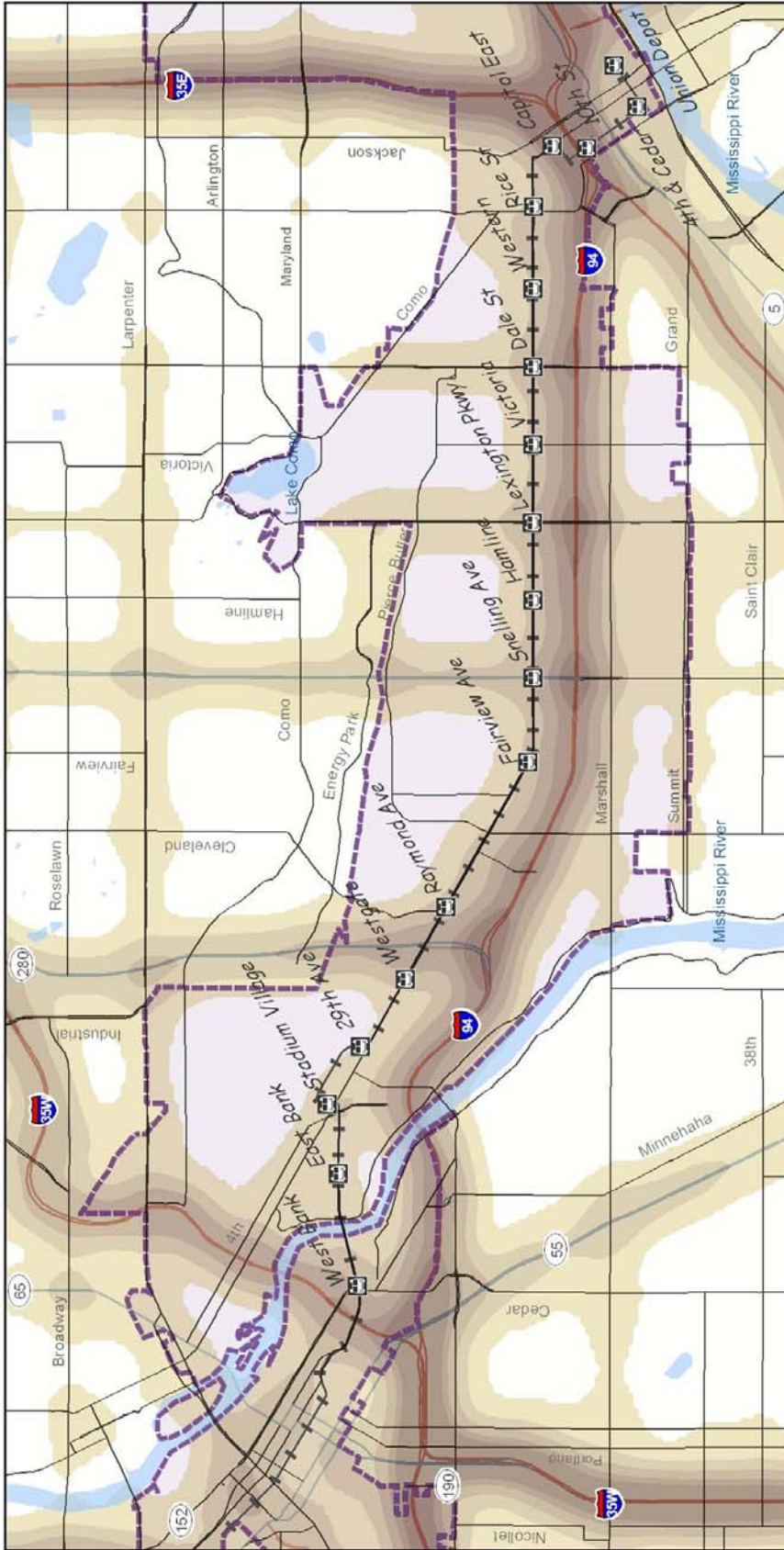
Carbon Monoxide (CO) is a product of internal combustion. The national standard for CO is 9ppm for 8 hours. The MPCA monitors CO at station # 861 every 1 hour.

▲ **PM_{2.5} Monitor Station #868**



Particulate Matter 2.5 or PM_{2.5} are air particles that are less than 2.5 microns in diameter. The national PM_{2.5} standard is 35 ug/m³ in 24 hours. The MPCA monitors PM_{2.5} at station # 868 for one day each week.

Vehicle-Related Air Pollution based on 2008 Traffic Counts



Estimated Air Pollution Concentrations

- Lowest Estimated Concentration
- Highest Estimated Concentration
- LRT Stations
- LRT Route
- Corridor Study Area
- Water Features
- Major Highways
- Highways
- Major Roads

Air Quality Analysis

MDH used the number of vehicles on roads each day in 2008 to estimate air pollution concentrations from traffic based on a model sampled by the Minnesota Pollution Control Agency. The concentration of pollutants is higher near roads and lower in areas farther from the road.

Source: Traffic Counts from the Minnesota Department of Transportation Dispersion Model collaborated with the Minnesota Pollution Control Agency

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Residential and Non-Residential Permits



August 2010

Building Permits

The quality of housing, availability of retail goods, and access to good jobs all impact the health of a community. The age of housing is important since older homes are more likely to contain asbestos, lead paint, or have mold or moisture problems. Redevelopment and improvements to existing buildings can be good indicators of economic investment in communities.

Cities require building permits to track new construction, prevent safety hazards, and enforce guidelines for community development. Permits can be required for new construction, additions or modifications to existing buildings, electrical, and plumbing work. The number and type of permits are an indication of the willingness of banks to loan money, the willingness of developers to invest in a community, and the amount of business turnover. Increases in construction and redevelopment may lead to increased housing value and commercial investment.

Building permits are divided into two categories: residential (homes) and non-residential. Non-residential permits include businesses, industries, and government buildings. This indicator is based on residential building permits issued by the Cities of St. Paul and Minneapolis from 2006 through 2010 and non-residential building permits tracked by the Metropolitan Council from 2006 through 2008.

What the Maps Show

Most of the 313 residential building permits issued from 2006-2010 in the Central Corridor were in Minneapolis. This may be because the Minneapolis portion of the Central Corridor includes the University of Minnesota, an area historically known for renovation and replacement of student housing. Of the 313 permits, 94% were for additions or renovation, and only 6% were new construction. While the number of building permits was small, the total investment listed in the permits was \$54 million, reflecting the construction of several large multi-unit housing developments.

From 2006-2008, 37 non-residential building permits were issued within the Central Corridor, amounting to an investment of \$282 million. This represents 17% of all non-residential permits issued in the Twin Cities, according to the Metropolitan Council.

Limitations

Data for this indicator are from construction permits issued by the cities of St. Paul and Minneapolis. These records likely account for a large majority of new construction projects and home renovations; however, residents may perform some home improvements without obtaining permits. Also, the two cities have different guidelines for when a permit is required and different procedures for obtaining permits, which may help explain the large discrepancy in residential permits issued by the two cities.

For other "counts", check out our website @ www.health.state.mn.us/cclrt

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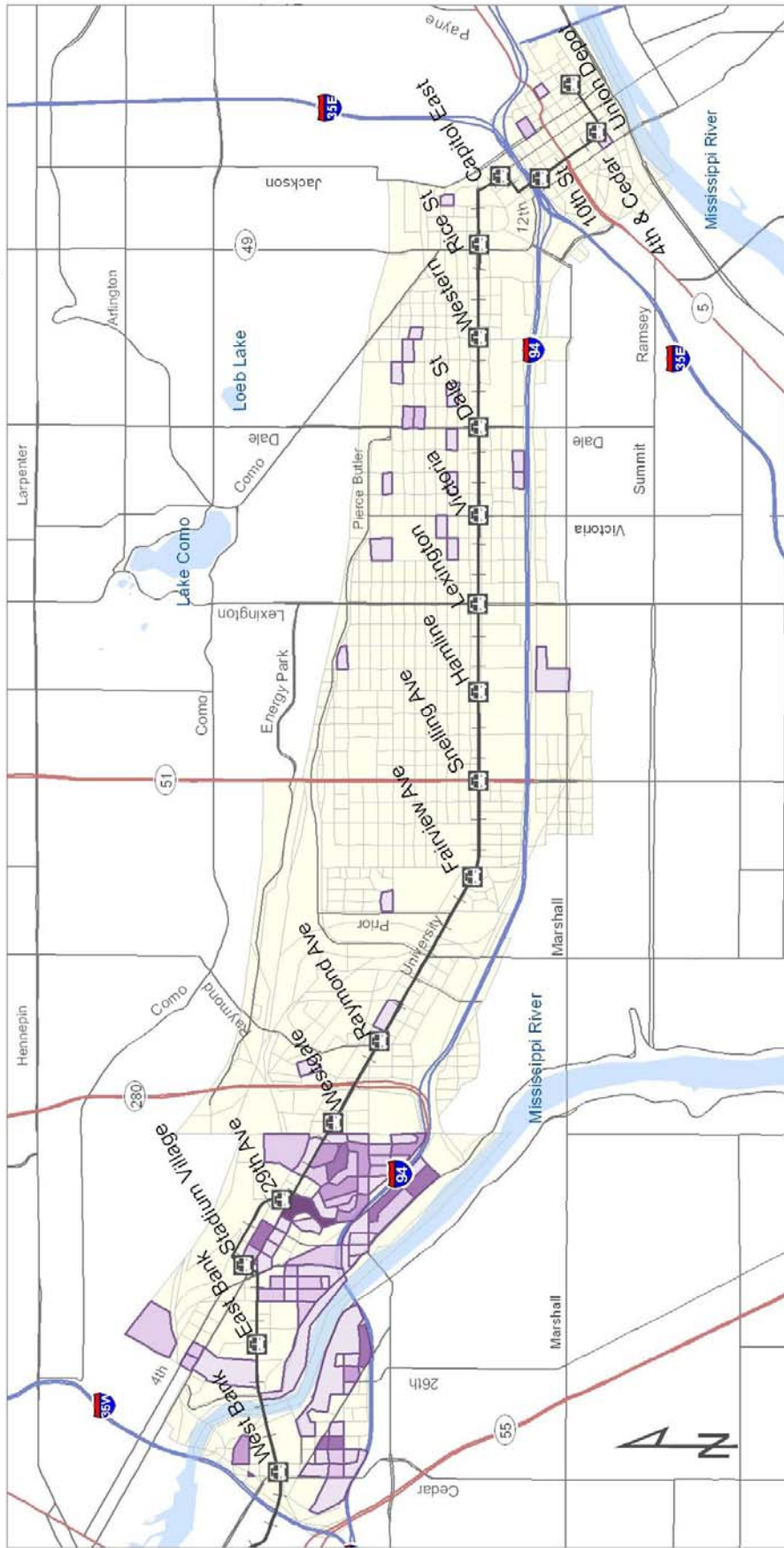
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Number of Residential Permits Issued in the Central Corridor, 2006-2010



