



Planning Minnesota's
Transportation Future

TRANSPORTATION BEHAVIOR TREND ANALYSIS

CONTENTS

Transportation Behavior Trend Analysis	1
Contents	2
Summary	3
Statewide Trends.....	3
Automobile Travel	3
Transit.....	7
Bicycle, Pedestrian and Micromobility Trends.....	11
Air Travel.....	16
Access to Jobs.....	18
Intercity travel	20
Related Trends	21
Revision History.....	21

SUMMARY

This summary focuses on transportation behavior trends prior to the COVID-19 pandemic. People’s travel shifted dramatically in 2020 at the start of the pandemic and continue to change. MnDOT is closely monitoring changes and will update this paper as post pandemic transportation behavior trends become clearer.

Transportation behavior describes when and how people travel. Changes during the 19th and 20th centuries shifted how people travel in Minnesota and across the country. This included shifting from walking and horseback to rail transport and to the adoption of the automobile.

The adoption of the automobile caused many cities across the country to disinvest in their urban cores and demolish inner-city neighborhoods for freeways. Many cities, including Minneapolis and Saint Paul, saw large population declines as people moved to previously undeveloped suburban and rural areas. This move was possible due to the automobile. For example, multiple inner-city freeway projects in the seven-county metro area demolished thousands of homes and businesses, primarily in neighborhoods with large population of people of color. These changes brought on by the automobile also led to people driving more.

Today, Minnesotans are again changing how they travel. The last decade has seen renewed interest in cities and denser living across the country and in Minnesota. These changes affect how people travel and how agencies invest in transportation infrastructure. This paper explores recent trends in how Minnesotans travel and how the state’s transportation system is adapting to serve these needs, including auto travel, public transit, walking, bicycling and micromobility.

Trends in how freight is shipped to, from and within Minnesota are discussed in separate Logistics Trend Analysis.

STATEWIDE TRENDS

AUTOMOBILE TRAVEL

Automobile travel has been the dominant mode of transportation in the United States since the end of World War II. Despite continuous, rapid growth in automobile infrastructure and usage from 1946 through the early 2000s, growth in usage leveled off in the early 2000s in the United States.

Driving trends in Minnesota align with national trends; Minnesota has seen per capita vehicle miles travel (VMT) decline slightly from 2000 to 2019 while total VMT rose approximately 16.5%, from 52.1 billion VMT to 60.7 billion VMT (Figure 1).¹ This growth in total VMT correlates closely with population growth, which increased 14.6% over the same period. While Minnesota closely aligns with national trends from 2000 to 2019, over the last decade Minnesota varies much more from national trends. From 2010 to 2019, per capita VMT saw a slight decline (-0.1%) in the state as population growth outpaced VMT growth. Nationally per capita VMT grew by 3.5% in that same period. This recent slight decline in VMT in Minnesota is being driven by the seven-county metro area, as Greater Minnesota saw a slight increase in per capita VMT (Figure 2). Data from 2020 was not included in this analysis as the COVID-19 pandemic has dramatically shifted and limited travel patterns and therefore would

¹ [“Per Capita Vehicle Miles of Travel”](#) (MnDOT, Office of Transportation System Management, 2019).

be difficult to examine in the context of longer-term trends. It is yet to be seen if the changes brought out from the pandemic will be long lasting or a short shift from the crisis.

Figure 1: Total vehicle miles traveled (billions) by year in Minnesota from 2000 to 2019.

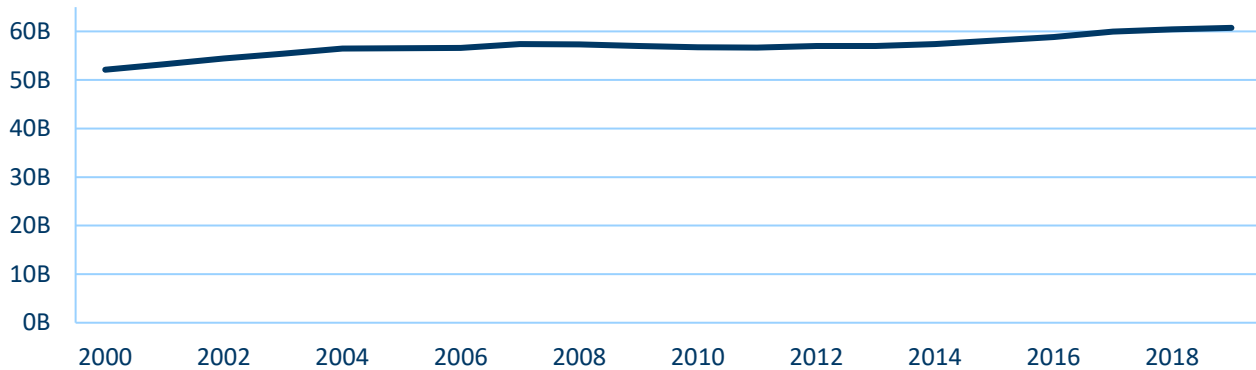
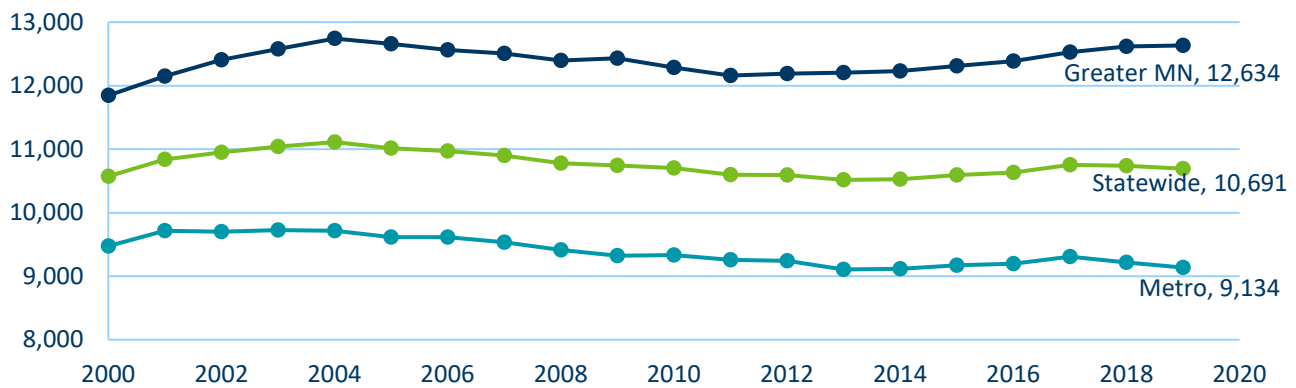


Figure 2: Per capita vehicle miles traveled by year in Minnesota from 2000 to 2019.



In 2019, the seven-county metro area logged 28.8 billion vehicle miles traveled. This is an increase of about 2 billion vehicle miles traveled compared to 2010, or 8.2%. During the same period, the population grew by 9.4%, from 2.85 million in 2010 to 3.12 million in 2019.² With population growth outpacing VMT growth, per capita VMT has declined in recent years, as seen in Figure 2.

This trend could be in part due to a renewed interest and growth in the urban cores of Minneapolis and Saint Paul which are denser and more walkable leading to less car usage and reduced VMT. While fully suburban metro counties, Anoka, Dakota, Scott and Washington, all saw larger increases in VMT than in population, the most urban counties, Hennepin and Ramsey, both saw population growth increase outpace VMT. A main driver of this trend is the growth in the central cities of Minneapolis and Saint Paul. These two cities accounted for 42% and 55% of their county’s overall population growth in the past decade, respectively. The central cities provide higher employment, retail and amenity density than suburban and rural areas which allows residents to get to work, school, stores or anywhere else with fewer miles in their car or without a car at all. Other factors which could be

