



Planning Minnesota's  
Transportation Future

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## HEALTH AND TRANSPORTATION TREND ANALYSIS

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## SUMMARY

The transportation system is one of the social determinants of health. A good transportation system can help people easily travel to grocery stores, work, doctor’s appointments and their family and friends’ houses. The transportation system can also be a barrier for if it doesn’t adequately serve all users due to the infrastructure itself or operational issues such as congestion.

Transportation infrastructure also affects health outcomes through air pollution from vehicles and by contributing to the urban heat island effect—where a density of impervious surfaces can heat up an area. Transportation has an impact on a variety of health outcomes including heart disease, obesity, asthma, heat-related illnesses and injury and death related to car crashes. Making active transportation options like walking or biking more viable helps to improve health outcomes. These modes help people increase physical activity and decrease the miles traveled by car, thereby decreasing air pollution. MnDOT is also working to improve health outcomes with its Toward Zero Deaths traffic safety initiative, which aims to decrease the number of deaths and serious injuries on the state’s roadways.

Transportation systems can spread disease in both livestock and human populations. Swift travel allows for faster spread across the state, country and world. The transportation system can also be involved in mitigating disease spread through restrictions placed on travel, as seen in 2020 during the COVID-19 pandemic. People were asked to shelter in place and were sometimes prevented from traveling to other countries in attempts to slow the spread of disease.

A few different policy tools can help to improve health equity. Health Impact Assessments, Complete Streets Policies and Community Impact Assessments all try to promote a more holistic view of projects to ensure that health is included in the decision-making process.

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## SOCIAL DETERMINANTS OF HEALTH

The World Health Organization defines health as a “state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”<sup>1</sup> Physical, mental and social factors combine to determine someone’s projected health outcomes. Public health experts refer to these interrelated factors as the social determinants of health. These determinants include things like economic stability, the quality and extent of an education, ability to access healthy food, community and social context and the neighborhood and physical environment that people live in.<sup>2</sup> Because transportation is the means by which people get to work, go to school or the store and stay connected in their community, it can have an outsized impact on someone’s health. In fact, someone’s zip code can be more predictive of their health than their genetic code, in part because where they live can dictate what transportation options or community amenities are available.

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1 “Frequently Asked Questions,” accessed December 28, 2020, <https://www.who.int/about/who-we-are/frequently-asked-questions>.

2 “Social Determinants of Health | Healthy People 2020,” accessed December 28, 2020, <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>.

The social determinants of health and their impacts include:

- Community and social context: social integration, support systems, community engagement, discrimination, stress
- Economic stability: employment, income, expenses, debt, medical bills, support
- Education: literacy, language, early childhood education, vocational training, higher education
- Food: hunger, access to healthy food options
- Neighborhood and physical environment: housing, transportation, safety, parks, playgrounds, walkability

Transportation can impact many of these areas. A safe, multimodal transportation system ensures that everyone can get to their job, doctor's office and grocery store, regardless of whether they have a car. Alternatively, a transportation system that does not have convenient, multimodal connectivity can make it much more difficult for people to access the destinations they need to lead healthy lives. A lack of transportation can prevent someone from connecting to destinations, and the transportation system itself can create conditions that harm or support health.

## **DESIGN OF THE BUILT ENVIRONMENT**

The fields of urban planning and public health were born in the 1800s out of challenges to community health such as communicable diseases and poor sanitation. The two fields were both involved in creating city infrastructure for waste disposal and standards for apartment buildings that reduced crowding. This long relationship between planning and public health marks how intentional design and development of our communities can provide conditions to support health and wellbeing. Opportunities for walking and bicycling, housing with access to affordable transportation and space to be physically active are the result of transportation and land use decisions. These decisions impact how our physical spaces (also known as the built environment) influence our lives. The built environment determines whether we experience noise stress from freeways and airport, poor air quality, limited access to nature, etc. Transportation can determine whether we can get to goods and services essential to health and wellbeing.

## **ACCESS TO GOODS AND SERVICES**

It can be challenging for people without a car or reliable transportation alternatives such as bus or light rail service to get to essential goods and services like work, medical appointments, the pharmacy, etc. Accessing healthcare can be particularly challenging and helps illustrate the importance of transportation in health. In rural areas, people often travel considerable distances to reach a medical center or clinic, while appointments with specialists often require long trips to regional destinations like Duluth, Fargo, Rochester and the seven-county metro area.<sup>3</sup> In both urban and rural areas, individuals are less likely to use healthcare services if they do not have regular access to their own automobile or a care provider who can provide rides.<sup>4</sup> This can be particularly challenging for people with lower incomes who may already struggle to access the healthcare system due to lack of insurance or the high cost of healthcare services. As discussed in the trend paper on Minnesota's aging

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<sup>3</sup> "Healthcare Access in Rural Communities Introduction - Rural Health Information Hub," accessed April 3, 2020, <https://www.ruralhealthinfo.org/topics/healthcare-access>.