Legend

- Proposed LRT Stations
- Proposed LRT Route
- Corridor Area Blocks
- Detailed Streets**
 - Interstate
 - Highways
 - Major Streets

Number of Permits per Block

- 1 - 2
- 3 - 5
- 6 - 8
- 9 - 12
- 13 - 19

Data Source: Cities of St. Paul and Minneapolis

Number of Residential Permits

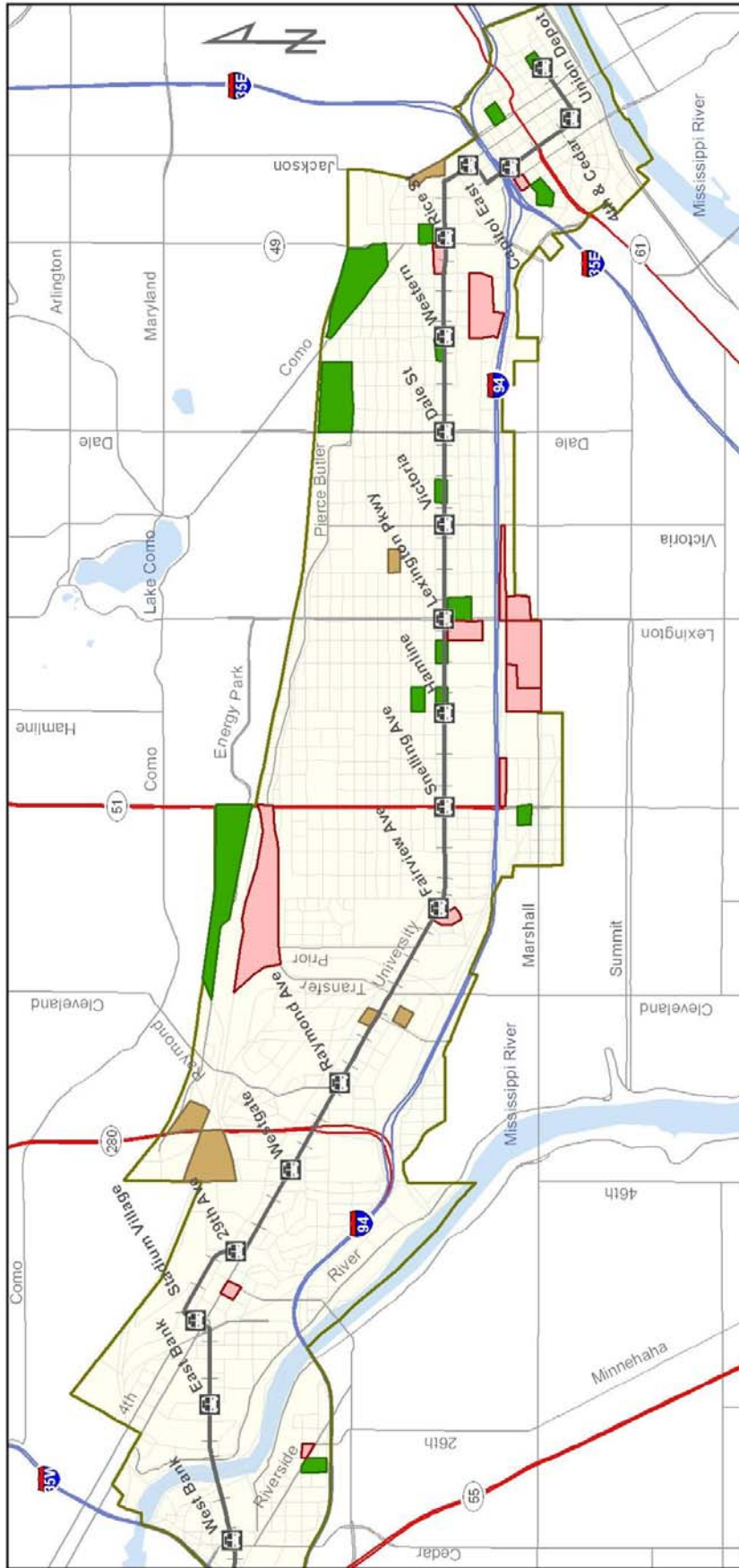
Between 2006-2010, 313 residential permits were issued in the Central Corridor - 89% in Minneapolis, 11% in St. Paul

Of the issued permits, 94% were additions or renovations to existing structures, 6% were permits for new housing.



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Non-Residential Permits in the Central Corridor, 2006-2008



Legend

- LRT Stations
- LRT Route
- Interstates
- State Highways
- Major Streets
- Corridor Study Area
- Retail
- Industrial
- Public/Municipal

Central Corridor Non-Residential Permits

From 2006-2008, 37 non-residential permits were issued in the Central Corridor, representing 17% of all permits issued in the Twin Cities.

- 41% for retail and commercial buildings
- 41% for public or municipal buildings
- 18% in industrial areas

These 37 non-residential permits invested \$282 million in the Central Corridor.

Data Source: Metropolitan Council, 2006-2008



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Cleaning Up Sources of Lead for Children

September 2010

How Do Children Get Lead Poisoning?

Most children who have lead poisoning came into contact with lead because they live in a home with deteriorated lead-based paint. Some children may come into contact with lead by playing in soil that has lead from flaking paint chips or other sources. Less often, a child has lead poisoning from having lived in a different state or country where lead exposures are more common.

Blood Lead Testing

Health experts recommend testing a young child's blood for lead at least once during a routine clinic visit, especially if the child is at risk for lead poisoning. If the level of lead in a child's blood is higher than 15 micrograms per deciliter (ug/dL), public health workers will help the family look for lead in their home. Removing lead-based paint and/or dust that contains lead, permanently sealing in lead-based paint, replacing fixtures that were painted with lead-based paint, and in some cases, removing or covering lead-contaminated soil can prevent the child from more contact with lead. Usually some testing is also done after the lead source is addressed.

Reducing Lead

To remove lead hazards from the child's environment, the homeowner may clean up lead themselves, hire a licensed contractor, or work with a local public health agency to do the work. Depending on the nature of the work, it may be regulated, which requires notifying the Minnesota Department of Health (MDH) that lead removal work is about to be started. Effective April 22, 2010, the Environmental Protection Agency (EPA) regulates any remodeling, repair, or painting (RRP) activity on pre-1978 housing. Sometimes the same work done on homes to improve poor housing or for energy efficiency can also remove sources of lead at the same time. In these cases, housing is improved at the same time children's health is protected from lead poisoning. In these cases, when the work is done for reasons other than lead poisoning, MDH may not be notified. MDH staff are glad to answer homeowners' questions about removing sources of lead (call 651-201-4620).

What Happens When Lead Poisoning is Reported?

When lead poisoning is reported, MDH works with state and local public health officials to reduce additional lead exposure by cleaning up the lead source in the child's environment. A good outcome is achieved when sources of lead in a home are found and cleaned up. However, in some cases the child's family may have moved away or were only in the area for a short time so it is difficult to follow-up with the family. In cases where a child may have been adopted from another country and arrived here with lead poisoning, the child is no longer in contact with lead and the poisoning was not from the home where they are currently living.

What the Map Shows

Between 2006 and 2008, 35 lead poisoning cases were reported in the Ramsey County portion of the Central Corridor. Lead clean up was done or the lead poisoning case was otherwise resolved between 2006-2009 at 31 out of 35 locations where blood poisoning was reported. (Clean up work can lag behind blood lead testing by several months.) As of the date of this report, for reasons described above, there is not information on four cases. In the Central Corridor, there was lead clean up work in 21 of 24 blocks that had a case of lead poisoning in a child. MDH will continue to work with state and local agencies to determine the outcome of these remaining unresolved lead poisoning cases.

