Community Health Profile Information:
Minneapolis Sites

Minnesota Department of Health - Site Assessment and Consultation Unit

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Asthma Hospitalizations

Asthma

Asthma is a chronic disease, marked by acute respiratory episodes or attacks. A person with asthma may have wheezing, shortness of breath, or coughing. Asthma episodes or "asthma attacks" may lead to hospitalization and, in rare cases, death. Although the causes of asthma are not completely known, we do know that children and adults who live in the Twin Cities metropolitan area are more likely than people living in Greater Minnesota to be hospitalized for asthma. We also know that "triggers" (such as mold, allergens, respiratory infections and colds, tobacco smoke, wood smoke, air pollution, exercise, or strong emotions) can cause asthma attacks. There is not a cure for asthma, but medication can help control symptoms. Reducing triggers in the environment of a person with asthma can help to reduce the frequency and severity of asthma attacks. In addition, following an asthma action plan, under direction of a healthcare provider, can help a person with asthma control their asthma and lessen the likelihood of an attack. (MDH Asthma Program website: http://www.health.state.mn.us/asthma/)

Asthma and Health

Health studies show a link between traffic, air pollution, and asthma. Children who live for long periods of time in homes that are close to heavy traffic may be more likely to develop asthma. They also breathe in traffic-related pollutants, like diesel exhaust, which can trigger an asthma attack. Exhaust from traffic can trigger more frequent attacks if children live or go to school near a busy road.

Other environmental factors related to asthma include exposure to: poor indoor air quality, tobacco smoke, mold/allergens, and exposure to furry pets and pests like cockroaches, dust mites and rodents. Some people with asthma may be sensitive to odors and scents such as given off through the use of air fresheners, scented personal care products and chemicals including those sometimes found in cleaning products.

Asthma affects many aspects of life. Children and adults with asthma may be absent from school or work more often than others, or have difficulty with exercise and sports. However, with proper care, asthma can be controlled and people with asthma should be able to live healthy, active lives.

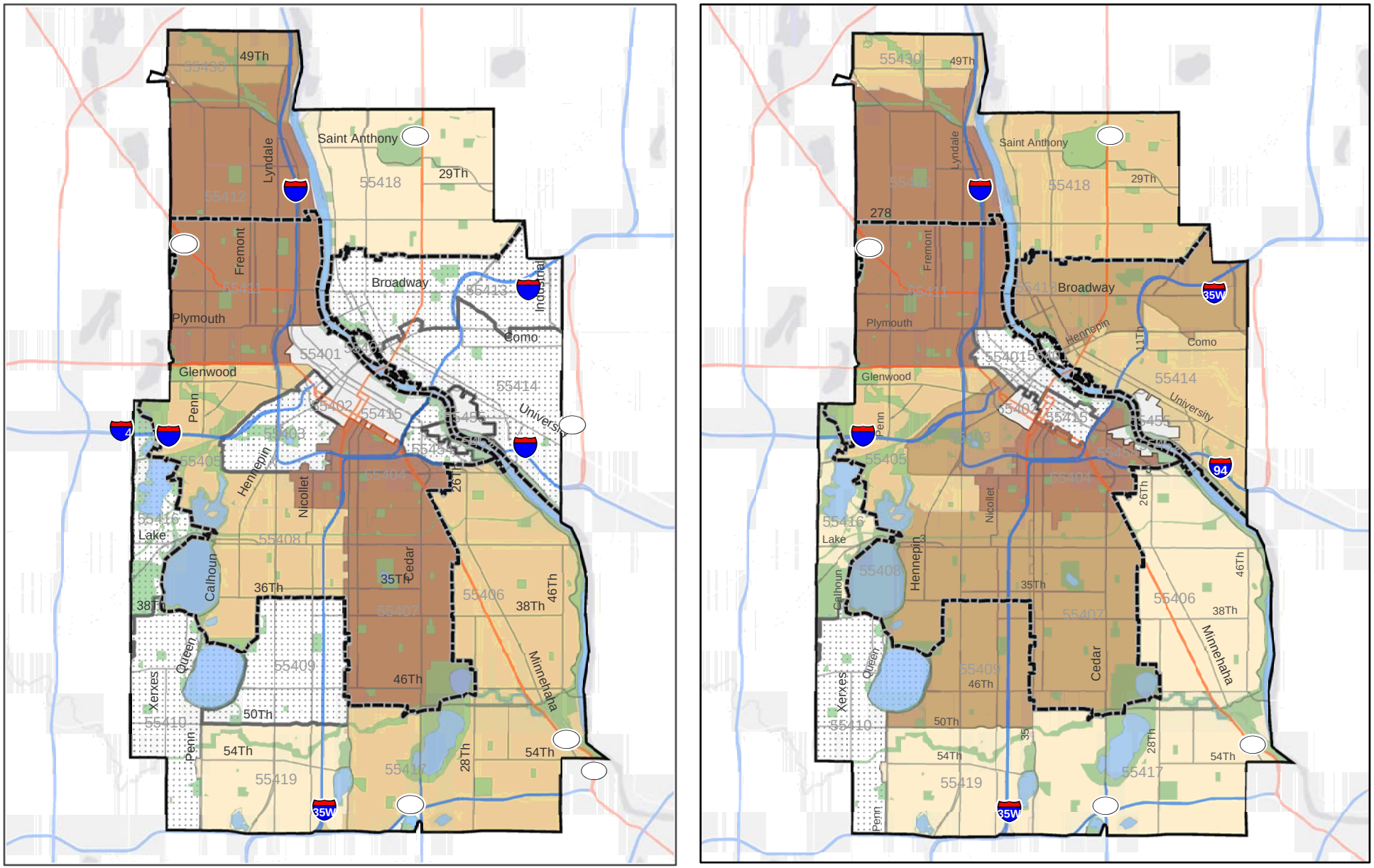
Counting Asthma Hospitalizations

In Minnesota, data are available to count the number of hospitalizations for asthma by the zip code where patients live. The information includes all asthma hospitalizations for people of all ages.