<sup>4</sup> Samina T. Syed, Ben S. Gerber, and Lisa K. Sharp, "Traveling Towards Disease: Transportation Barriers to Health Care Access," *Journal of Community Health* 38, no. 5 (October 2013): 976–93, <https://doi.org/10.1007/s10900-013-9681-1>.

population, these concerns can significantly restrict the ability of people age 65 and older to reach medical facilities for care. In general, the time and distance needed for travel are barriers to reaching the care that individuals need.<sup>5</sup>

In addition to struggling to access healthcare, many Minnesotans have difficulty accessing fresh, healthy food. Minnesota currently ranks seventh worst in the nation for the share of residents with access to healthy foods.<sup>6</sup> The transportation system and land use policies have led to the creation of food deserts—areas with limited access to affordable and nutritious food—in both rural and urban areas. Some small towns no longer have their own grocery store, making it hard for people without their own car to get food. In urban areas, despite the availability of transit, a trip to the grocery store can take several hours start to finish. Additionally, many transit providers limit the number of bags someone can bring on board. Transportation and land use policies that are more attuned to community needs can help farmers, food retailers and consumers connect more efficiently.<sup>7</sup> Increasing easy access to healthy food options can also help to address health outcomes like heart disease and obesity helping to demonstrate the link between transportation, access to goods and services and health.

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## TRANSPORTATION AND HEALTH OUTCOMES

Transportation can have a direct positive impact on health. Some modes, like walking and biking, promote physical and mental wellbeing as they allow people to get exercise while they transport themselves to their destinations. Transportation can also directly harm health.

### HEART DISEASE & OBESITY

Heart disease is the second-most common cause of death in Minnesota, behind cancer.<sup>8</sup> Although heart disease and obesity are closely linked, obesity does not explain all cases of heart disease.<sup>9</sup> In Minnesota, the rates of heart disease had been declining until 2014. Since then, the number of hospitalizations has held relatively steady. Figure 1 shows the rate of hospitalizations due to heart attacks in Minnesota. Physical activity such as walking and bicycling can help to reduce the risk of heart attacks and other forms of heart disease. In fact, walking has been shown to reduce risk of cardiovascular events (e.g., heart attack) by 31% and cut risk of dying by 32%.<sup>10</sup>

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5 Syed, Gerber, and Sharp.

6 “Food Access: Access to Healthy and Affordable Food” (Minnesota Department of Health, May 1, 2019), <https://www.health.state.mn.us/docs/communities/titled/foodaccess.pdf>.

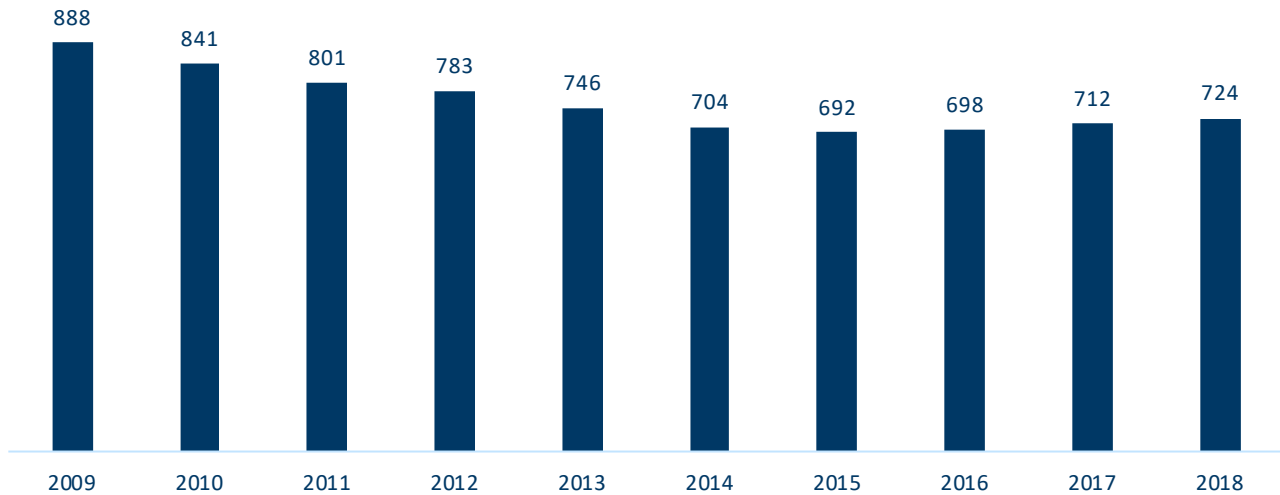
7 “Transportation and Food: The Importance of Access,” Food Security, August 6, 2012, [http://foodsecurity.org/policy\\_trans03\\_brief/](http://foodsecurity.org/policy_trans03_brief/).

8 “Mortality (Deaths) - Minnesota Dept. of Health,” accessed April 3, 2020, <https://www.health.state.mn.us/data/mchs/vitalstats/death.html>.

9 “Understand Your Risks to Prevent a Heart Attack,” [www.heart.org](http://www.heart.org), accessed April 3, 2020, <https://www.heart.org/en/health-topics/heart-attack/understand-your-risks-to-prevent-a-heart-attack>.

10 “Walking: Your steps to Health,” Harvard Health Publishing, Accessed August 31, 2020, <https://www.health.harvard.edu/staying-healthy/walking-your-steps-to-health>.

Figure 1: Age-adjusted hospitalization rate due to heart disease for all Minnesotans, per 100,000 people<sup>11</sup>



Minnesota’s percentage of adults who are obese or overweight has gradually increased over the past 20 years. Further, the rate of obesity has increased to a record level, from 17% in 2000 to 30% in 2018. The share of Minnesotan adults who are overweight has remained relatively steady since 2011. Minnesota’s obesity rate is roughly consistent with the national obesity rate.<sup>12</sup> Obesity and heart disease are related conditions.