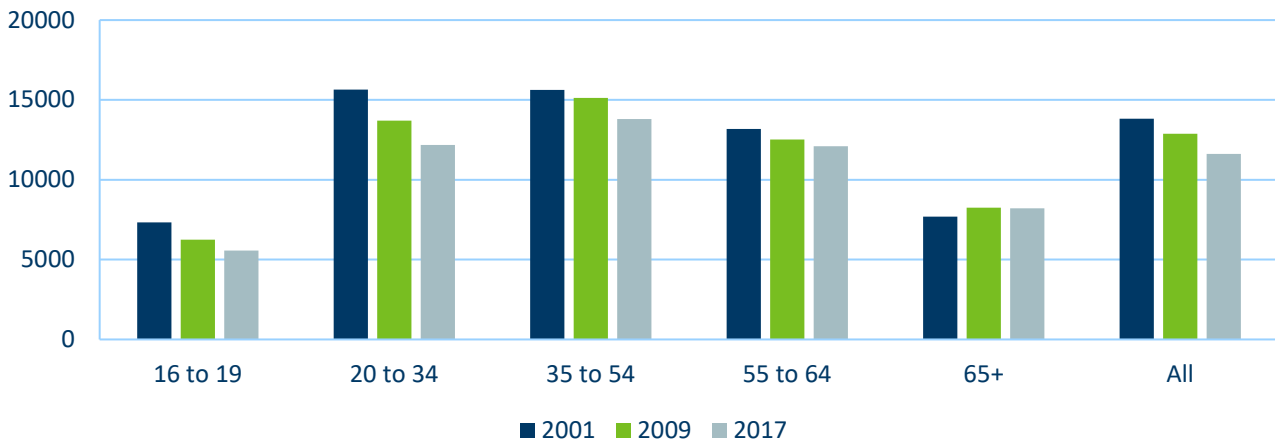
² “Annual Population Estimates,” Metropolitan Council, 2019, <https://metrocouncil.org/Data-and-Maps/Research-and-Data/Annual-Population-Estimates.aspx>.

contributing to the decline in per-capita VMT in the seven-county metro area are the growth in rail transit, increases in bicycling and walking and increases in remote working.

Following a steady decrease in miles traveled between 2004 and 2011, Greater Minnesota has seen a reverse of this trend and VMT growth has been steady over the past decade (Figure 2). Unlike the seven-county metro area, Greater Minnesota has seen VMT outpace population growth. From 2010 to 2019, Greater Minnesota saw a population increase of about 2.7% but nearly a 6% VMT increase. This trend of growth in Greater Minnesota is closer to the growth in the United States as a whole, which has seen about an 11% increase in VMT from 2010 to 2019.³ There are likely many reasons why Greater Minnesota is diverging from the seven-county metro area. In rural Minnesota, due to sparse development and distant activity centers, people must travel longer distances to work, shop, and other activities leading to an increase in VMT. One of the other reasons for increased VMT in rural areas is a lack of alternative travel options, such as transit.

Age could be playing a factor in rural VMT rise as Greater Minnesota tends to be older than the seven-county metro area. Figure 3 shows the annual vehicle miles traveled for Americans separated by age cohorts. Annual vehicles miles traveled has fallen the most for those 16 to 34, while those 55 and older have seen little change from 2009 to 2017.⁴

Figure 3: National Highway Transportation Survey (NHTS) average annual miles per licensed driver, by driver age.⁵



Other factors likely driving the growth of VMT in Greater Minnesota has been the depressed price of gasoline during the previous decade, which has seen the average price per gallon fall from around \$4.00 per gallon in the beginning of the decade to under \$3.00 per gallon over the past six years, a time period which has seen steady increases in VMT.⁶

It is difficult to find consistent data about transportation behavior trends in rural Minnesota due to complications in defining the difference between urban and rural areas. Population trends, including the movement of youth

³ "Moving 12-Month Total Vehicle Miles Traveled," FRED Economic Data, May 17, 2021, <https://fred.stlouisfed.org/series/M12MTVUSM227NFWA>

⁴ "2017 Summary Statistics for Demographic Characteristics and Travel," National Household Travel Survey, 2017, <https://nhts.ornl.gov/>.

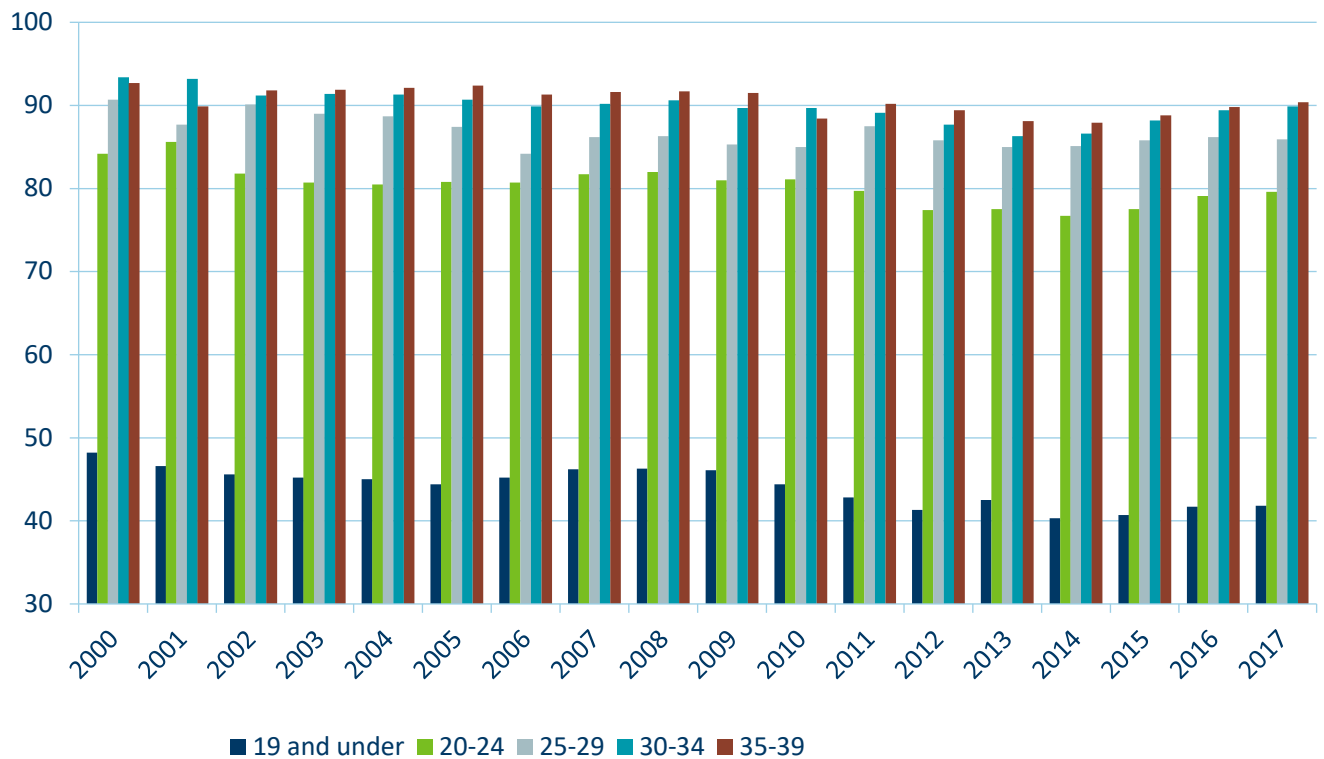
⁵ "2017 Summary Statistics for Demographic Characteristics and Travel," National Household Travel Survey, 2017, <https://nhts.ornl.gov/>.

⁶ "Vehicle Miles of Travel Trends in Minnesota," (MnDOT, 2018).

away from rural areas, affect the raw numbers and create a lack of consistency in year-to-year statistics. A lack of standard data collection, unlike in the seven-county metro area through the Metropolitan Council’s Travel Behavior Inventory, adds further complication.

Generational cohorts are changing current car-focused travel patterns, particularly those who are younger and college educated. Millennials, born between 1981 and 1996 (aged 25-40 in 2021), represent the largest generation in U.S. history. When this generation reached the driving age, fewer became licensed drivers than previous generations. Fewer licensed drivers may mean more exposure to alternative modes including transit, walking and bicycling. This decline had been moderate until 2015, when the percentage of millennial drivers began to increase by 0.5-2% each year. However, the overall proportion of these age cohorts with a driver’s license is down 2-5% since 2000 (Figure 4).⁷ Additionally, the younger generation, commonly referred as Generation Z, has even lower rates of license ownership. In 2000, 48% of individuals under age 19 had drivers’ licenses, while only 41% of individuals younger than 19 had licenses in 2017 (Figure 4).

Figure 4: Percentage of licensed teenagers and young adults 2000-2017



⁷ “Highway Statistics Series,” U.S. Department of Transportation, Federal Highway Administration, 2019, <https://www.fhwa.dot.gov/policyinformation/statistics.cfm>.

CAR SHARING

Car sharing refers to short-term car rental services using mobile technology. Mobile technology allows the customer and company to avoid the hassle of repetitive contract negotiations and inconvenient car pick-up and drop-offs that are common in traditional vehicle rentals.⁸ Car sharing services can be a fitting environmental and economic choice for students, businesses and others living in the large urban areas.