What the Information Shows

When we count hospitalizations for asthma in the City of Minneapolis, there are about 14 hospitalizations for every 10,000 people. If we do a similar count for the Twin Cities metro area, there are about 8 hospitalizations for every 10,000 people. For the state of Minnesota, there are about 7 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 hospital care because access to the hospital is difficult or because they do not have health insurance. In addition, people with health insurance may choose to visit a clinic or physician instead of going to the hospital. Still, hospitalization data are the best available data.

Age-adjusted Asthma Hospitalizations Rate per 10,000 People, 2008-2010



Child Hospitalization Rate

- Unstable (<20 per Zipcode)
- 7 - 14
- 15 - 24
- 25 - 39
- 30 - 39
- No Rate Calculated (<5 per Zipcode)

The overall asthma rate for children is 23 per 10,000 people

- City of Minneapolis
- Central Zip Code Area
- Parks and Recreation

Data sources: Minnesota Hospital Association, Minnesota Department of Health Asthma Program

Adult Hospitalization Rate

- Unstable (<20 per Zipcode)
- 2 - 9
- 10 - 14
- 15 - 17
- 18 - 43
- No Rate Calculated (<5 per Zipcode)

The overall asthma rate for adults is 14 per 10,000 people

Cancer in Minnesota

Cancer

Cancer is:

- A group of more than 100 different diseases.
- The uncontrolled growth and spread of abnormal cells in the body.
- Different types of cancer have differing rates of occurrence, causes, and chances for survival.

The development of cancer is a multi-step process, starting with genetic changes in cells, followed by uncontrolled cell division and tumor growth over time. The time from genetic change to the development of cancer, known as the "latency period," is usually decades long, often 30 years or longer. This means that many cancers diagnosed today may be due to events that caused genetic changes in cells a long time ago.

Cancer can develop in individuals of all ages, but is most commonly found in people who are older than 40 years. Nearly one half of all Minnesotans will develop cancer at some point in their lives. Because people are living longer, the chance of developing cancer is increasing. For more information about Cancer and the Environment, visit the MDH website at http://www.health.state.mn.us/divs/eh/hazardous/topics/cancerenvt.pdf.

Cancer and Health

Cancers do not have a single cause and are not a single disease. There are a variety of known causes or "risk factors". Risk factors have been shown to affect or increase an individual's risk, or chance of developing cancer. They can include such things as age, race, gender, other genetic factors, exposure to tobacco, diet, physical inactivity, some viruses, radiation, medications, reproductive history and chemical exposures.

Genetics play a role in most cancers. This means that a family history can be a risk factor for some types of cancers such as melanoma, prostate, breast and colon cancer. It is not unusual for several cases to occur within a family.

Things we do in our daily lives can increase our chance of developing cancer. These factors, sometimes called **"lifestyle factors,"** include: cigarette smoking; heavy drinking; and having a diet that has excess calories, is high in fat, and contains few vegetables and fruits. Other lifestyle factors that increase risk have to do with reproductive patterns, sexual behavior, physical inactivity and excessive unprotected exposure to sunlight.

Cigarette smoking is a leading cause of cancer deaths in the U.S. today. In addition to being responsible for 80 to 90 percent of lung cancers, cigarette smoking is also associated with leukemia and cancers of the mouth, pharynx, larynx, stomach, esophagus, pancreas, kidney, bladder, cervix, and endometrium (lining of the uterus). The risk of dying from lung cancer is 10 to 20 times higher for smokers compared to non-smokers.

County level information about cancer and cancer incidence is available at the Minnesota Public Health Data Access webpage located https://apps.health.state.mn.us/mndata/home . This portal has information about the incidence of cancer in Minnesota residents by year and the incidence of some cancers in Minnesota residents by age group, race/ethnicity, gender, or region of the state.

Cancer in Minnesota

The incidence of cancer (new cases) is monitored by the Minnesota Cancer Surveillance System (MCSS). Created by the Minnesota Legislature in 1987, this statewide system collects information on all new cancers diagnosed in Minnesotans. For more information about the MCSS, visit the MDH website at http://www.health.state.mn.us/divs/hpcd/cdee/mcss/.

Minnesota's cancer rates are similar to the national rates for most types of cancer. However, our lung cancer rates are lower compared to the U.S. population. This may be due to the fact that smoking prevalence in Minnesota was lower years ago. Today our smoking rate is similar to the national average and the gap between the national lung cancer rate and Minnesota's rate is closing.

In men, cancer incidence has declined in Minnesota since peaking in 1992, largely due to decreases in colorectal, stomach, prostate and lung cancer. ***In women***, overall cancer incidence rates increased slightly, largely due to increases in melanoma, kidney, thyroid and lung cancer, which outweighed decreases in colorectal, stomach, ovarian and cervical cancer. Breast cancer incidence is similar to what it was two decades ago, but deaths attributed to breast cancer have decreased due to earlier diagnosis and improved treatment.