A sedentary lifestyle with little physical activity can cause an increase in both conditions.<sup>13</sup> Increasing physical activity can help mitigate heart disease and obesity and can also have many other positive impacts on health. Increasing physical activity can also help improve your mood, increase your energy and improve your sleep quality.<sup>14</sup> Transportation planners who work to increase access to active transportation options can help not just mitigate negative health outcomes, but improve quality of life.

## ASTHMA

While asthma is infrequently a direct cause of death, it can often result in hospitalization and health care costs, affecting overall health and local economies. As seen in Figure 2, hospitalization rates for asthma decreased after 2007, which is when Minnesota’s Clean Indoor Air Act (MCIAA) went into effect. The MCIAA banned smoking in public indoor spaces.<sup>15</sup> There is a break in the data between 2014 and 2015 because there was a change in International Classification of Disease coding for asthma. Rates from before 2015 should not be compared to rates after 2015. Hospitalization rates have been relatively stable since 2015.

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11 “Heart Disease Hospitalization Rate,” accessed April 16, 2020, <https://www.health.state.mn.us/diseases/cardiovascular/cardio-dashboard/heartospr.html>.

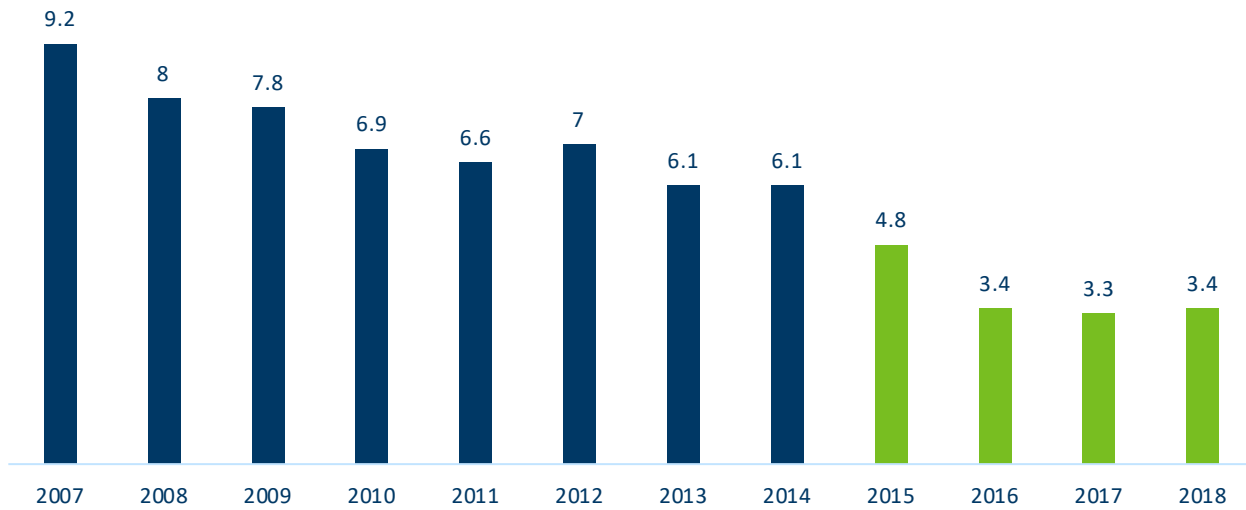
12 “Nutrition, Physical Activity, and Obesity: Data, Trends and Maps | DNPAO | CDC,” November 6, 2019, <https://www.cdc.gov/nccdphp/dnpao/data-trends-maps/index.html>.

13 “Health Risks of an Inactive Lifestyle,” Text (National Library of Medicine), accessed December 28, 2020, <https://medlineplus.gov/healthrisksofaninactivelifestyle.html>.

14 “7 Great Reasons Why Exercise Matters,” Mayo Clinic, accessed December 28, 2020, <https://www.mayoclinic.org/healthy-lifestyle/fitness/in-depth/exercise/art-20048389>.

15 “Minnesota Clean Indoor Air Act: Freedom to Breathe - EH: Minnesota Department of Health,” accessed December 28, 2020, <https://www.health.state.mn.us/communities/environment/air/mciaa/index.html>.

Figure 2: Age-adjusted hospitalization rates for asthma events per 10,000 people<sup>16</sup>



Even with statewide declines in asthma hospitalizations, transportation-related pollutants are still a major contributor to poor air quality and impact asthma rates, especially near freeways. These pollutants have also been linked with adverse birth outcomes and childhood cancer.<sup>17</sup> Figure 3 shows where in seven-county metro area asthma rates are the highest, overlaid with the location of the major freeways in the cities. The freeways carry some of the highest levels of traffic and can experience significant congestion.<sup>18</sup> The highest rates of asthma hospitalizations follow the path of Interstate 94 through North Minneapolis, past Downtown Minneapolis, and through the heart of Saint Paul. This coincides with the Minnesota Pollution Control Agency’s findings that people of color, many of whom live in the previously mentioned communities, are more vulnerable to air pollution due to proximity to transportation infrastructure than other racial and ethnic groups in Minnesota.<sup>19</sup>

There are ways to address the adverse impacts of transportation and poor air quality. For the 1996 Summer Olympic Games, Atlanta implemented a series of transportation alternatives to reduce traffic congestion such as 24-hour-per-day public transit, telecommuting and altered downtown delivery schedules among other solutions. These temporary changes presented an opportunity to understand the relationship between traffic, air quality and asthma. For children aged one through 16, there was a nearly 42% decrease in asthma-related emergency care visits and hospitalizations.<sup>20</sup> Solutions such as improving vehicle technology to reduce pollutants, supporting walking and bicycling and reducing automobile trips but increasing transit can help reduce transportation pollutants and asthma resulting from exposure to these pollutants. You can read more about the links between air quality and transportation in the Air Quality trend paper.