There are four car sharing models: round-trip, one-way or point-to-point, peer-to-peer and niche carsharing services. The most common model in Minnesota is round-trip provided by companies such as Zipcar and HOURCAR. Cars are parked and stored at designated locations, reserved by members for a set amount of time and returned to the initial location at the end of their reservation.⁹

Operation of car sharing in Minnesota began in May 2005 in the Uptown and Loring Park areas of Minneapolis with HOURCAR. HOURCAR is a local non-profit specializing in round-trip car sharing, and as of March 2020 has 53 hubs and 2,300 members in the seven-county metro area and Rochester. The vehicles are primarily located around commercial corridors, colleges, universities and transit stations. HOURCAR is also the University of Minnesota's official car-sharing service, offering rates tailored to students.¹⁰ The company is currently working with Xcel Energy to convert their entire fleet to electric vehicles and launched a one-way model in August 2021 called "Evie."¹¹ More information on car sharing is available in the Shared Use Mobility Trend Analysis.

While not as prominent as in the seven-county metro area, several Greater Minnesota communities are home to car sharing networks. Enterprise Car Share operates at eight colleges around the state including Minnesota State University – Mankato, Winona State University, Carleton College and others.¹² Zipcar has services in Northfield.¹³ Across the state ride hailing services such as Uber and Lyft operate extensively, although are not available everywhere or as commonly as in the seven-country metro.

TRANSIT

The more than 40 public transit operators in Minnesota provide an important service connecting communities across the state through a network of intra and inter-city services. These include the state's largest operator, Metro Transit, which provides service to the seven-county metro area. The Metropolitan Council's Transit Behavior Inventory estimates that about 3% of all trips in the seven-county metro area use transit.^{14,15}

Transit service providers operate a large variety of transit vehicles ranging from shuttle vans to commuter trains. Different types of transit vehicles are used across a variety of service types. More details on statewide public transportation trends are available in the Public Transportation Trend Paper.

⁸ David Levinson et al., "The Transportation Futures Project: Planning for Technology Change," (Minnesota Department of Transportation Research Services & Library, 2016).

⁹ Shared-Use Mobility Center, "Shared-Use Mobility Reference Guide," (Chicago, IL and Los Angeles, CA, 2015).

¹⁰ "Car-Sharing," Parking & Transportation Services, University of Minnesota, May 1, 2016, <https://www.pts.umn.edu/park/carshare>.

¹¹ <https://hourcar.org/2021/08/16/meet-evie-electric-carshare-for-the-twin-cities/>

¹² "Locations," Enterprise, 2019, <https://www.enterprisecarshare.com/us/en/locations.html>

¹³ "Cities," Zipcar, 2019, <https://www.zipcar.com/cities>.

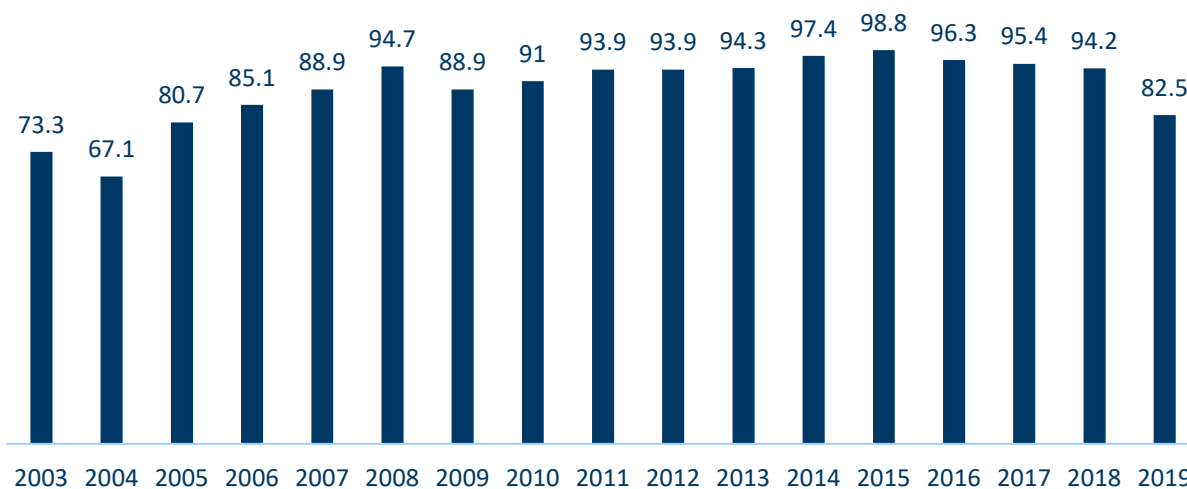
¹⁴ Metropolitan Council Travel Behavior Inventory 2010-2019, direct correspondence.

¹⁵ Several changes between the questions asked in the 2010 and 2019 Travel Behavior Inventories could account for the changes in rates of walking and bicycling. Further analysis is needed to determine final mode share percentages.

Prior to the COVID-19 pandemic, transit ridership had been relatively stable for the past decade (Figure 5). See the Public Transportation Trend Analysis for more details. The increase in demand for public transportation systems had been driven by multiple demographic groups. Transit is needed to support aging Baby Boomers, many of whom will reduce their driving as they continue to age. Nationally, one of every five adults over 65 does not drive, and each year more than 600,000 people aged 70 and older across the United States stop driving and must depend on others to meet their transportation needs.¹⁶ More information on this topic can be found in the Aging Population Trend Analysis.

Some literature suggests that younger generations may be pursuing car-free lifestyles in urban settings and are reducing their overall dependence on the automobile. It is uncertain whether this trend may be due in part to a recent weak job market for college graduates and larger student loan debt burdens, affecting young adults' ability to afford cars and homes. Nonetheless, this trend may result in an increase in transit ridership among young, college-educated adults. The influx of people moving into urban areas, where younger adults tend to live, also creates demand for transit. An increase in investment and expansion of transit systems will likely be needed in the future to keep up with demand.

Figure 5: Seven-county metro area total annual transit ridership (all providers) in millions of rides¹⁷



Transit service in the seven-county metro area consists of six different service providers. Metro Transit is the primary transit authority for the seven-county metro area. The service operates 217 bus routes (111 local and 106 express), two light rail lines (Blue and Green), three BRT lines (A, C and Red lines), the Northstar commuter rail line as well as on-demand options. These services cover 182 communities, more than three million people and over 3,000 square miles. Table 1 displays a breakdown of ridership in 2019 by route type. Metro Transit provided 77.9 million rides in 2019, with a daily average of 251,564 rides, on 125 routes. Fifty-five urban local routes and 63 express bus routes accounted for 68% of riders, with rail carrying the rest. Overall, in 2019 light rail ridership

¹⁶ Dave Beal, "Transportation for the Aging Poses Mounting Challenge in Twin Cities," 2014, <https://www.minnpost.com/health/2014/08/transportation-aging-poses-mounting-challenge-twin-cities/>.

¹⁷ "2020 Regional Transit Ridership," Metropolitan Council, 2020, <https://metro council.org/Transportation/Planning-2/Reports/Transit-Transitways/Regional-Transit-Ridership.aspx>.

grew by 1.2% up to 25.2 million, while Northstar Commuter Rail didn't see a significant change, providing around 767,000 rides.¹⁸

Over the last two decades, Metro Transit has invested in expanded transit options to create a diverse network of services. The Blue Line LRT began operating in 2004 and Green Line opened in 2014. The A Line was the first arterial BRT line in the region, opening in 2016 to add an additional connection between the two light rail corridors. Two more BRT lines have since opened, the C and Red lines, which contribute significant ridership to the BRT system. Additionally, the Orange Line opened in 2021 but ridership data is not included in Table 1. Metro Transit's continuous commitment to the expansion of region's BRT and LRT transitways resulted in six operating lines that carry more than 25% of transit rides.¹⁹ Several other transit providers, including Maple Grove Transit, Minnesota Valley Transit Authority, Plymouth Metro Link, Southwest Transit and University of Minnesota Twin Cities operate regional transit service. These providers operate mainly in suburban communities within the seven-county metro area with some express commuter services. The University's transit system serves the two Minneapolis and Saint Paul campuses with five local routes and a high-frequency campus connector.