Odds of Cancer in Minnesota Males		
	Diagnosis	Death
Prostate	1 in 5	1 in 30
Lung	1 in 14	1 in 15
Colo-rectal	1 in 18	1 in 45
Bladder	1 in 22	1 in 111
Any Cancer	1 in 2	1 in 4

Odds of Cancer in Minnesota Females		
	Diagnosis	Death
Breast	2 in 15	1 in 34
Colo-rectal	1 in 19	1 in 50
Lung	1 in 16	1 in 19
Uterine	1 in 32	1 in 167
Any Cancer	8.5 in 20	1 in 5

Racial differences in cancer incidence have been observed In Minnesota, as in other parts of the country. American Indian men have the highest cancer rates in Minnesota followed by African Americans. Among American Indians, smoking- related cancers of the lung, larynx, and oral cavity, as well as prostate, colorectal and cervical cancers are unusually common.

In children, there are several pediatric cancers that occur early in life. Nearly 1 in 450 children will be diagnosed with cancer before the age of 15. Although some childhood cancers are associated with specific genetic and prenatal factors, in most cases the causes remain largely unknown.

It is believed that the organ systems of children are especially vulnerable to injury when undergoing periods of rapid growth and development. Factors that have been studied which play a role in childhood cancers include genetics, infectious diseases, prenatal conditions, environmental pollutants, and radiation. However, few studies have been able to show a consistent association between childhood cancer and these factors.

The types of cancer most often seen in children are different from those seen in adults. The three most common types of cancer in children are leukemias, tumors of the brain and nervous system, and lymph node cancers.

Lead Poisoning in Children

Lead

Children can come into contact with lead in soil, dust accidently brought home from adult workplaces, hobbies in the home, imported candies, traditional or ethnic sickness remedies, pottery, or toys. However, the most common source of lead is from old paint in homes. Lead paint is commonly found in homes built before 1978, the year lead in paint was banned. Houses built before 1950 are most likely to have lead paint. While cracked, peeling paint is an obvious concern, the primary exposure source for children is the dust created by opening and shutting windows/doors that have frames painted with lead paint. For more information about the MDH Lead Poisoning Prevention Program, visit the MDH website at http://www.health.state.mn.us/divs/eh/lead/.

Lead and Health

Children tend to put their hands in their mouths. As they play, children may accidently swallow dust, chips of paint, or soil containing lead dust from paint or other sources. Lead exposure can lead to learning disabilities, problems in behavior, and at very high levels, seizures, coma, and death. However, the effects of low level lead exposure in infants and toddlers are subtle (the child does not look or feel sick), and exposures may not ever be detected, or may not be detected 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.

The best way to check for possible lead exposure is for health care providers to test a child or pregnant woman's blood for lead. Recent research has shown there is no known safe exposure level for lead. Both CDC and MDH recommend action to identify and eliminate exposure if a child's blood lead is higher than 5 micrograms per deciliter (ug/dL). Local public health agencies will work with families to find sources of lead and to prevent further exposure. If the result is higher than 15 ug/dL for a child less than six years old, Minnesota law requires an inspection of the home where the child lives and mandates removal of sources of lead