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16 “Asthma in Minnesota: MN Public Health Data Access Portal - MN Dept. of Health - MN Data,” accessed April 3, 2020, <https://data.web.health.state.mn.us/asthma>.

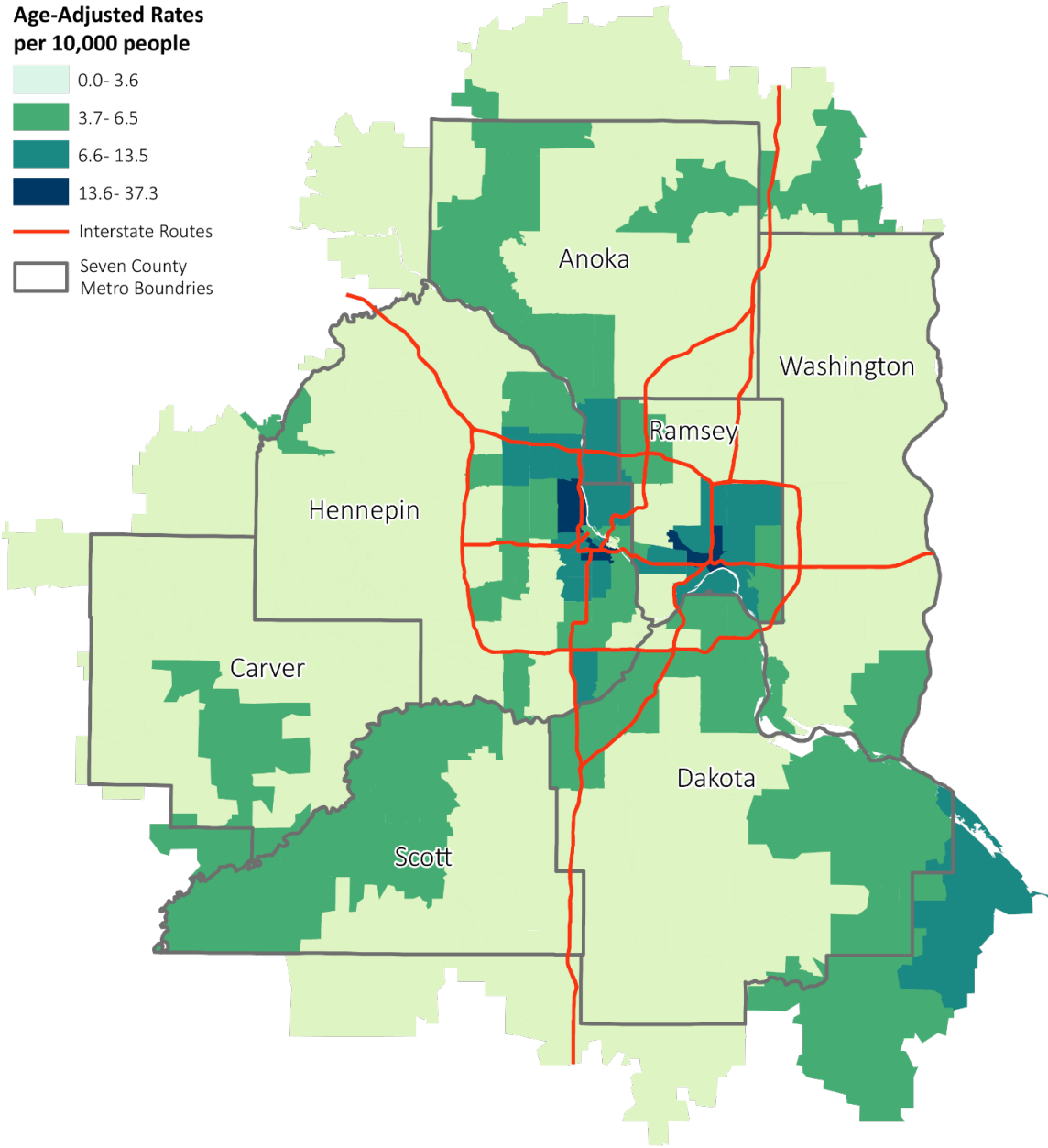
17 “Respiratory Health & Air Pollution.” Centers for Disease Control and Prevention, accessed August 31, 2020, <https://www.cdc.gov/healthypplaces/healthtopics/airpollution.htm>.

18 “TFA Traffic Mapping Application - TDA - MnDOT,” accessed December 28, 2020, <https://www.dot.state.mn.us/traffic/data/tma.html>.

19 “Why You Should Care: Air Quality and Health,” Minnesota Pollution Control Agency, March 30, 2017, <https://www.pca.state.mn.us/air/why-you-should-care-air-quality-and-health>.

20 “Impact of Changes in Transportation and Commuting Behaviors During the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma.” *Journal of the American Medical Association*. Accessed August 31, 2020, <https://jamanetwork.com/journals/jama/article-abstract/193572>.