Table 1: Metro Transit 2019 ridership by route type²⁰

Mode	Total rides	Average weekday rides
Bus	48.9 million	163,217
Green Line LRT	14.2 million	44,004
Blue Line LRT	11.0 million	32,973
A & C Line BRT	2.9 million	11,810
Northstar Commuter Rail	0.8 million	2,739

LIGHT RAIL

Light rail ridership in the seven-county metro area rose 44% between 2013 and 2015, largely a result of the opening of Metro Transit's METRO Green Line between downtown Minneapolis and downtown Saint Paul. Light rail transit provides a high-quality alternative to automobile travel and decreases personal transportation costs in areas close to stations.²¹ As shown in Figure 6 the METRO Green Line surpassed the METRO Blue Line ridership in 2015 and has steadily increased ridership each year since.²² METRO Blue and Green Lines combined carried over 25 million riders in 2019.²³

¹⁸ "Metropolitan Area Transit Finance Report," Metropolitan Council, 2018, <https://metro council.org/Transportation/Publications-And-Resources/Transit/FINANCE/Metropolitan-Area-Transit-Finance-Report,-2018.aspx>.

¹⁹ "Transportation Policy Plan," Metropolitan Council, 2018, [https://metro council.org/Transportation/Publications-And-Resources/Planning/2040-Transportation-Policy-Plan-\(2018-version\)-\(1\)/2018-Transportation-Policy-Plan-Update/Chapter-6-Transit-Investment-Direction-and-Plan.aspx](https://metro council.org/Transportation/Publications-And-Resources/Planning/2040-Transportation-Policy-Plan-(2018-version)-(1)/2018-Transportation-Policy-Plan-Update/Chapter-6-Transit-Investment-Direction-and-Plan.aspx).

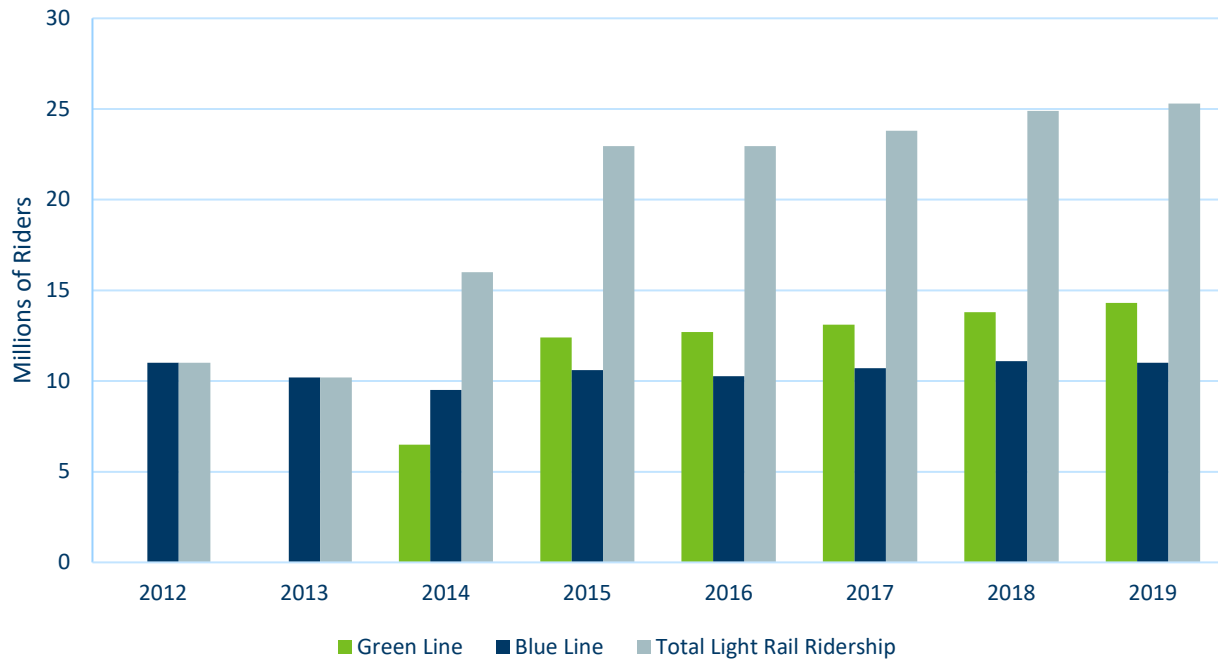
²⁰ Drew Kerr, "Light rail, Bus Rapid Transit lines set annual ridership records," *Metro Transit*, February 11, 2019, <https://www.metrotransit.org/light-rail-bus-rapid-transit-lines-set-annual-ridership-records>.

²¹ Needham B. Hurst and Sarah West, "Public Transit and Urban Redevelopment: The Effect of Light Rail Transit on Land Use in Minneapolis, Minnesota," *Ideas RePEc*, 2014, <https://ideas.repec.org/a/eee/regeco/v46y2014icp57-72.html>.

²² Drew Kerr, "Light Rail, Bus Rapid Transit Lines Set Annual Ridership Records," *Rider's Almanac Blog* (Metro Transit, February 11, 2019), <https://www.metrotransit.org/light-rail-bus-rapid-transit-lines-set-annual-ridership-records>.

²³ Drew Kerr, "Ridership growing in corridors with fast, frequent service," *Riders Almanac Blog* (Metro Transit, March 5, 2020), <https://www.metrotransit.org/ridership-growing-in-corridors-with-fast-frequent-service>.

Figure 6: Total light rail ridership in millions of riders^{24, 25}



Statewide, public transportation service is offered in 87 counties.²⁶ Half of transit riders in Greater Minnesota had household incomes under \$25,000 per year, meaning many riders possibly rely on public transportation as a primary means of travel.²⁷ Transit ridership from 2002 through 2019 is shown in Figure 7. It should be noted that those using transit with household incomes below \$25,000 per year may be college students. Many colleges and universities in Greater Minnesota have college transit pass programs. Approximately 82% of transit users ride transit more than twice a week, while 50% ride transit five to seven days per week, illustrating the levels of dependence that riders have on transit service in Greater Minnesota.²⁸

²⁴ Drew Kerr, “Light Rail, Bus Rapid Transit Lines Set Annual Ridership Records,” Rider’s Almanac Blog (Metro Transit, February 11, 2019), <https://www.metrotransit.org/light-rail-bus-rapid-transit-lines-set-annual-ridership-records>.

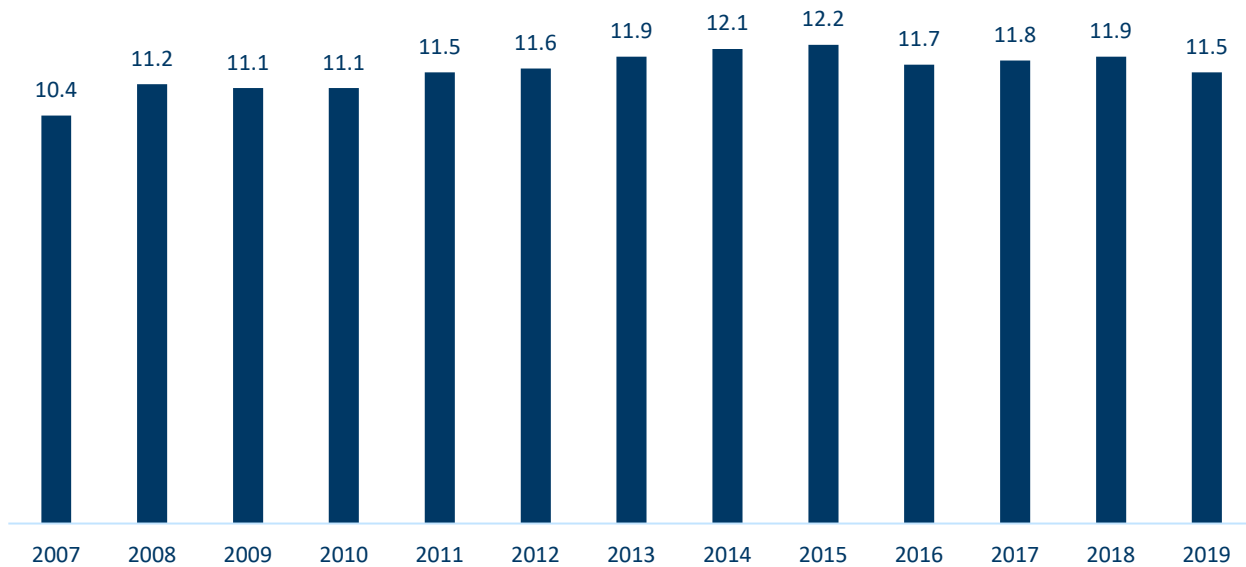
²⁵ Drew Kerr, “Ridership growing in corridors with fast, frequent service,” Riders Almanac Blog (Metro Transit, March 5, 2020), <https://www.metrotransit.org/ridership-growing-in-corridors-with-fast-frequent-service>.