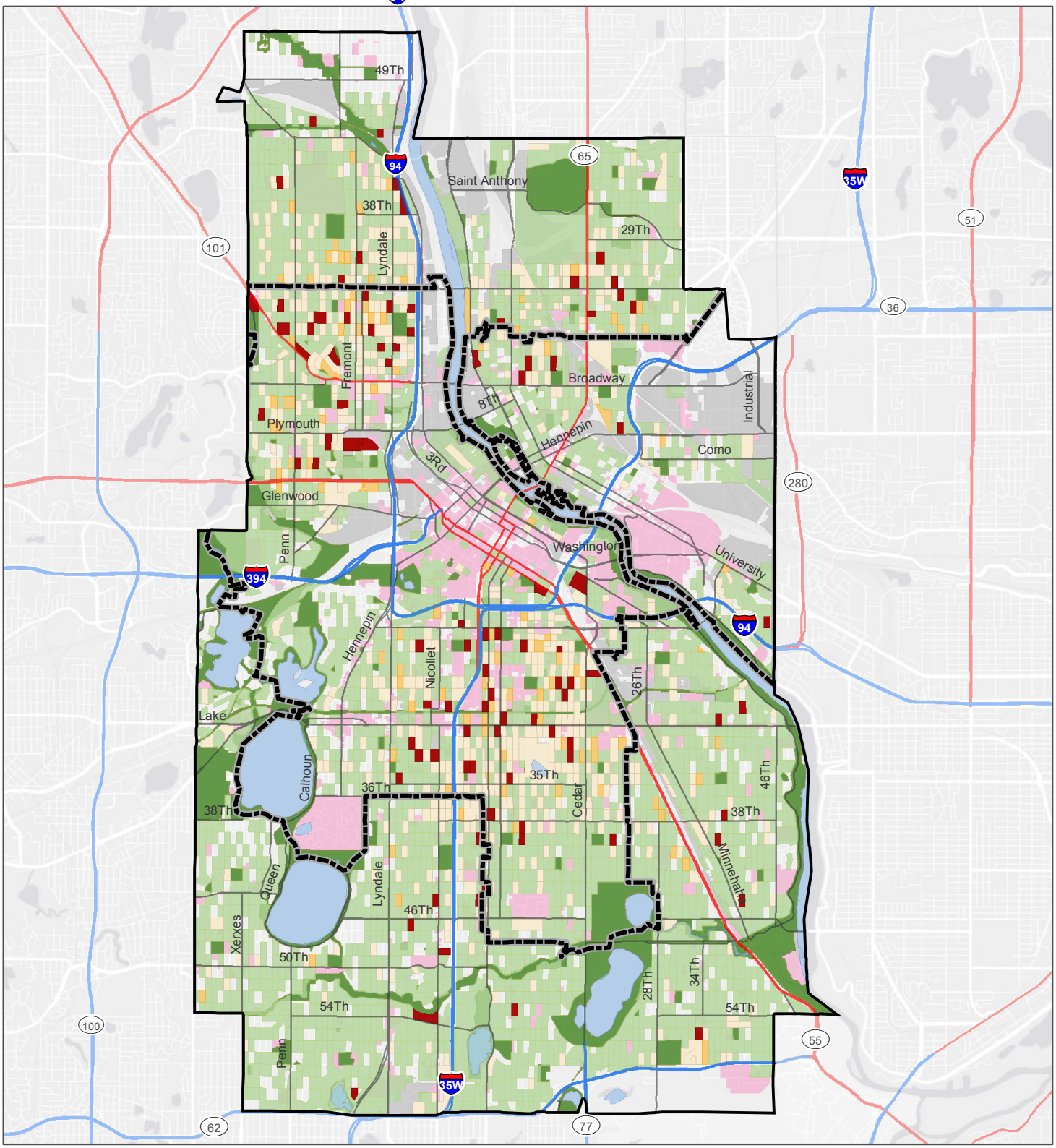
Counting Lead Poisoning in Children

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 that helps the families take action to lower their blood lead levels. The information from BLIS can also be used to find geographic 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 is decreasing.

What the Information Shows

In 2011, about four children out of 100 tested in Minnesota had blood lead results greater than 5ug/dL. Seven out of 100 children tested in Ramsey County had elevated blood lead results. In 2006-2008 in the City of Minneapolis, about four out of 100 children had elevated blood lead results.

Child Blood Lead Test Results by Census Block, 2010-2011



Central Zip Code Area
Parks and Recreation
Mixed use Industrial
Mixed use Retail

Blocks with at least 1 child tested with a result of under 5ug/dL blood lead result
Blocks with at least 1 child tested with a result of between 5-10ug/dL blood lead result
Blocks with at least 1 child tested with a result of between 10-15ug/dL blood lead result
Blocks with at least 1 child tested with a result of over 15ug/dL blood lead result

Source: Minnesota Department of Health Lead Program
Note: Test results include children ages 0-6 years old

Air Pollution

The Minnesota Pollution Control Agency (MPCA) monitors the amount of air pollution across the state. The federal Clean Air Act and Amendments require all states to monitor air quality. The good news is that since 2002, air quality throughout Minnesota has met 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. Even though the standards have been met, tightening standards have meant that more days are falling into the classification of 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 and1970s.

What the Information Shows

To look at air pollution levels in the City of Minneapolis, MDH uses data collected by the MPCA from air monitors placed in Minneapolis that measure two air pollutants commonly associated with motor vehicles and industrial sources: carbon monoxide and fine particles [defined as Particulate Matter <10 microns in diameter (PM_{10}) and Particulate Matter less than 2.5 microns in diameter ($PM_{2.5}$)].

The first map shows the placement of the monitors where carbon monoxide (CO), PM_{10}, and $PM_{2.5}$ are measured and the hourly (CO) and weekly (PM_{10} and $PM_{2.5}$) averages in 2001-2011. The national outdoor air quality standards are also shown for comparison. Like all of the Twin Cities, levels of these air pollutants in the City of Minneapolis are below the federal standards.

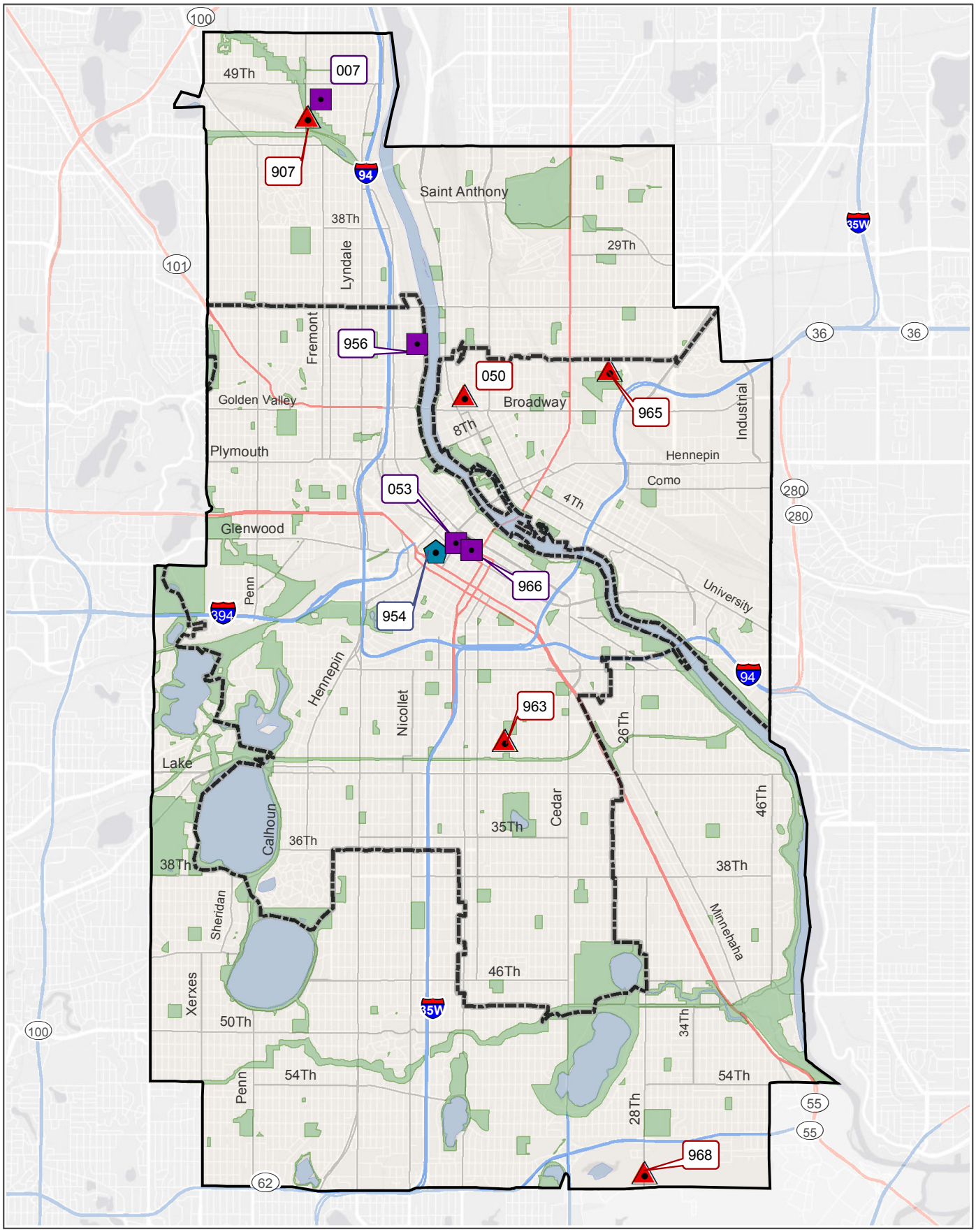
Motor vehicles give off more than half of all carbon monoxide and hydrocarbon emissions in Minnesota. MDH used traffic volume data from 2011 to map the average annual daily traffic count for major roads in the City of Minneapolis. Areas near the busiest roads (such as I-94) will likely have higher levels of traffic-related air pollution.