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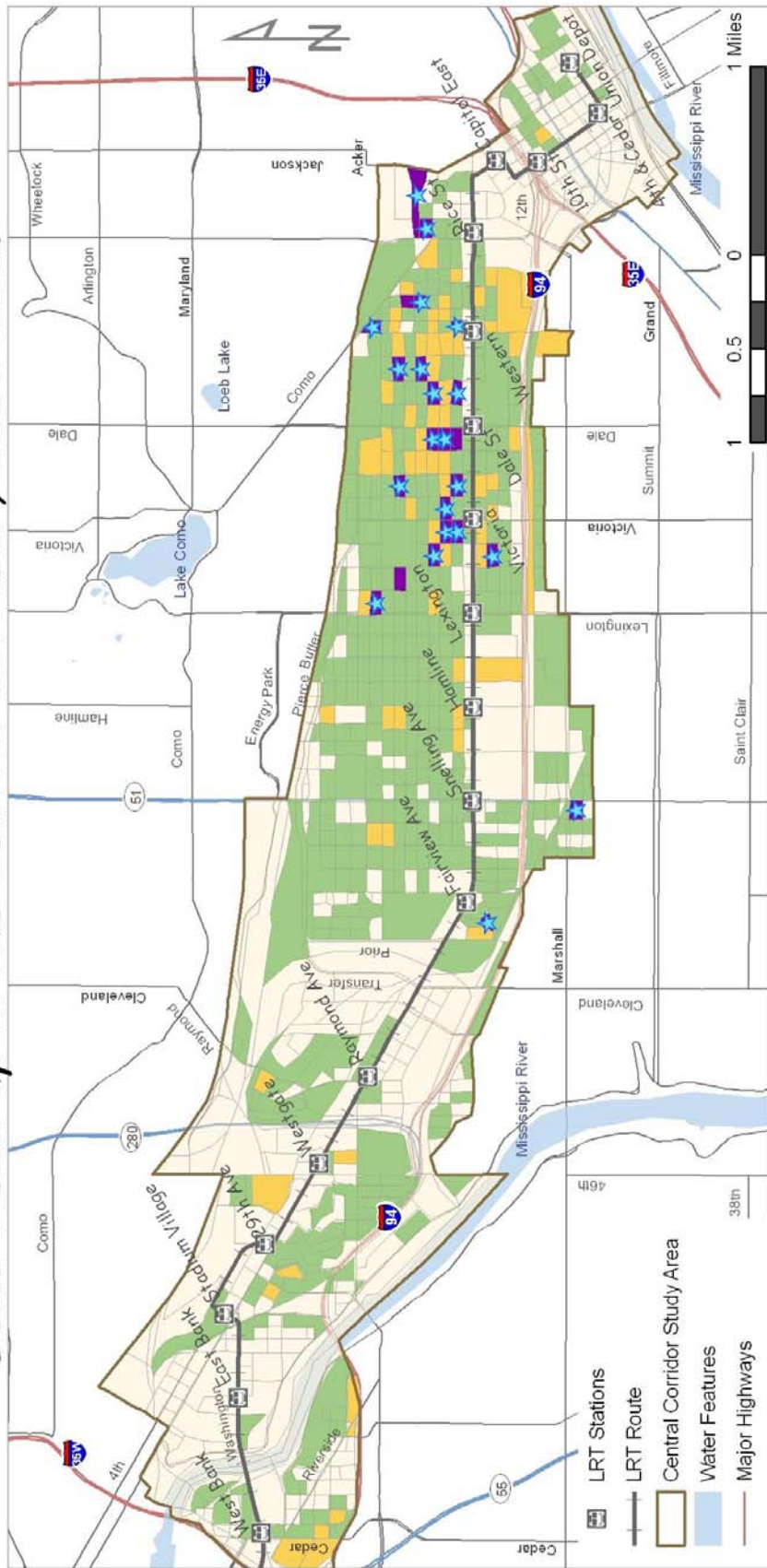
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Lead Clean-up in the Central Corridor, 2006-2009



Lead Clean-up in the Central Corridor

From 2006-2008, children were tested for blood lead in 493 blocks (48%) in the Central Corridor. Of the 493 blocks where children were tested, 84 blocks had a child with a blood lead result between 10-15 ug/dL.

24 blocks had a child with a lead result of 15 ug/dL or higher. Of the 24 blocks with a 15+ug/dL result, 21 blocks (88%) completed the required lead clean-up.

- Blocks without a child tested for lead
- Blocks with at least 1 child tested
- Blocks with at least 1 child with a 10 -15 ug/dL blood lead result
- Blocks with at least 1 child with higher than a 15ug/dL blood lead result
- Blocks with Lead Clean-up

Note: Symbol is the center of the block, not the location of the lead clean-up or testing.



Healthy Communities Count!

Data Source: MDH Lead Prevention Program

Healthy Communities Count!

Asbestos Abatements



September 2010

What is Asbestos?

Asbestos is a group of mineral fibers that naturally occur in the earth. Asbestos fibers have special characteristics. Asbestos fibers are not affected by heat or chemicals, and they do not conduct electricity. Asbestos fibers are also very flexible, allowing them to be woven into cloth-like materials.

In the past, asbestos was widely used to make many different products. Almost all of these products are no longer made with asbestos. However, examples of older products that contain asbestos and may still be in homes or cars include ceiling panels, furnace and pipe insulation, floor tiles, brake linings, and other insulation materials. The only way to know if something is made from asbestos is to have it tested by a laboratory. The Minnesota Department of Health recommends that people contact an asbestos consulting firm for testing.

Asbestos and Health

Asbestos is dangerous because it breaks down into thin fibers that cannot be seen with the human eye. These fibers are small and light, and they can remain in the air for days. Once in the air, people can breathe in these fibers. Since the fibers are so small, they travel deep into a person's lungs. The presence of asbestos fibers in the lung is associated with several serious diseases, including lung cancer, asbestosis (a scarring of the lung tissue), and mesothelioma (cancer of the lining of the lung).

Reducing Asbestos in Buildings

If asbestos is present or suspected in a home or building and in good condition (indicating that no asbestos is airborne), it should not be disturbed. However, if the product is frayed, torn, or breaking apart, it should be isolated and either repaired or removed. Homeowners and commercial building owners are most likely to disturb or damage asbestos products during remodeling or demolition. These activities can cause the asbestos fibers to get into the air where they can be breathed. Homeowners can conduct small asbestos removal projects without a permit or notification of local or state health officials. However, they should still be careful to follow advice from MDH to prevent asbestos fibers from getting into the air. If the amount of asbestos-containing material to be removed is more than 10 linear feet, 6 square feet, or 1 cubic foot, MDH does require notification and a permit. For these larger projects, additional regulations apply and MDH recommends the work be done by a licensed asbestos abatement contractor. For more information, please visit the MDH Asbestos Program (651-201-4620) website at www.health.state.mn.us/divs/eh/asbestos/index.html.

What the Map Shows

In the Central Corridor, 270 asbestos abatements were conducted between 2005 and 2010 with required permits. Most of these permits (76%) were for residential abatement projects. This work represented 12% of the asbestos abatements in the Twin Cities reported to MDH for the same time period.

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Housing Density

September 2010

What is Housing Density?

Housing density is the number of people and homes within a certain area. Housing density can influence how planners design water supplies, power grids, transportation, school locations, business areas and other services for communities. Planners can also use housing density to determine where parks and recreation areas are needed for physical activity and community events.

How is Housing Density related to Health?

One example of how housing density can be related to health is that higher density housing is often located near busy roads where there could be a greater exposure to traffic-related air pollution, which could be related to asthma or other respiratory problems.

What the map shows

Housing density is usually based on the number of housing units in a square acre of land. A housing unit can be a single family home, an apartment, or a townhouse. In a larger multi-family building or complex, each individual unit counts as one housing unit. MDH looked at housing density in the Central Corridor by reviewing information from the 2000 U.S. Census and data from the Metropolitan Council. The Metropolitan Council categorizes housing density based on the number of housing units per acre of land:

Description

- Low density (1- 4 housing units per acre)
- Medium (5 - 8 units per acre)
- High (9 - 12 units per acre)
- Very High (13 – 20 units per acre)
- Urban (21 or more units per acre)

Example

- Single family houses
- Single family houses and condominiums
- Small apartments and townhomes
- Larger apartment buildings and townhomes
- Apartments, duplexes and townhomes

Based on Metropolitan Council and U.S. Census data, over 50% of residents in the Central Corridor live in very high density or urban density areas. The highest density housing tends to be near busy roads such as University Avenue and Interstate 94.

Limitations

Data for this Core Count are based on zoning or land use designations by the cities of St. Paul and Minneapolis. These records may not be completely up to date and may underestimate the number of higher density areas because commercial buildings may be converted to housing. In addition, the 2000 U.S. Census data likely underestimates the current population of the Central Corridor.