Figure 3: Map of Asthma hospitalization rates per 10,000 people in the Minneapolis-St. Paul Metropolitan Statistical Area<sup>21</sup>



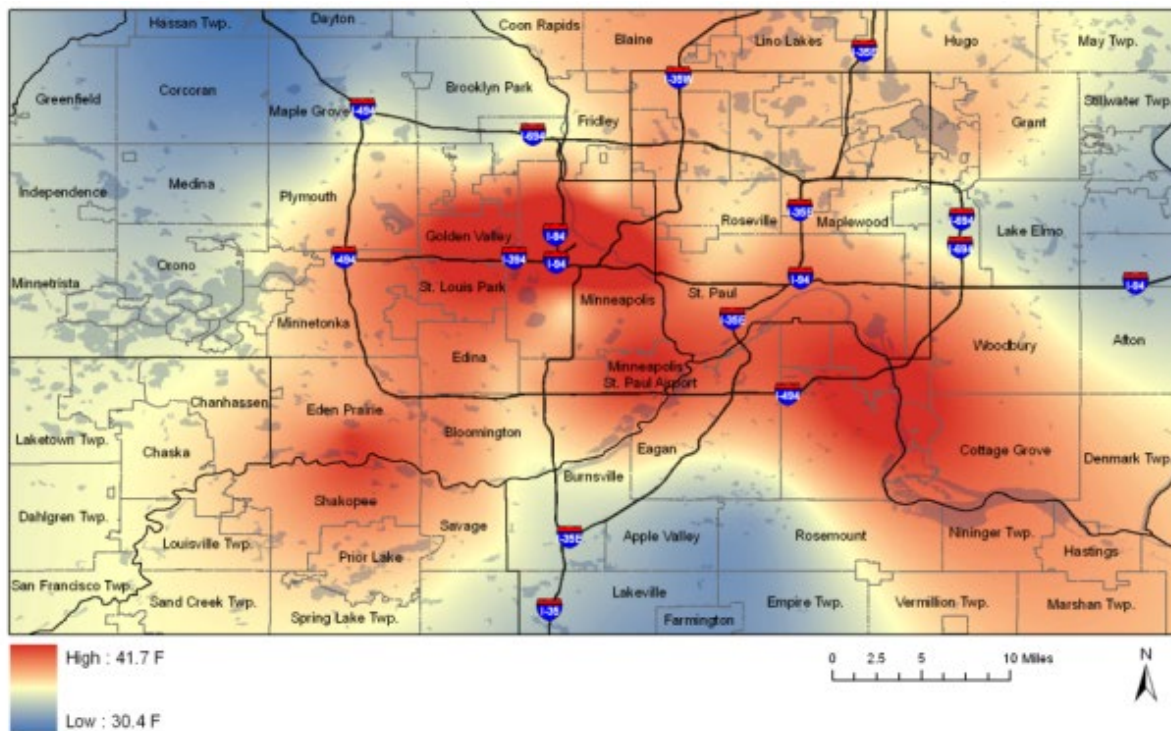
21 "Asthma Static Maps: MN Public Health Data Access - MN Data," accessed April 3, 2020, [https://data.web.health.state.mn.us/asthma\\_staticmaps](https://data.web.health.state.mn.us/asthma_staticmaps).



## HEAT-RELATED ILLNESSES

Transportation infrastructure can contribute to the creation of “heat islands” because large roads add to the amount of pavement in an area which then reduces the space available for green spaces and tree canopy. Urban heat island effect occurs in areas with little vegetation and large amounts of impermeable surfaces like parking lots and roads that trap and radiate energy from the sun as heat. In the seven-county metro area, the heat island can cause temperature differences between the city and its surroundings of 1.8 to 5.4°F as seen in Figure 4. Even small differences in seasonal average temperatures are linked with illness and death, and temperature extremes can exacerbate chronic conditions effecting the heart, lungs and brain. Older adults are especially vulnerable to even slight increases in average temperatures. As Minnesota’s urban areas grow, the effects of heat islands should be monitored and mitigated when possible.<sup>22</sup> Possible mitigation techniques could include planting trees and vegetation in the right-of-way and building green roofs on MnDOT-owned facilities.