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.

For more information about Air Quality, see the Minnesota Public Health Data Access website at https://apps.health.state.mn.us/mndata/ . The Minnesota Pollution Control has information on General Air Quality at http://www.pca.state.mn.us/index.php/air/air-quality-and-pollutants/general-air-quality/index.html .

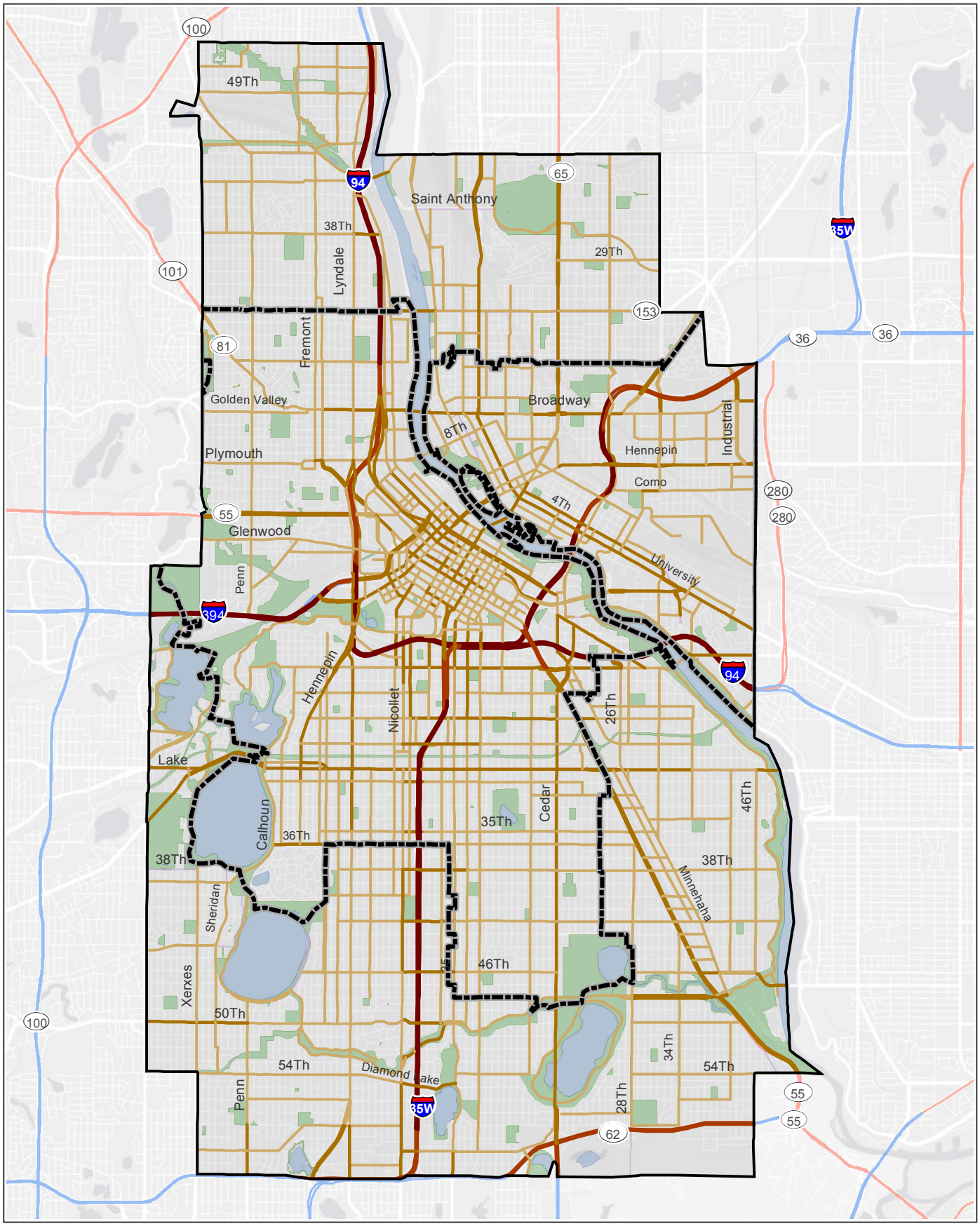
Minneapolis Air Quality Monitors



Central Zip Code Area
Parks and Recreation
Particulate Matter 10
Particulate Matter 2.5
Carbon Monoxide