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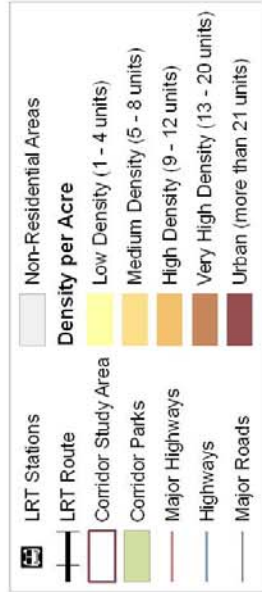
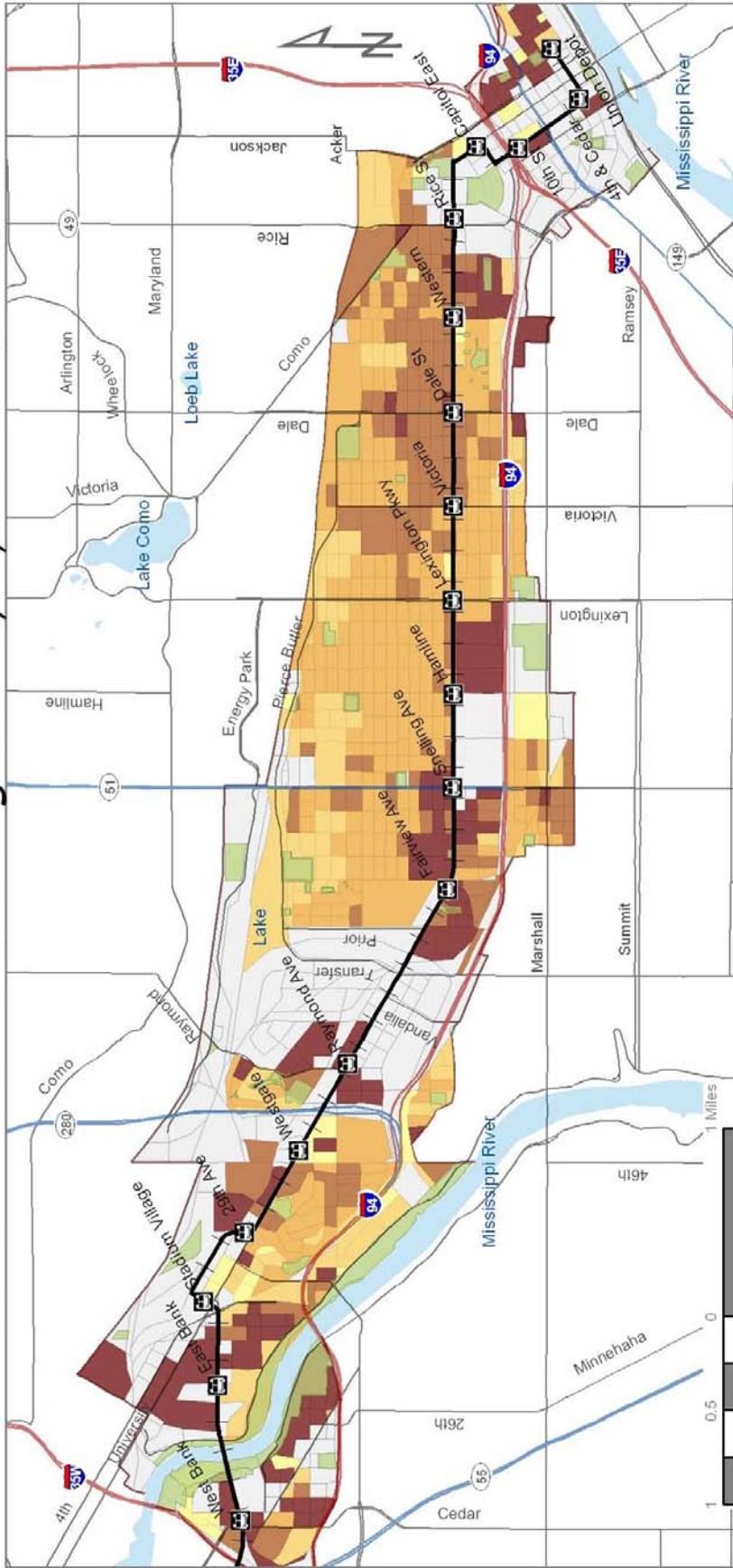
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Central Corridor Housing Density by Census Block



Housing Density Analysis of Corridor Residents:
 3% of the population live in Low Density areas
 14% in Medium Density areas
 30% in High Density areas
 32% in Very High Density area
 21% in Urban Density settings



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Sources: 2000 US Census and Metropolitan Council Land Use Dataset, 2010

Healthy Communities Count!

Access to Transit



September 2010

What is Access to Transit?

Access to transit is necessary for people to take care of their basic needs each day. Cars, buses, and trains help people get to work, attend school, visit health care providers, buy food, and many other tasks. To find out how many people can easily walk to access public transportation, city planners and public health workers can look at housing density (how many people live in a specific area) near transit access locations (such as bus stops and LRT stations).

How is Access to Transit related to Health?

A lack of access to transit, either by a personal car or public transportation, may be linked with less education, lower incomes, less job security, and poorer health. Women, the elderly, and disabled people may be more likely to be affected by a lack of transit choices. Studies show that individuals living near public transit stops are more physically active; they also feel more connected to their community, neighbors, friends, and family.

What the map shows

A common way to measure or count access to transit is to look at the number of people who live within a ten minute walk (about 500 meters or 1600 feet) from a public transit stop or station. MDH looked at access to the new LRT stations in the Central Corridor by drawing circles that show a 10 minute walk around each station and counting how many people live inside of that circle. Based on Metropolitan Council and 2000 U.S. Census information, 56% of the people living in the Central Corridor live within a ten minute walk of one of the planned LRT stations. About half of the stations are located in very high density housing areas as defined by the Metropolitan Council.

Limitations

In order to measure access to transit, MDH used the number of housing units in a certain area, the population, and the location of the LRT transit stops. This information is from Metropolitan Council land use and zoning maps and the 2000 U.S. Census. The 2000 Census may underestimate the number of people now living in the Central Corridor. Also, former commercial buildings may now be used for housing.

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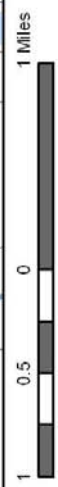
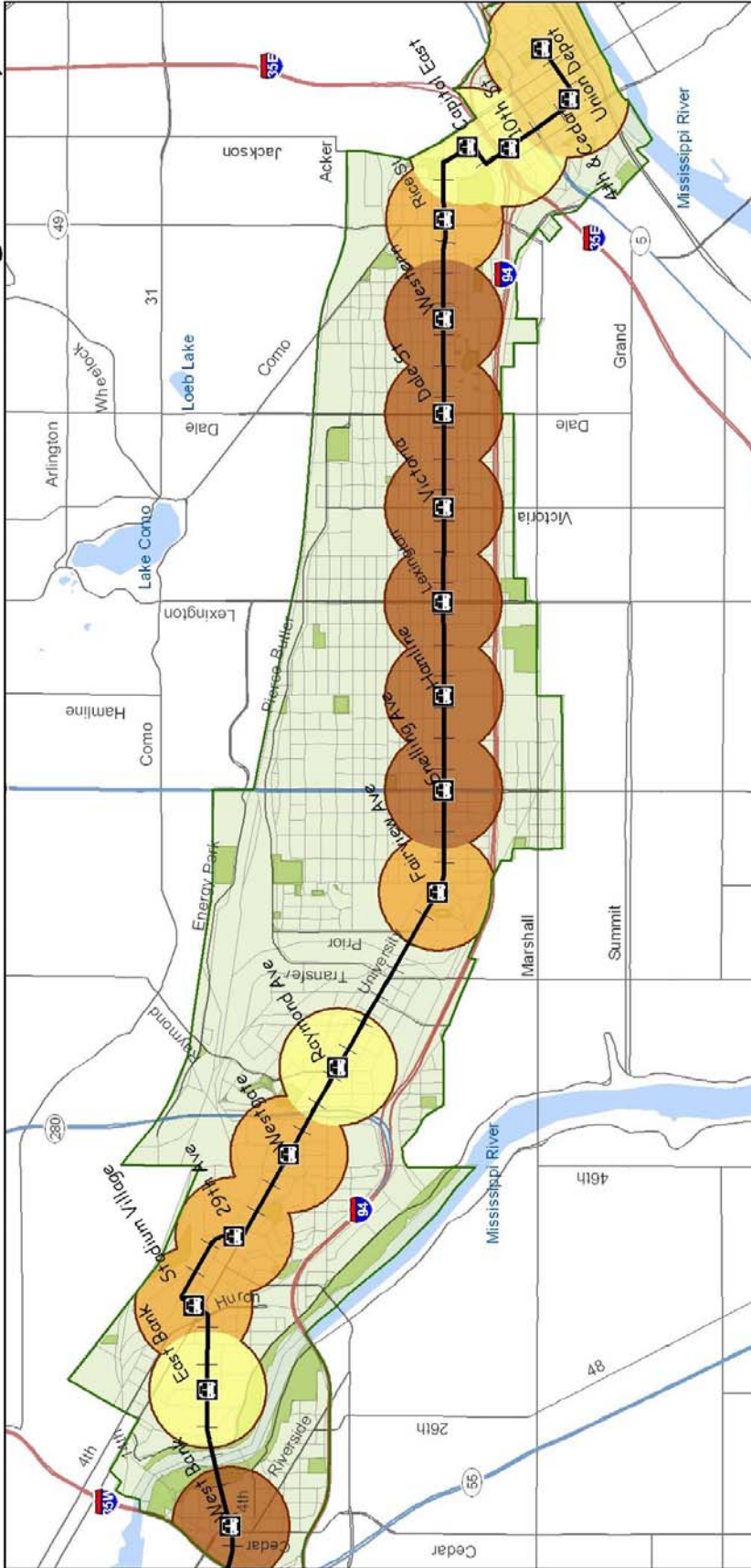
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Access to Central Corridor LRT Stations based on Housing Density



Access to Transit Data Analysis
 500 Meter Buffer = 10 minute walk
 56% of Central Corridor residents live within a 10 minute walk of one of the planned LRT stations.

- LRT Stations
 - LRT Route
 - Corridor Study Area
 - Major Highways
 - Highways
 - Major Roads
 - Corridor Parks
- Housing Density within 500 meters of an LRT Station
- Low (1-4 units)
 - Medium (5-8 units)
 - High (9-12 units)
 - Very High (13-20 units)
 - Urban (more than 21 units)



Source: Metropolitan Council Land Use by Parcel dataset, 2010
 Healthy Communities Count!