Figure 4: Seven-county metro area heat island, 2014<sup>23</sup>

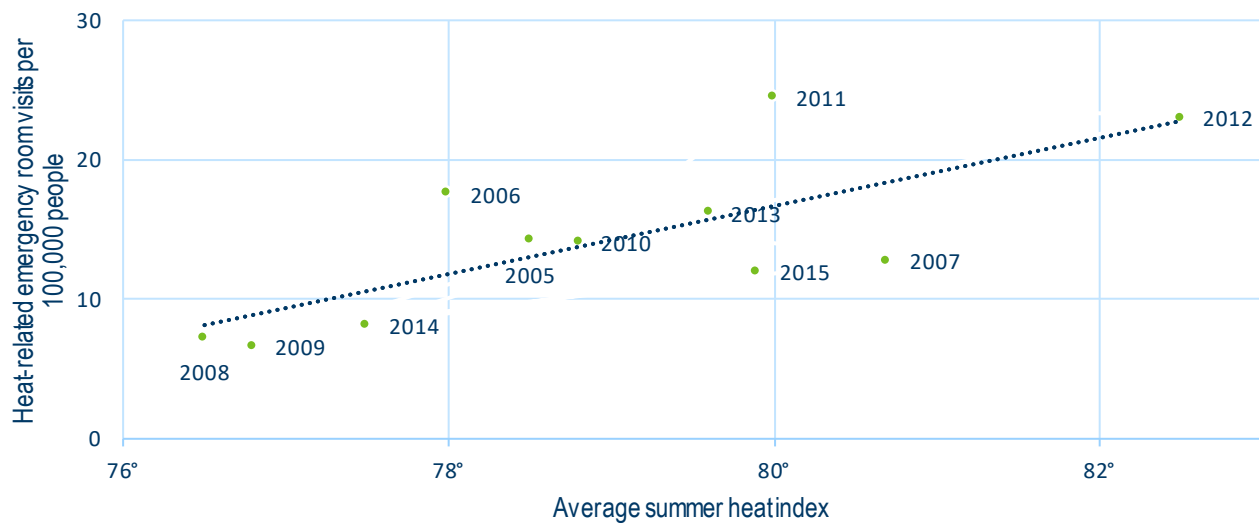


In addition to the heat island effect present in cities, other environmental factors like the general warming trends of climate change may increase the incidence of heat-related emergency visits. Heat-related illnesses are likely to be a greater concern as Minnesota’s summers become warmer due to climate change. Figure 5 shows a comparison of average summer temperature in Minnesota compared to the number of heat-related emergency department visits per 100,000 people. Data tracked by the Minnesota Department of Health shows that even small increases in the average temperature over the course of a summer can result in more emergency visits to healthcare providers.

22 “Minnesota GO :: Urbanization,” accessed April 3, 2020, <https://minnesotago.org/trends/urbanization>.

23 “Twin Cities Heat Islands,” Star Tribune, accessed December 28, 2020, <https://www.startribune.com/twin-cities-heat-islands/134412178/>.

Figure 5: Heat-related emergency department visits per 100,000 people and average summer heat index by year in Minnesota (2005-2015)<sup>24</sup>



## TRAFFIC FATALITIES & SAFETY

People driving motor vehicles are involved in thousands of crashes on Minnesota roadways each year. These crashes can cause injuries and deaths. Broadly speaking, both the number of deaths and serious injuries that have occurred on all Minnesota roadways have fallen in the last ten years. Minnesota’s Toward Zero Deaths (TZD) initiative, founded in 2003, has increased awareness of traffic fatalities and injuries and worked to improve safety for the traveling public.<sup>25</sup> The TZD initiative has set targets for continuing to reduce fatalities to no more than 225 and no more than 980 serious injuries on Minnesota’s roads by 2025.<sup>26</sup>

Minnesota’s Strategic Highway Safety Plan examines crashes by type to look at specific trends. Crashes at intersections, crashes involving older drivers and crashes involving pedestrians are all trending upward, while crashes due to inattentive driving, lane departures and crashes with unbelted occupants are trending downward.<sup>27</sup> Younger drivers and males are over-represented in traffic crashes in Minnesota. Young people (ages 15-24) make up 14% of total licensed drivers, though they were involved in 24% of crashes.<sup>28</sup> Males are involved in approximately 57% of all crashes.<sup>29</sup> Additionally, about one-third of traffic fatalities are alcohol related each year.<sup>30</sup> Knowing this information can help target TZD initiatives. See Figure 6 for more information on fatalities and read more about traffic safety in the Motorized Transportation Safety, Non-Motorized Transportation Safety and the General Transportation Safety trend papers.

24 “Heat-Related Illness Emergency Department Visits: MNPH Data Access - MN Dept. of Health - MN Data,” accessed April 3, 2020, [https://data.web.health.state.mn.us/heat\\_ed](https://data.web.health.state.mn.us/heat_ed).

25 “MN TZD: What Is TZD?,” accessed April 3, 2020, <http://www.minnesotatzd.org/whatistzd/>.

26 “Minnesota Strategic Highway Safety Plan.”

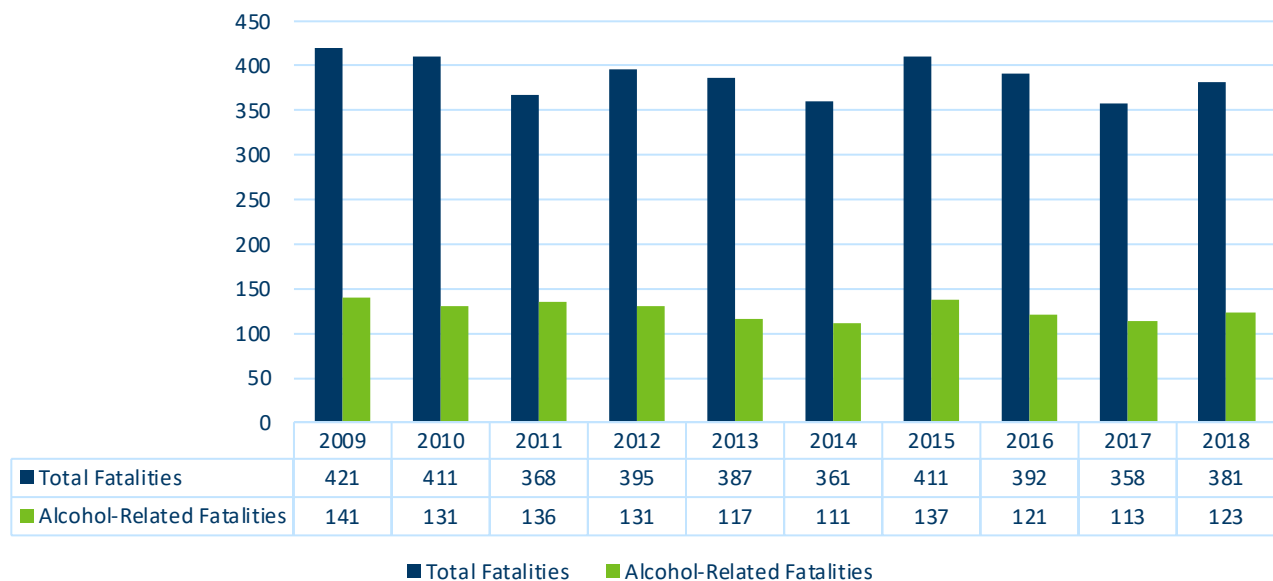
27 “Minnesota Strategic Highway Safety Plan,” n.d., 33.