Source: Minnesota Pollution Control Agency

Average Annual Daily Traffic Count, 2011



Central Zip Code Area
Parks and Recreation

Daily Traffic Volume

- 106,301 - 197,600 vehicles
- 48,451 - 106,300 vehicles
- 12,651 - 48,450 vehicles
- 5 - 12,650 vehicles

Source: Minnesota Department of Transportation

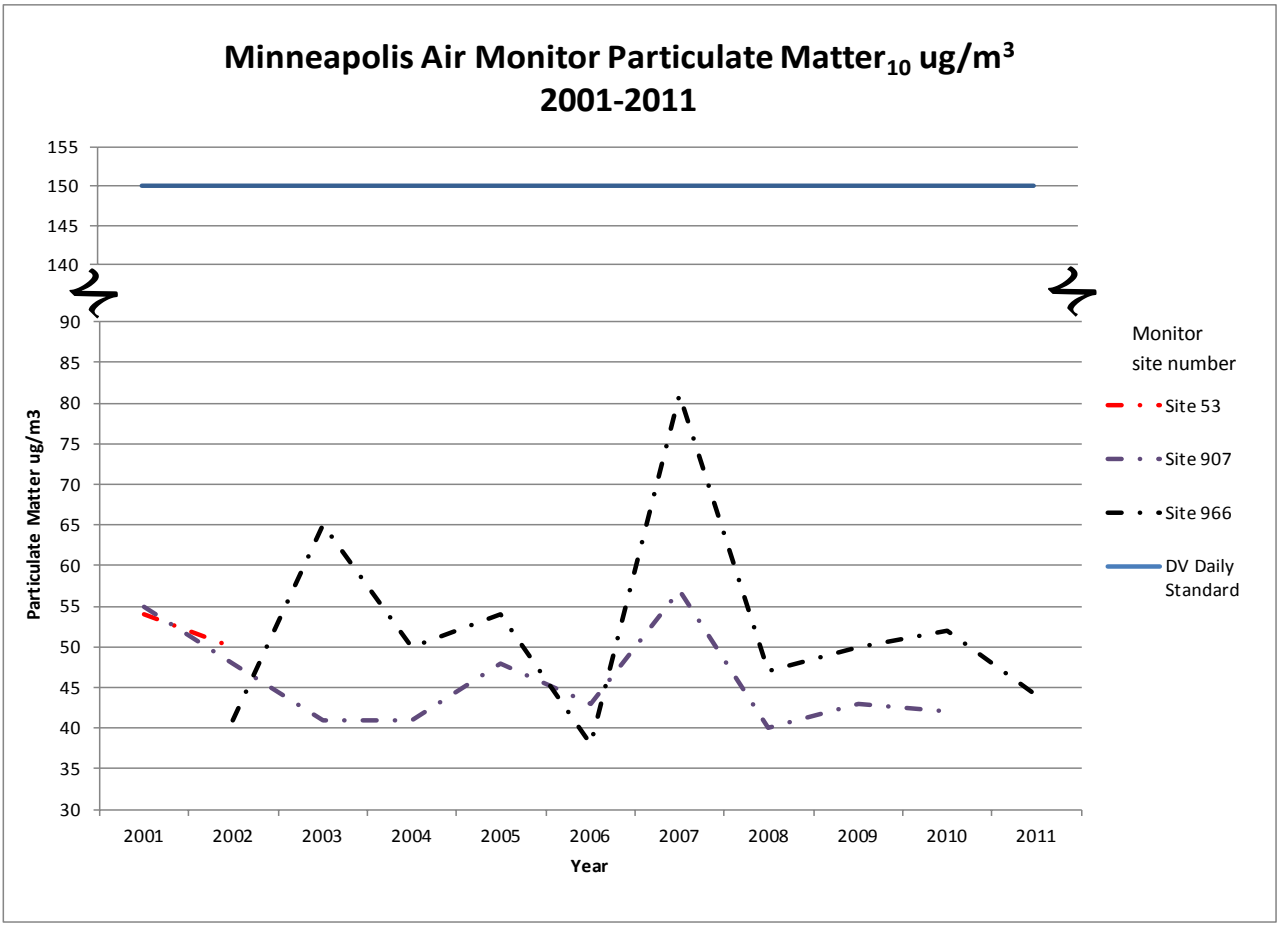
Particulate Matter

What is particulate matter?

Particulate matter is a mixture of small particles and liquid droplets. The particulate matter is released when coal, gasoline, diesel fuels, wood and other fuels are burned. Particulate matter also is created by chemical reactions between other pollutants in the air.