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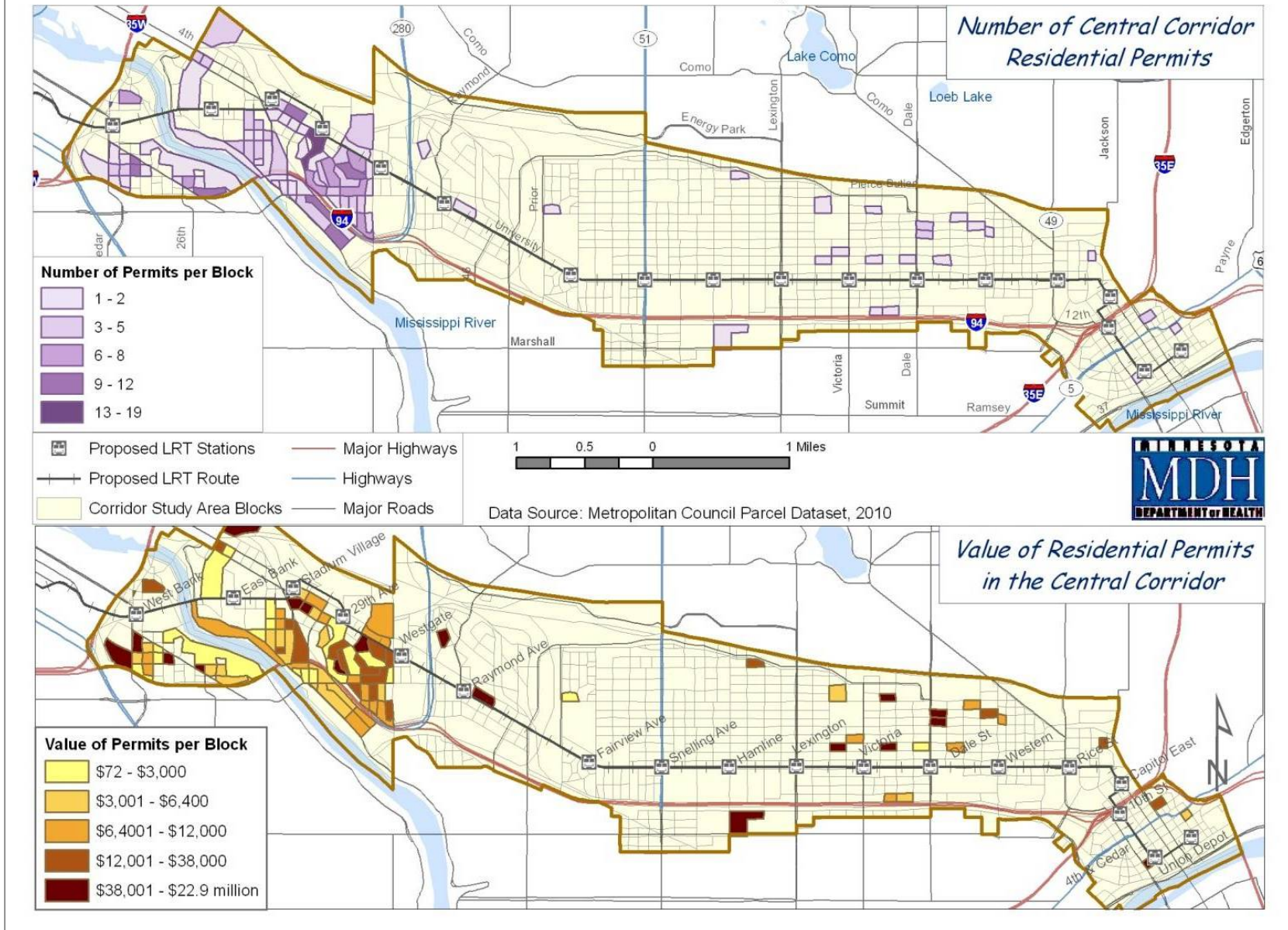
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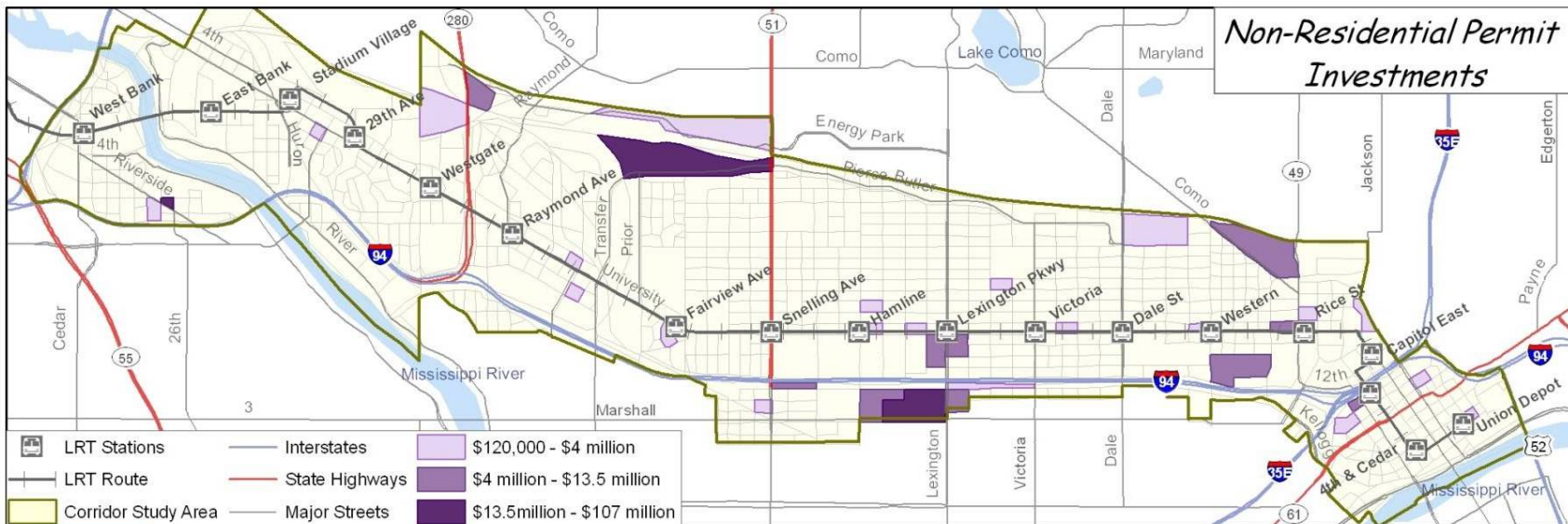
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Appendix 2: Additional Core Counts Maps

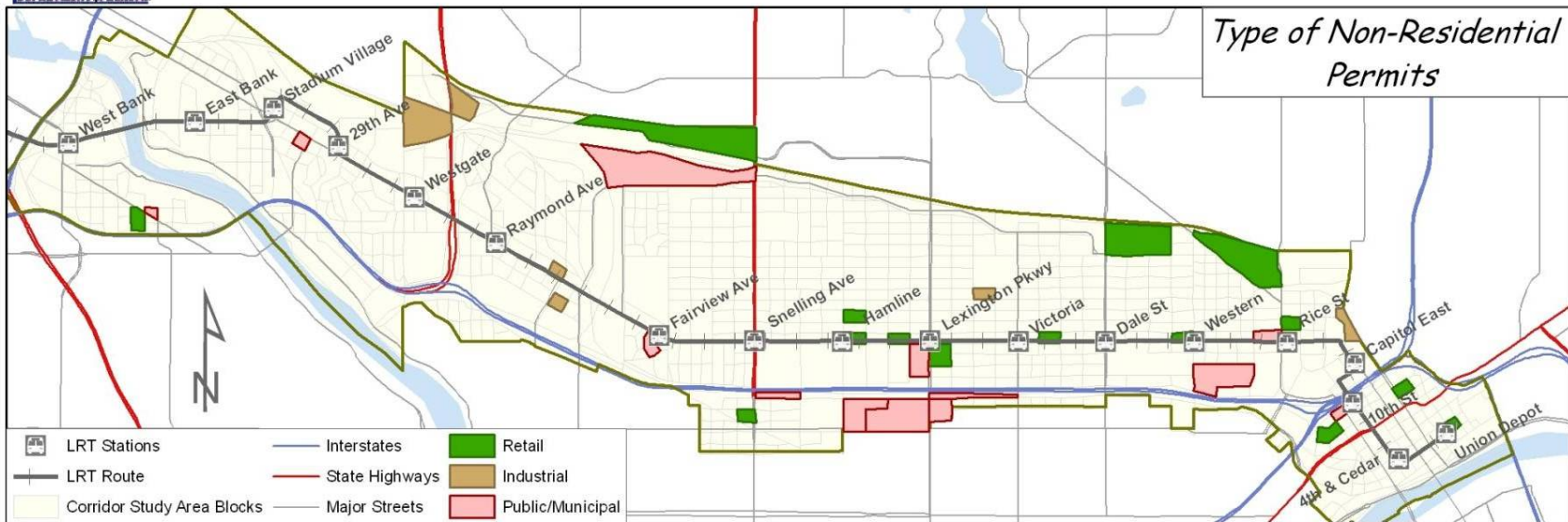
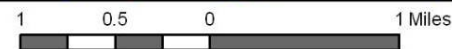
Central Corridor Residential Permits: 2006 - 2010