²⁶ “2017 Transit Report: A Guide to Minnesota’s Public Transit Systems,” (MnDOT, 2018).

²⁷ “2017 Greater Minnesota Transit Investment Plan” (MnDOT, 2017).

²⁸ Ibid.

Figure 7: Transit ridership (millions of rides) in Greater Minnesota, 2002–2019²⁹



BICYCLING, WALKING AND MICROMOBILITY

BICYCLING AND WALKING

Initial analysis of data from the Metropolitan Council’s Travel Behavior Inventory (TBI) indicates that rates of walking increased from 6% to 8.8% of trips in the seven-county metro area from 2010 to 2019 while bicycling decreased from 2% to 0.9% of trips. However, changes in questions between the 2010 and 2019 TBI surveys could account for these changes in walking and bicycling in the metro area. Further analysis is required to determine the final mode share percentages for the 2019 TBI results to accurately compare them to 2010 results.³⁰ About 24% of people in the seven-county metro area report riding their bicycle at least once per week.³¹ Differences in rates of commuting by bicycle exists across genders in the Twin Cities metro area, with twice as many men commuting to work by bicycle than women.³²

MnDOT’s Office of Transit and Active Transportation (OTAT) collects walking and bicycling data throughout the state using permanent counters and automated people counters.³³ The seven-county metro area has nine permanent bicycle and pedestrian counters. The total counts at the permanent sites are shown in Table 2. Six of the permanent sites experience opposite trends to those of recreational use counters. Central Avenue, Park Avenue, Jackson Street, Summit Avenue, Franklin Tower and Highway 13 see a stark morning peak followed by a second peak in the late afternoon/evening. These high traffic times coincide with the beginning and end of the workday, suggesting primary use by commuters. These utilitarian and mixed-utilitarian sites are located within the

²⁹ Minnesota Department of Transportation, “Annual Greater Minnesota Transit Ridership”, Minnesota GO Performance Dashboard (MnDOT Office of Transit), <https://performance.minnesotago.org/critical-connections/access/annual-boardings-recorded-public-transit-providers-serving-greater-minnesota-counties-amtp/>.

³⁰ Travel Behavior Inventory 2010-2019, direct correspondence.

³¹ Xinyi Qian, “Assessing the Economic Impact and Health Effects of Bicycling in Minnesota,” (MnDOT, 2016).

³² Greta Kaul, “In Twin Cities, women trail men in bike commuting” (AP News, June 2019).

³³ “Minnesota’s Walking and Bicycling Count Report 2018-2019 Update” (state.mn.us)” (MnDOT, 2021).

seven-county metro area. Moreover, those living within half a mile of the above utilitarian sites have over twice as many residents without access to a vehicle within their home compared to those living in areas surrounding. Approximately 3% of residents near utilitarian sites also commute primarily by bicycle, according to Minnesota’s Walking and Bicycling Count Report 2018-2019 Update.³⁴

Table 2: Total people counted at seven-county metro area sites from 2018-2019³⁵

Site	2018	2019	Total	% Bicycle	% Pedestrian
Minneapolis – Central Ave	20,465	20,780	41,245	Bicycle Only	NA
Eagan – Trunk Hwy 13	16,008	NA	16,008	Bicycle Only	NA
Minneapolis – West River Pkwy	452,881	472,366	925,247	63%	37%
Brooklyn Park – Rush Creek	102,979	93,198	196,177	69%	1%
St Paul – Summit Ave	245,880	208,328	454,208	Bicycle Only	NA
Minneapolis – Park Ave	101,410	89,701	191,111	Bicycle Only	NA
Minneapolis – Franklin Ave	259,062	258,569	517,632	Bicycle Only	NA
Orono – Shadywood Dr	29,122	30,108	59,230	Bicycle Only	NA
St Paul - Jackson St	162,864	144,275	307,139	18%	82%

Regarding statewide walking and bicycling trends, MnDOT’s 2019 Omnibus Survey asked Minnesotans which transportation modes they used over the past year. Thirty one percent of respondents indicated they walk or use a wheelchair or mobility device at least a few times per week, while 8% said they bicycle at least a few times per week.³⁶ The results were also analyzed using a cluster technique to identify respondents with similar travel behavior characteristics. Of the three distinct groups that emerged from this analysis, those most likely to walk and bicycle were the “Multiple mode users” who were also most likely to live in the seven-county metro area, be younger than 35, have a college degree and earn more than \$100k per year. There was no preferred mode among this group, but their use of many modes is what groups them together. The group second most likely to walk was the “Heavier mass transit/non-drivers” who were also most likely to be older than 65, women, African American or Native American/Hawaiian, earn less than \$35k per year and have no more than a high school diploma.

³⁴ Ibid.

³⁵ “Minnesota’s Walking and Bicycling Count Report 2018-2019 Update” (state.mn.us) (MnDOT, 2021).

³⁶ “2019 Omnibus Public Opinion Survey” MnDOT Public Engagement and Constituent Services Office, (MnDOT, 2019).

Regarding pedestrian and bicycle safety, 36% of those surveyed in MnDOT’s 2019 Omnibus Survey perceived bicycling in the state as very safe, while 39% perceived walking or using a wheelchair or mobility device as “very safe”. These are very close to 2017 bicycle and pedestrian safety perception levels.³⁷ The top safety concerns related to bicycling for residents in Greater Minnesota are the lack of dedicated bicycle lanes, narrow shoulders and distracted drivers. In the seven-county metro area the top bicycling safety concerns are narrow shoulders, distracted drivers and lack of physical barriers between drivers and bicyclists.³⁸ The top concerns for pedestrians in Greater Minnesota are poor condition of sidewalks and trails, not enough sidewalks and trails and distracted drivers. In the seven-county metro area the top pedestrian safety concerns are distracted drivers, not enough sidewalks and trails, aggressive driving and poor condition of sidewalks and trails.³⁹

Like in the seven-county metro area, MnDOT collects walking and bicycling data throughout the state using permanent counters and automated people counters.⁴⁰ Greater Minnesota has 20 permanent bicycle and pedestrian counters which are spread throughout the state on six different type of facilities, including on- and off-road. The total bicycle and pedestrian counts at the permanent sites are shown in Table 3. MnDOT plans to grow its presence of permanent counters throughout the state.

The Duluth Lakewalk Trail and Levee Trail experienced flooding and construction impacts in 2019 and had fewer users in 2019 compared to 2018, while most locations also experienced a decline not related to closures. All locations saw seasonal average temperature decreases and increased levels of precipitation, pointing to a weather-related reduction in bicycling. Lanesboro and Wilmar were the only two locations to experience increases in volumes between 2018 and 2019 (both heavy bicycle usage trails). There were over 1.3 million trips counted through the permanent counting program in Greater Minnesota in 2018 and 2019, and 58% of those were bicycle trips. Most of the sites identified the trip type as recreational based on the hour and day of use in Greater Minnesota.

Table 3: Total People Counted at Permanent Sites in Greater Minnesota 2018 -2019

Site	2018	2019	Grand Total	% Bicycle	% Pedestrian
Duluth Lakewalk Trail	301,750	158,674	460,425	22%	78%
Duluth Scenic 61	16,903	15,539	32,442	Bicycle Only	NA
Cass Lake Migizi Trail	12,067	9,525	21,592	36%	64%
Brainerd Paul Bunyan Trail	32,606	30,943	63,549	56%	44%
St Cloud Beaver Island Trail	49,985	47,505	97,491	48%	52%
Detroit Lakes W Lake Drive	28,525	23,098	51,622	Bicycle Only	NA
Moorhead TH75 Trail	40,799	33,286	74,086	52%	48%

³⁷ “2019 Omnibus Public Opinion Survey” MnDOT Public Engagement and Constituent Services Office, (MnDOT, 2020).

³⁸ Raduenz, Kayla Dean, “2020 Omnibus Public Opinion Survey” (PowerPoint presentation, Communications and Public Engagement Office, MnDOT, April 28, 2021).

³⁹ Ibid.

⁴⁰ “Minnesota’s Walking and Bicycling Count Report 2018-2019 Update” (state.mn.us)” (MnDOT, 2021).