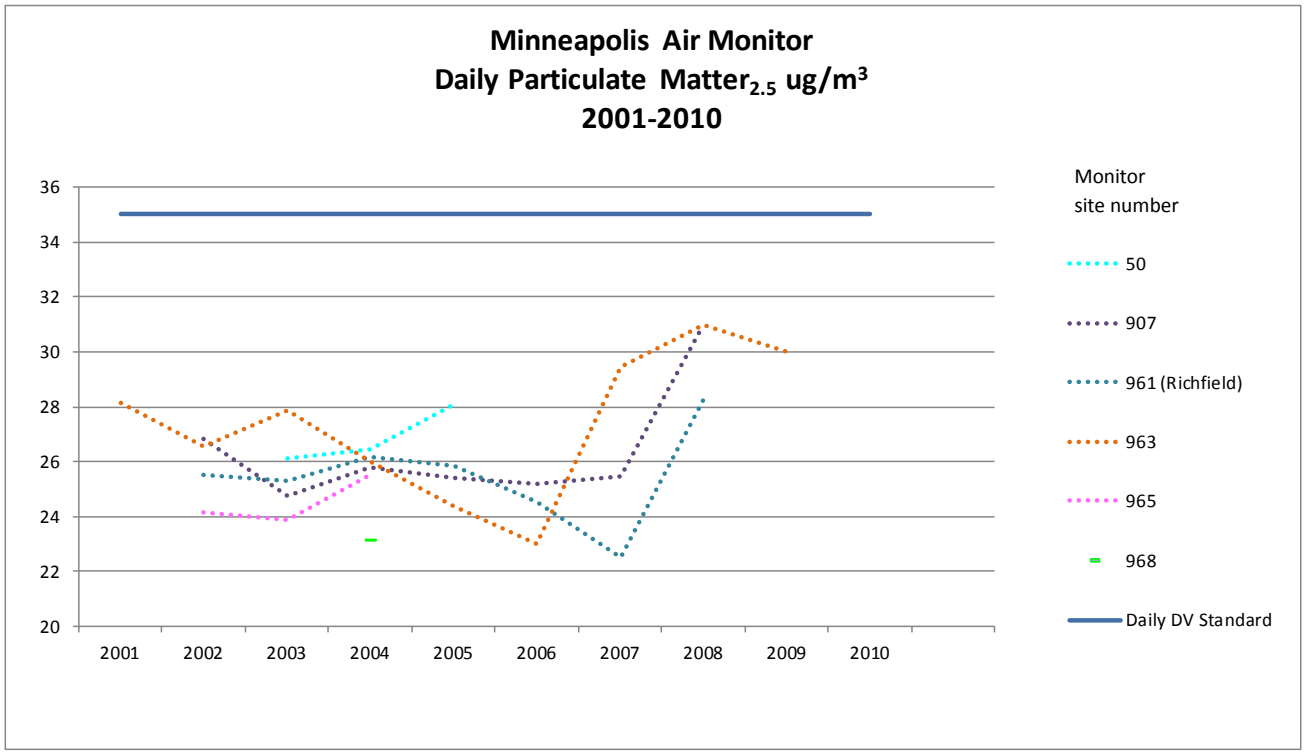
Additionally, particulate matter is released by tobacco smoke and home heating sources, such as wood burning stoves and fireplaces. Depending on these activities and home environment characteristics (e.g. air ventilation), particulate matter indoor exposures may be higher than outdoors.

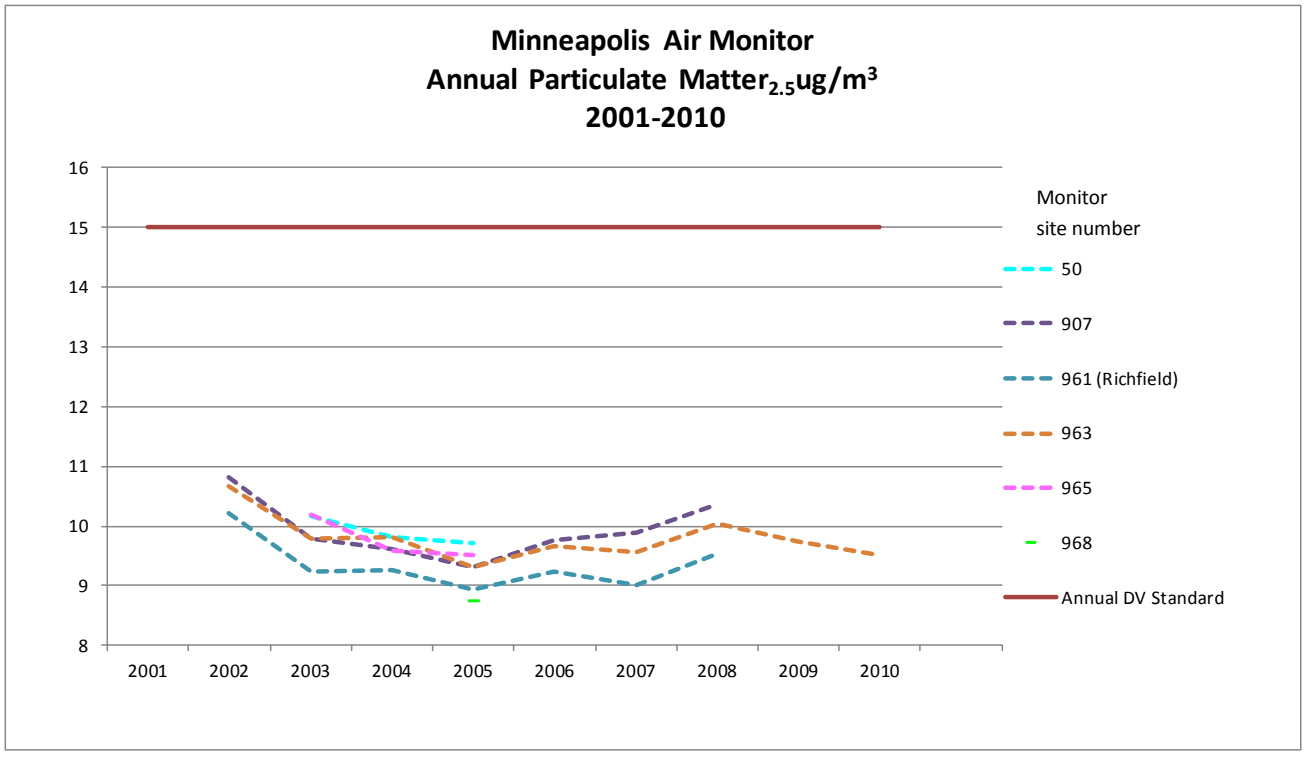
Particulate matter comes in different sizes and can be small enough to be inhaled deep into the lungs and even reach the bloodstream. The particles of concern are 10 microns in diameter (PM10) or 2.5 microns in diameter (PM2.5). By comparison, human hair has a diameter of 70 microns. The particles can accumulate in the respiratory system and cause serious health effects. Scientific studies, for example, have linked particle pollution to respiratory and cardiovascular diseases, including heart attacks, asthma, bronchitis, and other respiratory illnesses.