28 “Reports / Statistics - Crash Facts,” accessed April 3, 2020, <https://dps.mn.gov/divisions/ots/reports-statistics/Pages/crash-facts.aspx>.

29 “Reports / Statistics - Crash Facts.”

30 “Reports / Statistics - Crash Facts.”

Figure 6: Total vehicular fatalities and alcohol-related fatalities<sup>31</sup>



## IMPACT OF TRANSPORTATION ON DISEASE SPREAD

In recent years, transportation has been linked to the quick spread of communicable diseases. The spread of disease has been following trade routes for centuries, and modern transportation networks—air, sea and land—continue to spread illnesses such as swine flu, COVID-19 and even Ebola. As access to and speed of means of travel increases, so too does the spread of disease. Accordingly, managing transportation can also be an effective tool in addressing infectious disease.

### HUMAN POPULATIONS

This increase in the ease and speed of transportation, while beneficial for interstate and international travel, has increased the risk of disease spread for human populations. An average influenza virus (seasonal flu) has an incubation period of two to seven days meaning that someone with the flu can travel to the other side of the world before exhibiting symptoms. Over 100 years ago, the influenza pandemic of 1918 took one year to spread from its beginnings in the United States or Europe to isolated islands in the Pacific, while the H1N1 (swine flu) virus spread worldwide within two months in 2009. As another example, the first cases of the novel coronavirus (also known as COVID-19) occurred in December 2019 in China.<sup>32</sup> By April 2020, the number of cases worldwide had topped two million.<sup>33</sup> Diseases are now traveling farther and faster than ever before.

<sup>31</sup> "Reports / Statistics - Crash Facts."

<sup>32</sup> Qun Li et al., "Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus-Infected Pneumonia," *New England Journal of Medicine* 382, no. 13 (March 26, 2020): 1199–1207, <https://doi.org/10.1056/NEJMoa2001316>.

<sup>33</sup> The New York Times, "Coronavirus Map: Tracking the Global Outbreak," *The New York Times*, sec. World, accessed April 17, 2020, <https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html>.

## LIVESTOCK

Increased trade and traffic volumes of livestock moving through Minnesota, the United States and the world have linked transportation with issues that have significant impacts on our food system and local economies. For example, long-distance live animal transportation is thought to have significantly contributed to the spread of swine flu viruses in the United States. It is cheaper to ship pigs to food than to ship food to pigs; pigs in the US can be born in North Carolina, be fed and fattened in Iowa and be slaughtered in California<sup>34</sup>. Shipping animals in close contact across the country contributes to the spread of these viruses. Swine flu viruses are highly contagious and potentially more infectious due to the stresses of transport. The mass movement of animals can make US food supplies vulnerable since relatively few sick animals have the potential to infect populations across the country.

The impact of animal infection and loss on the economy can be sizable. In 2015, an estimated \$647 million was lost as a result of the bird flu outbreak, H2N2.<sup>35</sup> The University of Minnesota identified major loss from this outbreak including egg and turkey production losses, wages and benefits and laid off workers.<sup>36</sup> Though often carried by water birds like ducks and geese, the bird flu can also be transported through humans or on production equipment and become airborne, making it especially difficult to contain the virus.<sup>37</sup> In general, the distance that livestock travel on average during their lifetime has the potential to rapidly accelerate disease spread. Livestock in the United States travels approximately 1,000 miles on average before reaching the plate.<sup>38</sup>

## TRANSPORTATION AS MITIGATION AND RESPONSE

While the ease of modern transportation contributes to the spread of disease, transportation can be effective in preventing and mitigating that spread. For example, in 2020 epidemiological models of the spread of COVID-19 led to statewide orders for residents to shelter in place, acknowledging that tamping down on people's movements can help to slow spread.<sup>39</sup> Air travel passenger manifests can assist with contact tracing. Public transit provides an essential service to getting healthcare workers and first responders to the frontlines of an outbreak. Freight movement ensures things like food and medical supplies are readily available to meet the needs of preparedness, response and recovery. While transportation can contribute to the spread of disease, it is also playing a vital role in mitigating and responding to public health crises.

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34 "The Long Haul: Risks Associated with Livestock Transport." The Humane Society Institute for Science and Policy. Accessed August 31, 2020, [https://animalstudiesrepository.org/cgi/viewcontent.cgi?article=1001&context=acwp\\_faafp](https://animalstudiesrepository.org/cgi/viewcontent.cgi?article=1001&context=acwp_faafp).

35 "Minn. Turkey Industry Struggles to Restock after Bird Flu Outbreak - StarTribune.Com," accessed April 3, 2020, <https://www.startribune.com/bird-flu-still-affecting-minnesota-turkey-production/321510051/?refresh=true#2>.