Site	2018	2019	Grand Total	% Bicycle	% Pedestrian
Lanesboro Root River Trail	75,965	76,801	152,766	77%	23%
Red Wing Levee Trail	54,266	15,954	70,220	19%	81%
Rochester Macnamara Bridge	75,894	77,832	153,726	52%	48%
Mankato Veterans Mem. Bridge	70,156	61,814	131,970	No Differentiation	No Differentiation
Hutchinson Luce Line Trail	30,556	27,459	58,015	52%	48%
Willmar Lakeland Drive	2,443	3,119	5,562	Bicycle Only	NA
Total from Count Locations	791,915	581,549	1,373,464	58%	42%

Increases in walking can be seen in certain demographic groups, including aging residents who may choose to move to areas that are walkable to reduce the amount they need to drive.⁴¹ Property values are higher in areas with stronger Walk Scores (a proprietary system that analyzes routes from a specified address to local amenities and provides a score based on how many destinations are within a walkable distance). The higher property values in areas with high Walk Scores could possibly indicate higher demand for homes within a short distance of walkable amenities, though other factors may explain this relationship.⁴²

MICROMOBILITY

Micromobility refers to a range of small, lightweight vehicles operating at lower speeds and driven by the person renting the vehicle. Over the past few years, bike sharing and electric scooter sharing, examples of micromobility, have gained attention in the seven-county metro area and across the country. While these services are growing in popularity, 89% of micromobility trips in the seven-county metro area are made using a personal bicycle.⁴³ For more detail see the Shared Use Mobility Trend Analysis.

Bike Sharing

Bike sharing began in Minnesota in 1996 with the Yellow Bike Project in Minneapolis and Saint Paul.⁴⁴ This program used coin-operated locks to give users access to yellow-painted bicycles. This program was eventually canceled when bicycles were either kept for too long, disappeared or were damaged.

Bike share returned to Minnesota in 2010 through Nice Ride, a non-profit. Nice Ride launched in Minneapolis with 700 bikes at 65 docks.⁴⁵ Initially, Nice Ride provided service in Saint Paul, but in 2019, the City discontinued their contract citing disagreements with the process.⁴⁶ In 2021, Nice Ride operated 3,000 bicycles in Minneapolis and

⁴¹ Corey L. Nagel et al., "[The Relation Between Neighborhood Built Environment and Walking Activity Among Older Adults](#)," 4th ed., vol. 168 (American Journal of Epidemiology, 2008), pp. 461-468.

⁴² John I. Gilderbloom, William W. Riggs, Wesley L. Meares, "[Does walkability matter? An examination of walkability's impact on housing values, foreclosures and crime](#)," vol. 42, (Cities, Part A, 2015), pp. 13-24.

⁴³ "2019 Travel Behavior Inventory Household Survey Results", Metropolitan Council, 2019.

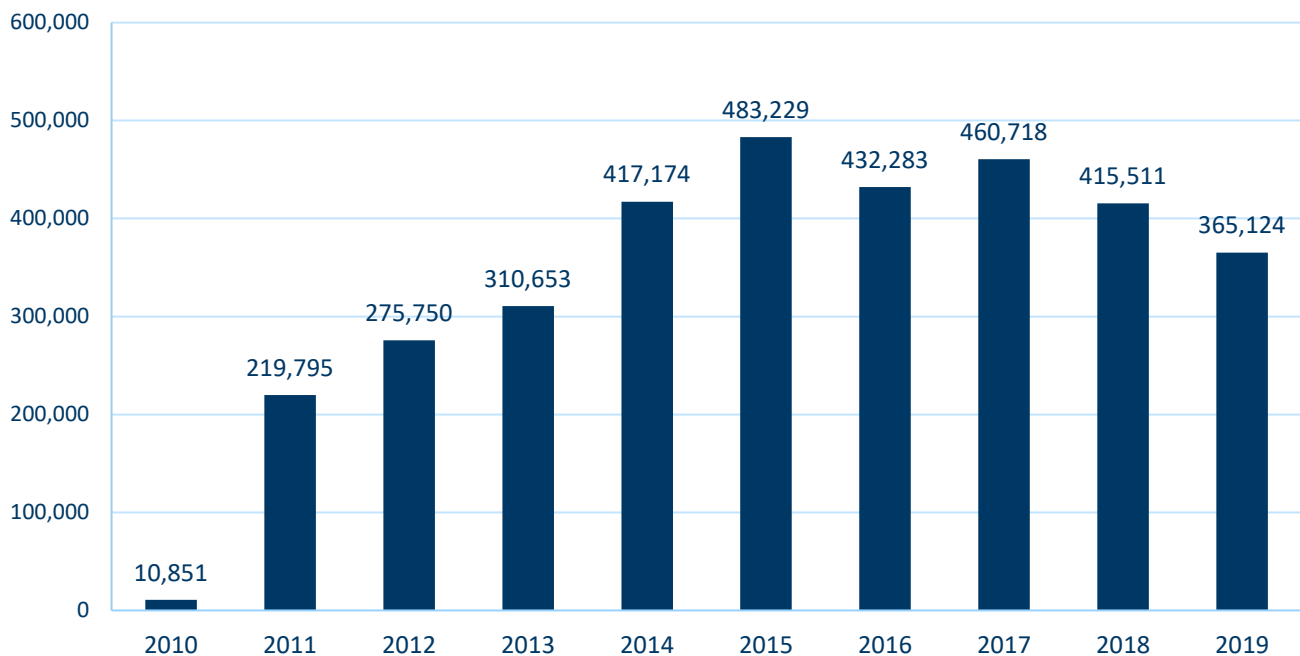
⁴⁴ Susan Shaheen, Stacey Guzman, and Hua Zhang, "Bikesharing across the Globe" (MIT Press, 2012), p. 118.

⁴⁵ "How it Works," Nice Ride, accessed September 2, 2020, <https://www.niceridemn.com/how-it-works>.

⁴⁶ Tad Vezner, "Saint Paul pulls away from 'dockless' bike share proposal over concerns with process," Pioneer Press, January 17, 2018, <https://www.twincities.com/2018/01/17/citing-problems-with-process-st-paul-pulls-away-from-dockless-bike-share-proposal/>.

400 stations for docked bicycles.⁴⁷ Bicycles can be rented for \$2 per ride, or \$6 a day.⁴⁸ In 2018 and 2019, Nice Ride operated dockless bicycles, which could be picked up throughout the city and cost, but phased those out and introduced e-bikes in 2020. Since 2010, Nice Ride Minnesota has seen increased ridership, as shown in Figure 8; however, ridership declined in more recent years after its peak in 2015. Bike sharing provides an alternative active transportation option for short point-to-point trips and provides access to bicycles for populations who are unable to purchase one outright.

Figure 8: Nice Ride Minnesota total trips taken⁴⁹



Greater Minnesota is home to a variety of different types of bike sharing systems that range in complexity. Some unconventional bike share programs include the City of Willmar’s “BikeWillmar” program comprised of bicycles from previous bike share ventures, Lake City’s free bike share program, and the more-familiar Pace bike share in Rochester.^{50,51} Other small cities around the state are experimenting with bike share programs, including Hastings, Austin, Duluth and Saint Cloud. In 2014, Nice Ride began a pilot system in Bemidji to evaluate the possibilities of bike share in smaller cities, but this program is no longer operational.⁵² More information on these programs is located in the Shared Use Mobility Trend Analysis.

Scooter Sharing

Scooter sharing arrived in 2018 when the City of Minneapolis launched an electric scooter pilot program. After this trial period was deemed mostly successful, several additional scooter companies arrived in the seven-county

⁴⁷ “Index of Bucket “niceride-data,” Nice Ride Minnesota, accessed June 11, 2021, <https://s3.amazonaws.com/niceride-data/index.html>.

⁴⁸ Ibid.

⁴⁹ “System Data” (Lyft and Nice Ride), <https://niceridemn.com/system-data>.

⁵⁰ Willmar Convention and Visitors Bureau, “BikeWillmar”, 2019; Lake City, “Community Bike Program”, 2016. <https://www.willmarlakesarea.com/listings/bike-willmar/> <http://www.lakecitymn.org/2016/09/community-bike-program/>

⁵² Pace, 2018, <https://ridepace.com/#where>.

metro area. As of 2021, companies operating in the seven-county metro area include Lime, Lyft and Bird.^{53, 54} Electric scooters are controlled through a button or throttle on the handlebars and are equipped with a handbrake or the traditional footbrake. Scooters can allow users to take a quick trip for a few dollars and provides for some another option for traveling shorter distances. In Minnesota, electric scooters are treated as bicycles and required to be parked out of the pedestrian right-of-way and are not permitted on sidewalks.⁵⁵ More details on statewide micromobility trends are available in the Shared Use Mobility Trend Paper.