DV = Design Value; a design value is a statistic that is used to determine compliance to the national Ambient Air Quality Standards (NAAQS)

Particulate Matter





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Carbon Monoxide

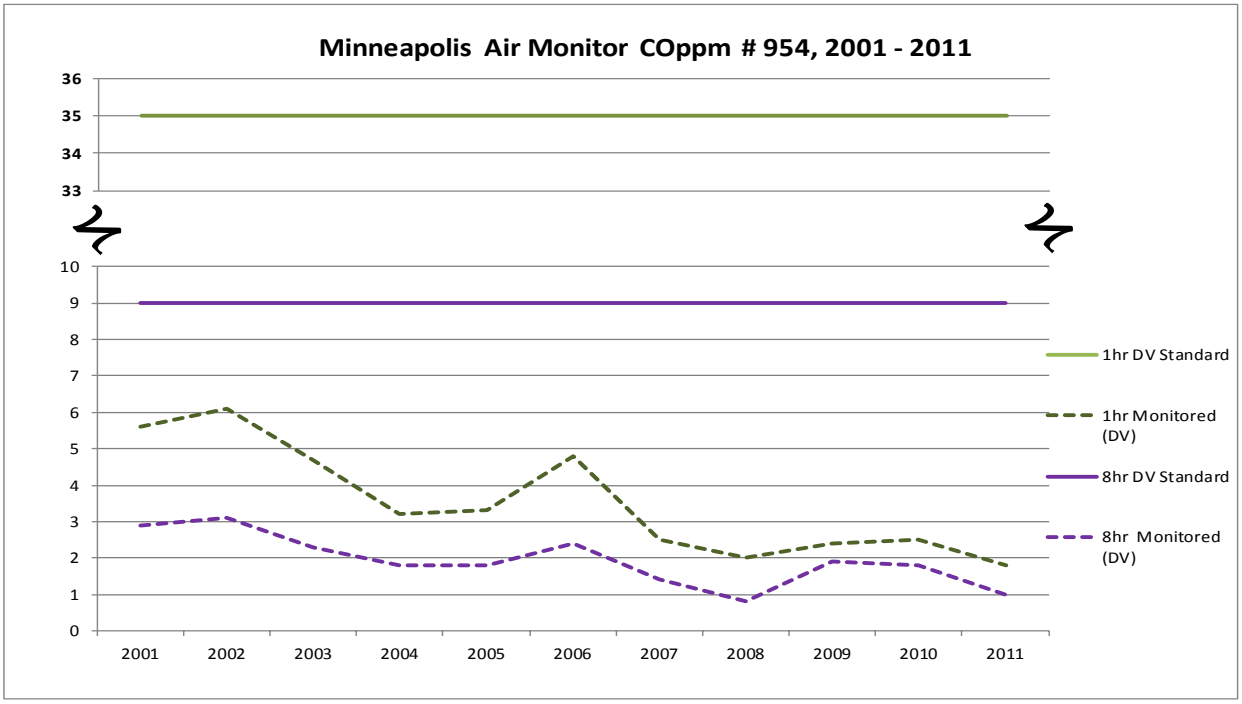
What is carbon monoxide?

Carbon monoxide (CO) is a colorless, odorless and tasteless gas that is formed when carbon fuels do not burn completely. The effects of carbon monoxide exposure are due to the ability of the gas to interfere with the ability of hemoglobin in the blood to transport oxygen. Breathing in carbon monoxide can result in a decrease in the amount of oxygen reaching the brain, the heart and other tissues in the body. In addition, because carbon monoxide cannot be quickly eliminated once it is in the blood, a mother's exposure can result in exposure of an unborn child.

Dangerously high levels of carbon monoxide exposure typically occur indoors; when a motor vehicle is operated inside a garage, when a residential heating system is not working properly, or when a gas cooking stove is used to heat a home. When high levels of carbon monoxide are present, the brain becomes oxygen starved and death may occur.

Outdoor concentrations of carbon monoxide may approach these dangerous levels when a large number of cars (or boats) idle in one place for an extended period of time and there is no wind or movement to disperse the exhaust. More typically, carbon monoxide levels outdoors do not approach levels that have been shown to impact healthy people. However in areas with high motor vehicle traffic, carbon monoxide exposure may be a concern for people with respiratory or cardiac health issues.

The National Ambient Air Quality Standards for carbon monoxide are intended to decrease the likelihood that people may be exposed levels that could impact their health.



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