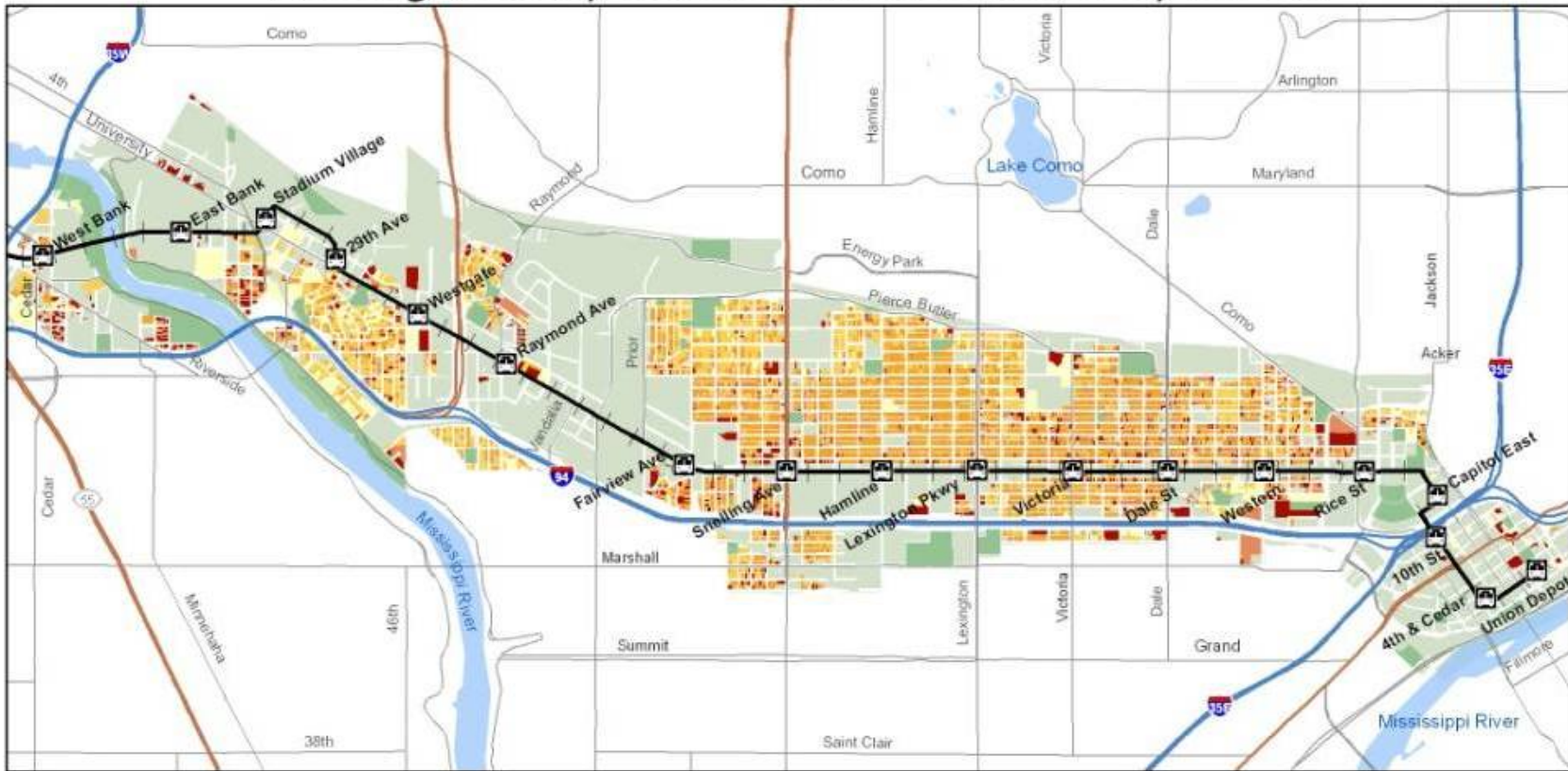
Non-Residential Investment in the Central Corridor, 2006-2008



Data Source: Metropolitan Council Parcel Dataset, 2010



Housing Density in the Central Corridor by Parcel



Central Corridor Housing Density Data:
Density thresholds are established by the
Metropolitan Council in land use plans

Of all residential parcels in the Central Corridor:

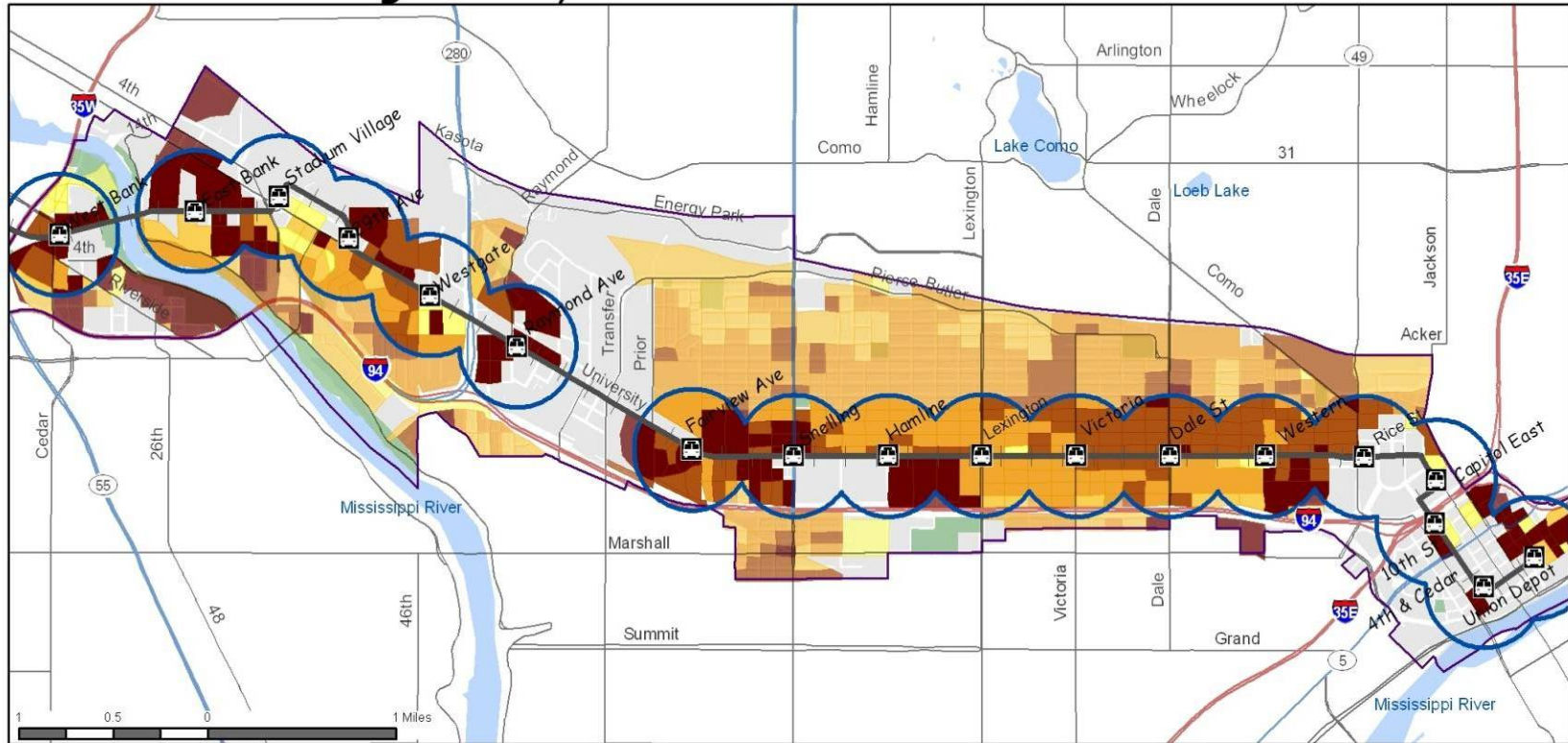
- Low Density = .5%
- Medium Density = 21%
- High Density = 48%
- Very High Density = 14%
- Urban Density = 11%



Healthy Communities Count!

Source: Metropolitan Council Land Use by Parcel, 2008

Housing Density within 500 meters of LRT Stations



- LRT Stations
- 500 meter buffers
- LRT Route
- Housing Density**
- Parks
- Low (1- 4 units)
- Corridor Study Area
- Medium (4.1- 8 units)
- Major Highways
- High (8.1-12 units)
- Highways
- Very High (12.1 - 20 units)
- Major Roads
- Urban (more than 20.1 units)

**Access to Transit Data Analysis:
500 Meter Buffer = 10 minute walk**

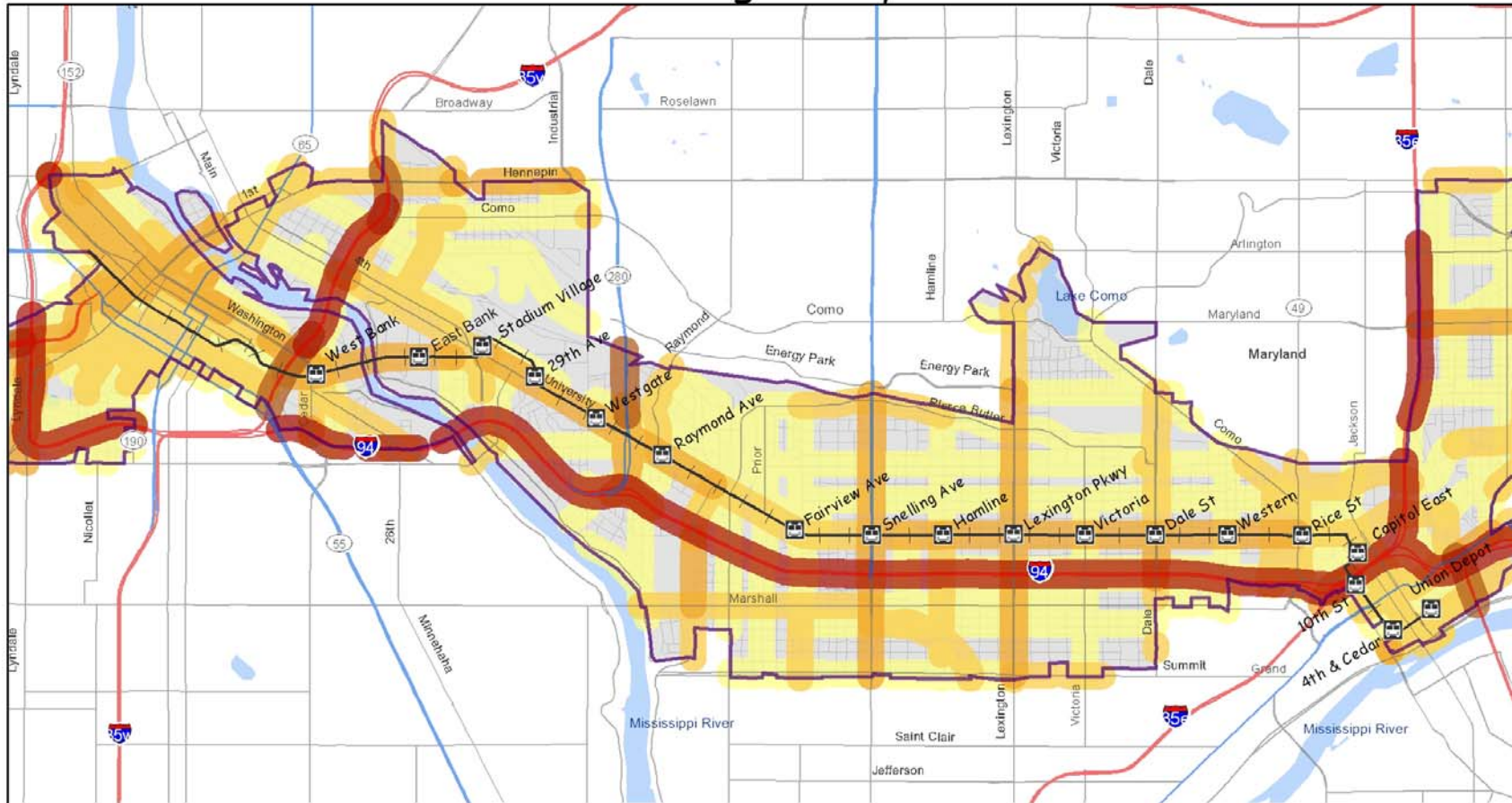
% of Housing Density type within 500 meter