AIR TRAVEL

In 2017, the Minneapolis-Saint Paul (MSP) Airport facilitated over 18 million airplane boardings, as seen in Figure 9. In total, boardings have increased by 19% since 2010. Despite this growth, the MSP Airport fell in rankings of busiest airport from 16th in 2010 to 17th in 2019.⁵⁶

Figure 9: Total boardings (in millions) at MSP International Airport from 2010 to 2019⁵⁷

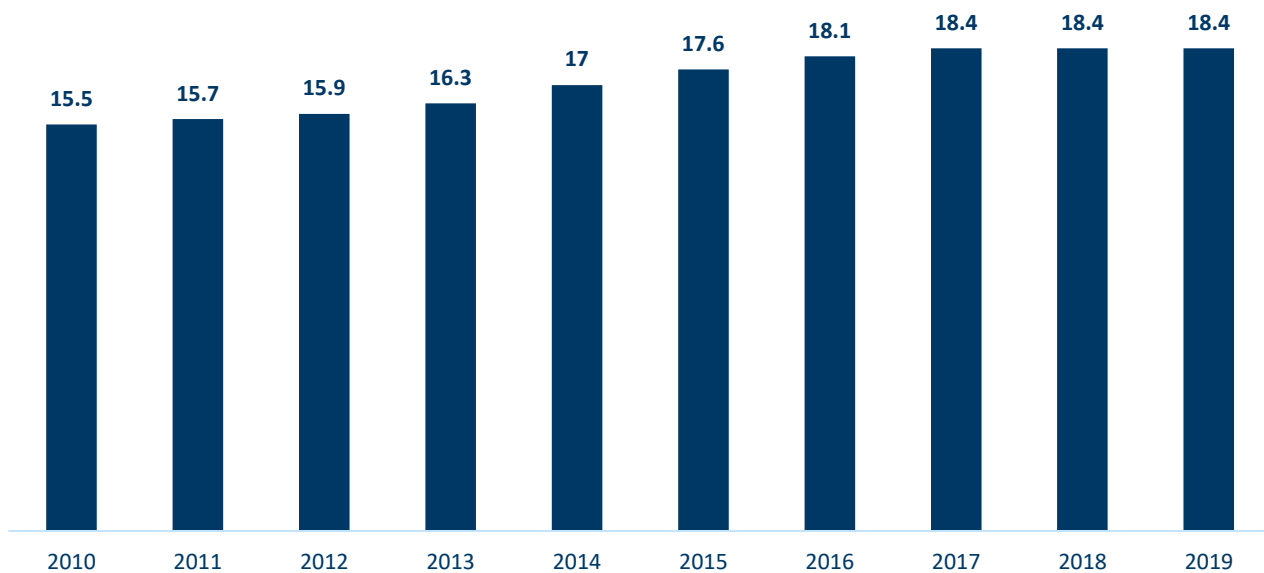


Figure 10 shows boarding totals for Greater Minnesota airports. By and large, air travel in Greater Minnesota has increased since 2010. The percent change in airport boardings from 2010 to 2017 at Greater Minnesota airports is shown in Figure 11. Most of the airports in Minnesota have seen an increase in the number of boardings from 2010 to 2017 except Duluth and Bemidji airports. Some trends that negatively impact commercial service to Greater Minnesota include pilot shortages, up-gauging of aircraft (using larger planes for most commercial flights) and changes to airline business models. Up-gauging of aircraft is of particular concern for small airports, as larger

⁵³ “Scooter share” City of Minneapolis, 2021, accessed November 23, 2021, <https://www2.minneapolismn.gov/resident-services/getting-around/scooters/>

⁵⁴ “Scooters in Saint Paul” City of Saint Paul Department of Public Works, 2021, accessed November 23, 2021, <https://www.stpaul.gov/departments/public-works/transportation-and-transit/scooters>.

⁵⁵ Minnesota State Legislature, “2018 Minnesota Statutes,” Office of the Revisor of Statutes, 2018, <https://www.revisor.mn.gov/statutes/cite/169.225>.

⁵⁶ “Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports - Previous Years,” Federal Aviation Administration, June 3, 2021, https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/previous_years/#2010.

⁵⁷ Ibid.

jets require significantly different facilities than smaller regional aircraft. Some programs that support commercial service in Greater Minnesota include the federal Essential Air Service program and the state-based Air Service Marketing program.⁵⁸

Figure 10: Total boardings at airports in Greater Minnesota, 2017⁵⁹

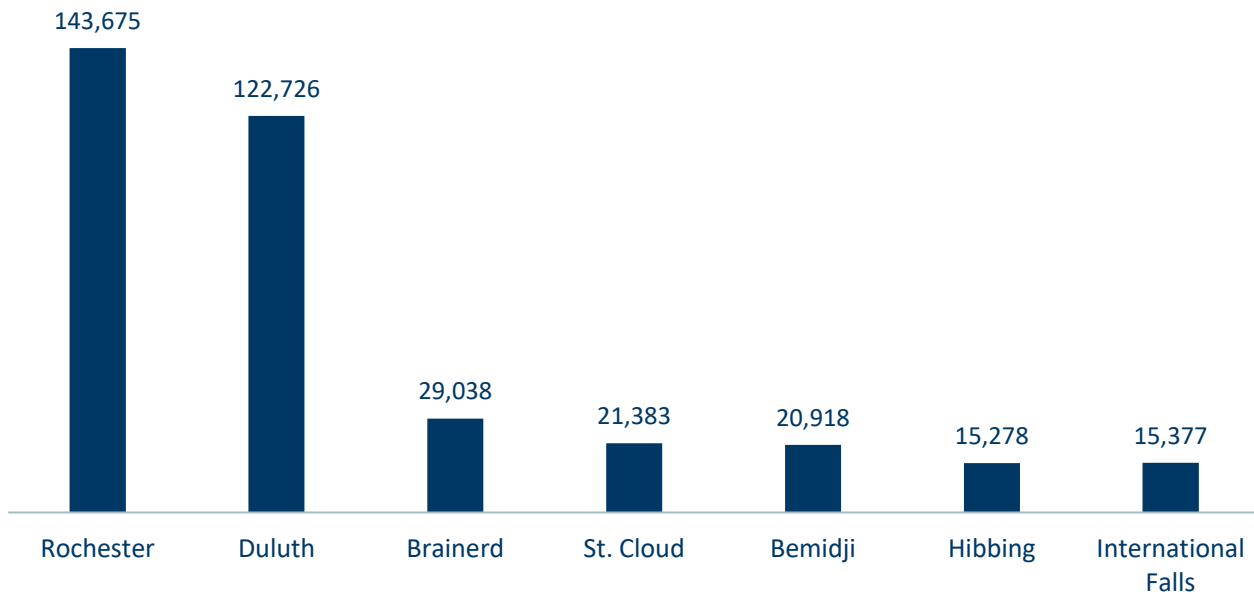
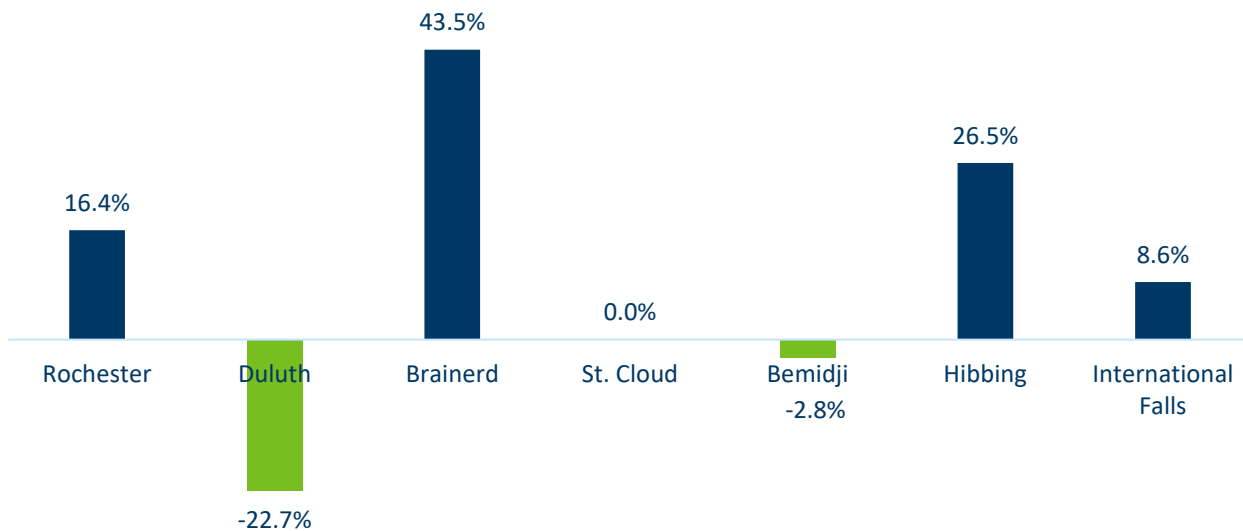


Figure 11: Percent change in airport boardings, 2010-2017⁶⁰



⁵⁸ Ryan Juran, Aviation Office, Minnesota Department of Transportation.