36 "Minn. Turkey Industry Struggles to Restock after Bird Flu Outbreak - StarTribune.Com."

37 "Minn. Turkey Industry Struggles to Restock after Bird Flu Outbreak - StarTribune.Com."

38 Michael Greger, "The Long Haul: Risks Associated with Livestock Transport," Agribusiness Collection, December 1, 2007, [https://animalstudiesrepository.org/acwp\\_faafp/1](https://animalstudiesrepository.org/acwp_faafp/1).

39 "What You Need to Know about Minnesota's 'stay-at-Home' Order - StarTribune.Com," accessed April 17, 2020, <https://www.startribune.com/stay-at-home-order-minnesota-what-you-need-to-know-twin-cities-minneapolis-walz/568484941/>.

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## HEALTH EQUITY

The National Academies of Sciences says that “health equity is achieved when everyone has the opportunity to attain their full health potential.”<sup>40</sup> Minnesota has health disparities stemming from inequitable access to goods, services and social networks, as well as disparities in healthcare. These disparities are based on the location of these goods and services, and on people’s ability to access the transportation system that can bring them to the goods and services. Cost and geography are large barriers, amplified by historical disinvestment and discrimination that has left many neighborhoods without goods and services within a short distance.

The National Academies of Sciences lists the following ways that government agencies can help promote health equity:

- Add specific requirements to outreach processes to ensure robust and authentic community participation in policy development
- Collaborate with public health agencies and others to ensure a broad consideration of unintended consequences for health and well-being, including whether the benefits and burdens will be equitably distributed
- Highlight the co-benefits of—or shared “wins” that could be achieved by—considering health equity in the development of comprehensive plans (for example, improving public transit in transit poor areas supports physical activity, promotes health equity and creates more sustainable communities.)<sup>41</sup>

Adopting a Health in All Policies approach can help transportation agencies collaborate with partners, stakeholders and the public to improve health through the built environment.

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## HEALTH IN ALL POLICIES APPROACH

Health in All Policies (HiAP) is a collaborative approach integrating health into policymaking. As a framework, HiAP integrates recommendations and actions across industries and disciplines to ensure key drivers of health outcomes and inequities are addressed. The goal is to intentionally embed health, equity and sustainability as standard considerations. MnDOT, for example, signed an interagency agreement in 2015 to collaborate on several initiatives to integrate health into transportation decisions such as Safe Routes to School, Toward Zero Deaths and more.

The following are examples of tools to help with implementing a HiAP approach.

### HEALTH IMPACT ASSESSMENTS

Health Impact Assessments (HIA) are a tool to implement a HiAP approach. Our health is shaped by where we live, work and play, and many of these environments are formed by government decisions about transportation. To ensure health is considered early and often many agencies have used HIAs as a framework to review health

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40 Sector Brief “Communities in Action: Pathways to Health Equity” Opportunities for the Transportation Sector, accessed December 28, 2020, <https://www.nap.edu/catalog/24624/>.

41 Sector Brief “Communities in Action.”

benefits and impacts of possible actions. HIAs consider political, economic, social, psychological and environmental factors and make proactive recommendations to support health.<sup>42</sup> Thirty-four HIAs have been completed or are in progress in the state as of 2019.<sup>43</sup> Many of the HIAs have been performed for transportation projects or comprehensive plans such as MnDOT's 2017 Statewide Multimodal Transportation Plan, the proposed METRO Gold Line Bus Rapid Transit in 2016, Winona County Active Living Plan in 2014 and St. Louis Park Comprehensive Plan in 2011.

## COMPLETE STREETS

Complete Streets is an approach to road planning and design that considers and balances the needs of all transportation users. It is about the basics: improving the transportation system's safety and functionality for all users. Its main premise is nothing more than for people to get around safely and efficiently from point A to point B, using whatever mode of travel they choose. MnDOT incorporates a complete streets policy in each project.

## COMMUNITY IMPACT ASSESSMENT

Similar to HIA, Community Impact Assessments (CIA) evaluate and address health considerations. However, CIAs focus exclusively on transportation and are integrated to evaluate effects of a transportation project's impact on community quality of life. No CIAs have yet been completed in Minnesota.

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## RELATED TRENDS

- [Aging Population](#)
- [Air Quality](#)
- [Climate Change](#)
- [Demographic Trends](#)
- General Transportation Safety
- Motorized Transportation Safety
- Non-motorized Transportation Safety
- [Race and Transportation](#)
- [Urban and Rural Population Trends](#)

Minnesota's vision for transportation is known as Minnesota GO. The aim is that the multimodal transportation system maximizes the health of people, the environment and out economy. A transportation vision for generations, Minnesota GO guides a comprehensive planning effort for all people using the transportation system and for all modes of travel. Learn more at [MinnesotaGO.org](http://MinnesotaGO.org).

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<sup>42</sup> "Health Impact Assessment - Minnesota Department of Health," accessed April 3, 2020, <https://www.health.state.mn.us/communities/environment/hia/index.html>.

<sup>43</sup> "HIA in Minnesota - Minnesota Department of Health," accessed April 3, 2020, <https://www.health.state.mn.us/communities/environment/hia/hiaimn.html>.

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## REVISION HISTORY

Date	Summary of revisions
December 2015	Original paper.
July 2019	Updated to reflect new data.
April 2021	Updated to reflect new data and information.