- Low Density = 24%
- Medium Density = 20%
- High Density = 33%
- Very High Density = 10%
- Urban Density = 13%

Source: Metropolitan Council Land Use Parcel dataset, 2010



Central Corridor Average Daily Traffic Count

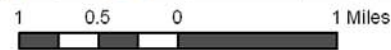


- LRT stations
 - Corridor Study Area Zip Codes
 - Rail Line
 - Corridor Blocks
 - Major Highways
 - Highways
 - Major Roads
- Average Number of Vehicles Per Day**
- 500-10,000 vehicles per day
 - 10,001-20,000 vehicles per day
 - 20,001-60,000 vehicles per day
 - 60,001-100,000 vehicles per day
 - 100,001-200,000 vehicles per day

Data Analysis

80% of all residences in the Central Corridor live within 500 feet of a street.

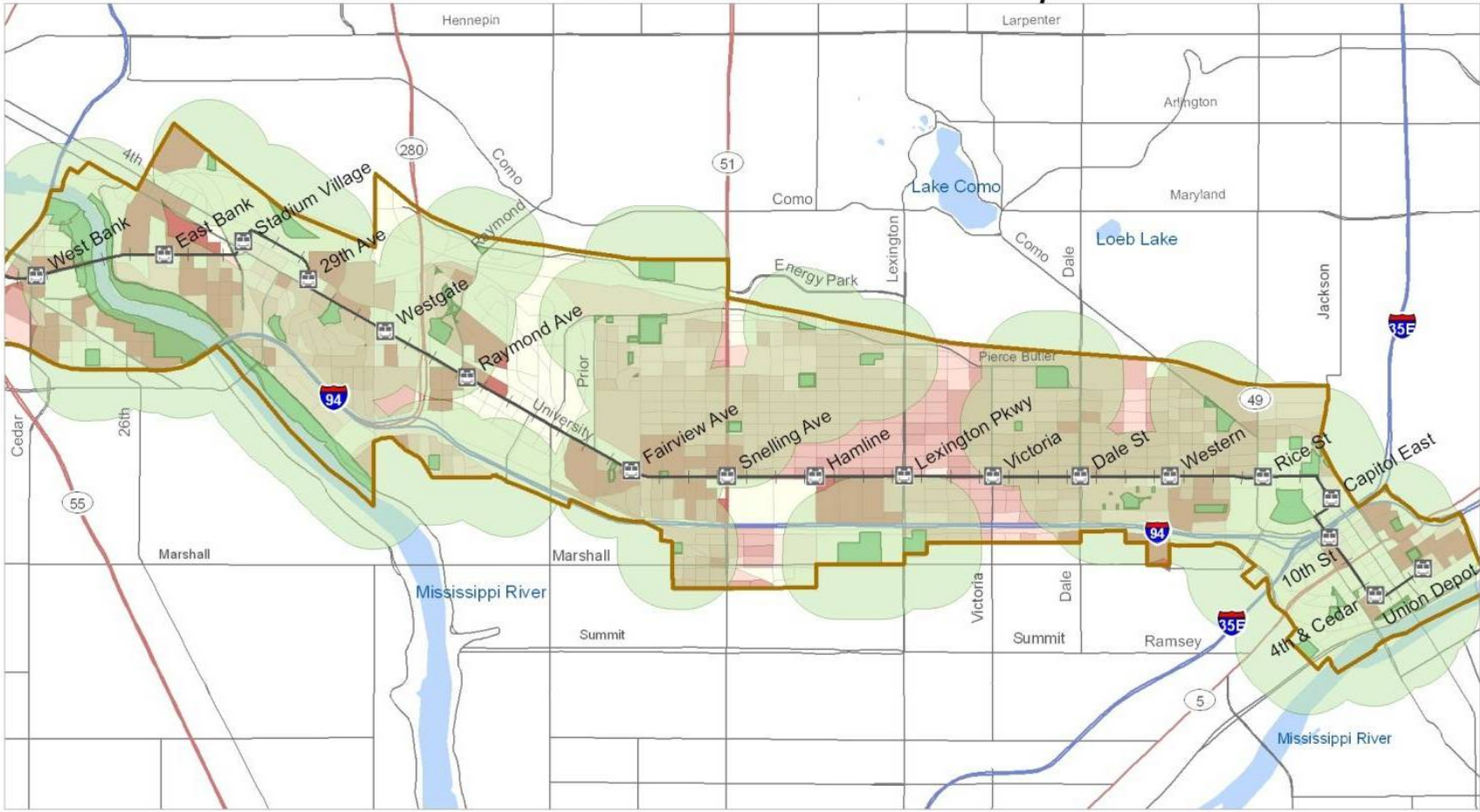
29% of homes are located within 500 feet of a high traffic zone, or a street with more than 100,000 vehicle passes per day.



Data Source: Minnesota Department of Transportation

Healthy Communities Count!

Central Corridor Access to Park Space



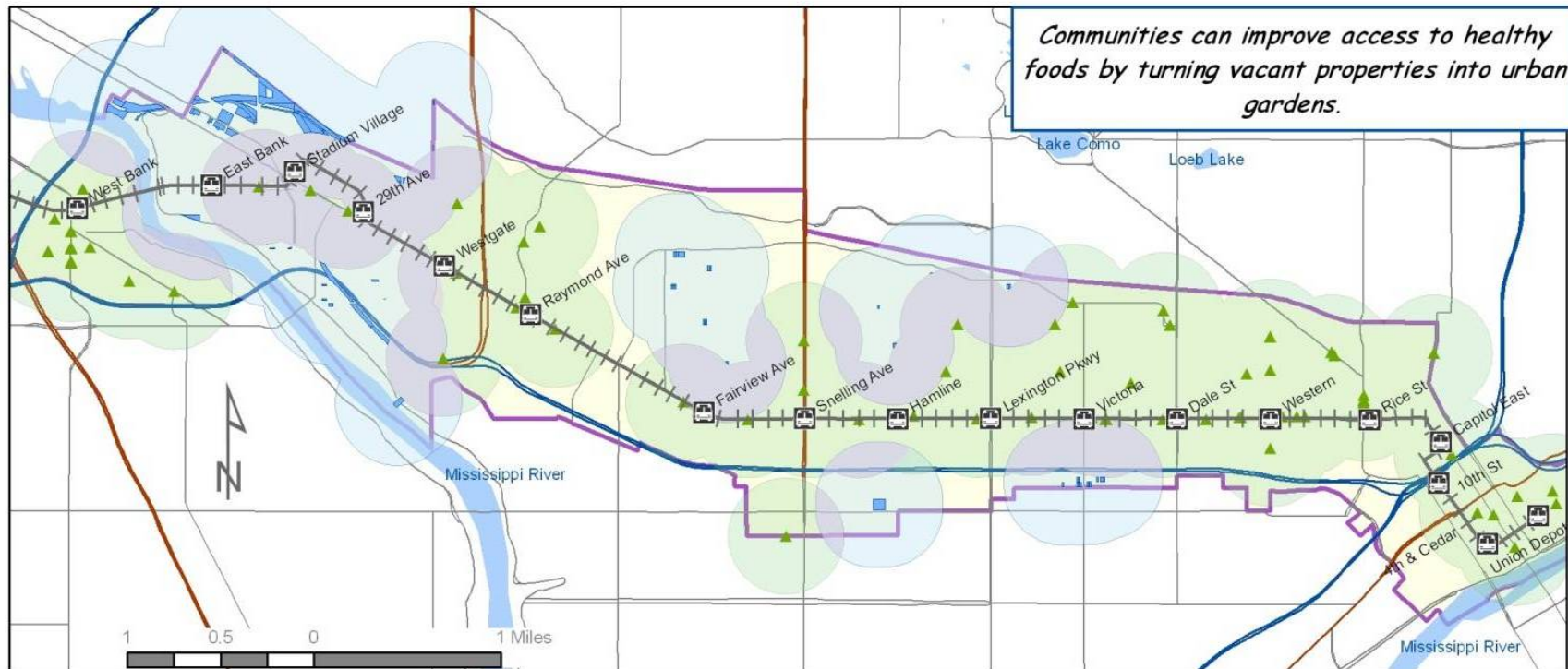
- Proposed LRT Stations
 - Proposed LRT Route
 - Central Corridor Park Space
 - 500mt Buffer
 - Water Features
 - Corridor Area Blocks
- | Average Block Housing Density |
|-------------------------------|
| 1 - 4 |
| 5 - 8 |
| 9 - 12 |
| 13 - 20 |
| More than 21 |

Access to Park Areas
Within the Central Corridor, 86% of residents have park space within 500 meters or a 10 minute walk from their home.

Data Source: Cities of St. Paul and Minneapolis



Potential Improved Access to Healthy Foods from Vacant Lots



Data Analysis:

- Currently, 19,386 housing units have access to a grocery store within 500 meters or a 10 minute walk.
- 92 vacant parcels totaling 167 acres of land could be used to give access to healthy foods.
- An additional 1,623 housing units could gain access to healthyfoods if those 92 vacant properties were converted to urban gardens.
- If all 92 vacant properties were converted to urban gardens, 5,855 housing units would have access to both gardens and grocery stores.

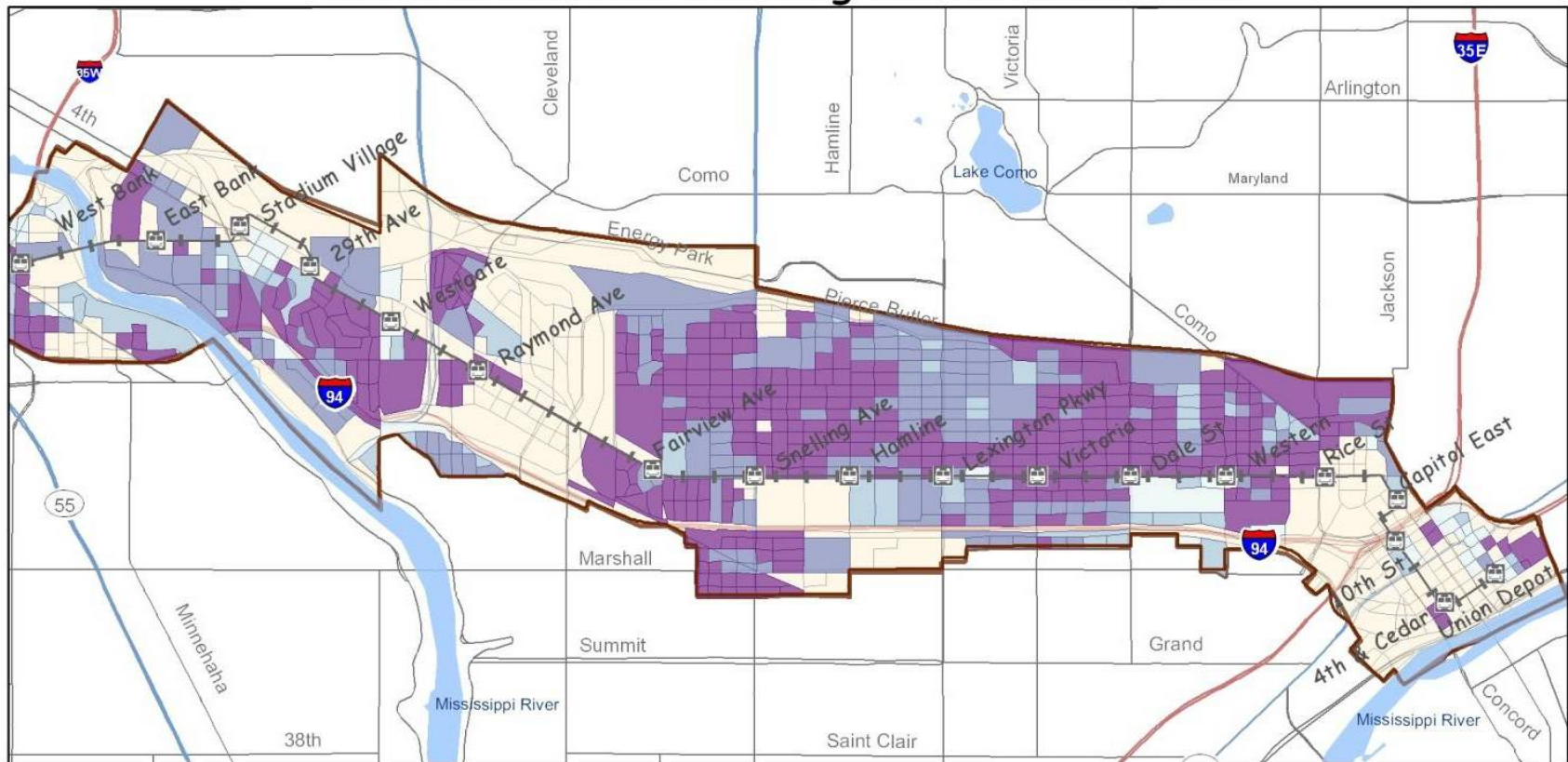
- | | | | |
|---|-----------------------|---|--|
|  | Proposed LRT Stations |  | Central Corridor Study Area |
|  | Proposed LRT Route |  | Vacant Properties outside Grocery Store Access |
|  | Interstate |  | Existing Grocery Store Locations |
|  | State Highways |  | Overlapping Areas: Improved Access |
|  | Major Streets |  | Existing Grocery Store Access Areas |
| | |  | 500 Meter Vacant Property Access |

Data Sources: Metropolitan Council Parcel Dataset, Minneapolis and St. Paul Vacant Lot List, MDH Produce Sales Licensing Database

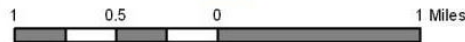
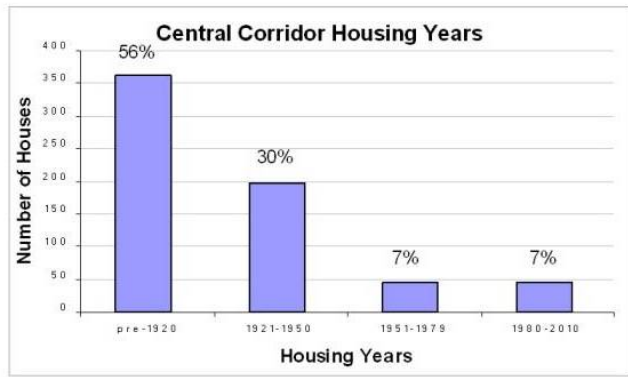


Healthy Communities Count!

Central Corridor Housing Construction Year



- LRT Stations
- LRT Route
- Major Highways
- Highways
- Major Roads
- Blocks without Housing
- Average Block Housing Year**
- 1878 - 1920
- 1921 - 1950
- 1951 - 1979
- 1980 - 2007



Data Source: Metropolitan Council Parcel Data Set, 2010



Appendix 3: Community Concerns and Potential Community Counts

Potential "Community Counts" Described at the MDH <i>Healthy Communities Count!</i> Workshop						
August 17, 2009						
Health	Community		Land & Environment		Buildings & Infrastructure	
<i>Health</i>	<i>Economic</i>	<i>Food & Services</i>	<i>Street Scope</i>	<i>Planning/Green Space</i>	<i>Housing</i>	<i>LRT- Transit</i>
Locations of medical providers near LRT stations – quantity, type	Job opportunities	Count fast food locations	Sitting/pedestrians – where do they sit & why? Change in sitting patterns	Green spaces/gardening - # of backyard gardens, what people are growing in their gardens?	More housing code inspections needed – ex. mold/lead paint.	LRT may decrease transportation options of people in the area traveling within the area
Uninsured health care rate: with better access via LRT, increase health care rate?	Amount of parking	Count markets/grocery stores	Walking paths over University Ave needed	Count community gardens – use successful gardens as example. Add more community gardens.	Monitor proper demolition process – What is it?	Pedestrian counts
“Silent” – people not getting regular care – improve access to clinics/dr offices & expand choice of health care providers	Shared parking lots	Count types of restaurants – quick food & take-out vs. dine in – could impact wait workforce if dine-in restaurants negatively impacted	Off-street parking locations	More parks/green space – count parks/green space & improve	Increase in rat control activity – pest control, city	Assess # stations – too much distance between stations
Mobility/location for nursing home/elderly residents – provide stations where access is easily available	# of small businesses - fear of losing	No. of schools that are being closed (?)	Jaywalking/crossing University – change in people doing this/where	Tree planting instructions for boulevard trees	“up front” people who rent for people who have records/drug traffickers who then take “ownership” of rental property	# of bike users – increase/decrease? Access to bike facilities.
Health Fairs	Evaluate impact of small businesses in community caused by LRT (all)	Count after school activity centers/programs. Could be safety issue with LRT.	Increase in violence/transit from Minneapolis	Parking lots & bicycle trails. Separate bike trails/lanes from sidewalks	Foreclosures/abandoned homes	Traffic patterns compared to what will be after LRT – left/right turns?
Cigarettes/marijuana – access is easy (youth)		Senior spaces – services - # of services for seniors	Increased burglaries/break-ins from side street parking (or more car break-ins)	More playgrounds	No. of vacant properties	Why no park & rides – where do people park now to take the bus?
Accident statistics		Youth programs aren’t available in evening when parents are home	Lighted pathways	Air quality at semaphore corners – baseline data		How many people perceive LRT station as being safer than a bus stop?
		# of rec centers -# of sports fields – upkeep?	Litter or other illegal waste disposal – increase or decrease?	Loss of parking lane/buffer - impact on pedestrian levels		Change in usage patterns of student commuters when LRT is available? (lots of high schools/colleges on route)
			Bus bench location on sidewalk is a barrier – too close to street			Need for separate bike lanes
			People at bus stop/mental health issues			Change in # of car owners?