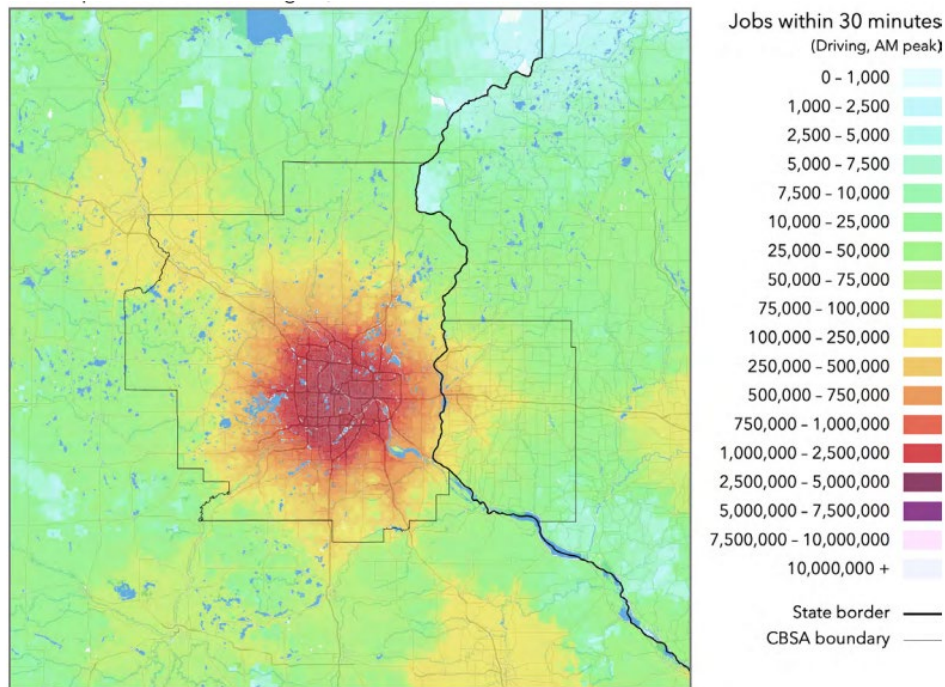
⁵⁹ "Passenger Boarding (Enplanement) and All-Cargo Data for U.S. Airports - Previous Years," Federal Aviation Administration, June 3, 2021, https://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/previous_years/#2010.

⁶⁰ Ibid.

ACCESS TO JOBS

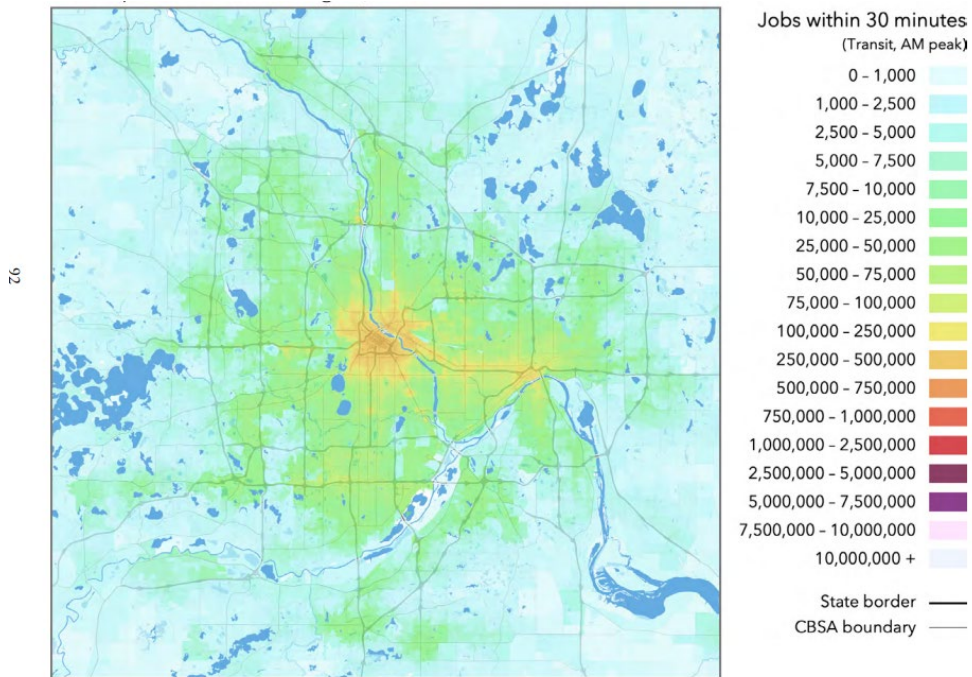
Emerging technologies and data analysis can show how many jobs are accessible from any location within the seven-county metro area. The University of Minnesota Accessibility Observatory's 2019 report on driving accessibility in the seven-county metro area produced the following map (Figure 12) showing the number of jobs within a 30-minute drive of locations throughout the region. Figure 13 displays the number of jobs accessible within a 30-minute transit commute. This figure is likely to change as there are multiple high-frequency transit routes being planned in the metro area including multiple bus rapid transit lines and the Green Line and Blue Line LRT extensions.

Figure 12: Jobs accessible within a 30-minute auto commute during the AM peak period, 2019⁶¹



⁶¹ "Access Across America: Auto 2019," (Accessibility Observatory, University of Minnesota, February 2021).
https://access.umn.edu/research/america/auto/2019/documents/AccessAcrossAmerica-Auto2019_wb.pdf

Figure 13: Jobs accessible within a 30-minute transit commute during the AM peak period, 2019⁶²



Additionally, MnDOT has developed a travel time reliability measurement system that automatically draws on traffic, weather and accident data for the freeway network to generate travel-time reliability measures and reports tailored to inputs on work zones and lane configurations. It can be used to prepare for potential congestion and respond to congestion in the face of natural events, crashes and large public events.⁶³ The developed system will be useful in future research and in short-term and long-term planning. MnDOT also averages interstate travel time reliability in Greater Minnesota on an annual basis. The measure describes the percent of person-miles traveled on the interstate network that are considered reliable. Travel time reliability on the statewide interstate system has been stable for the past five years, at about 80% of miles traveled being reliable.⁶⁴

⁶² "Access Across American: Transit 2019," (Accessibility Observatory, University of Minnesota, October 2020).

⁶³ Eil Kwon, "Development of a Travel-Time Reliability Measurement System," (MnDOT, 2018).

⁶⁴ "Reliability and Congestion," MnDOT Performance Dashboard, <https://performance.minnesotago.org/critical-connections/reliability/reliability-and-congestion>.

INTERCITY TRAVEL

To travel regionally, many different transportation options are available. Flying and driving may first come to mind, however options including bus and rail are also available in Minnesota. These services can be fitting alternatives for those who may not prefer driving or flying, are not able to or want an often-less-expensive option.

INTERCITY BUS SERVICE

Intercity bus services connect many cities and towns across Minnesota to other regional centers and the seven-county metro area. Jefferson Lines provides the majority of federally subsidized and unsubsidized service in Minnesota along with Land to Air express, Northfield Lines and Rainbow Rider, while Greyhound Lines and Megabus offer express-style service between Minneapolis and Chicago.^{65,66} It is difficult to determine trends in intercity bus service as routes are frequently rerouted, lengthened and occasionally shortened. Ridership of curbside bus services like Megabus have seen high levels of expansion, though this does not directly benefit riders in Greater Minnesota.⁶⁷

PASSENGER RAIL

Amtrak serves six stations (Detroit Lakes, Red Wing, St. Cloud, Saint Paul-Minneapolis, Staples and Winona) in Minnesota along the Empire Builder train route, which travels between the Seattle, WA/Portland, OR and Chicago, IL. A total of 139,091 riders used one of these six stations in 2017 and 131,973 riders used these stations in 2019.^{68,69} In 2015 MnDOT and the Wisconsin Department of Transportation published an evaluation of the feasibility of a second daily train between Minnesota and Chicago.⁷⁰ This service would complement the already existing Empire Builder route.⁷¹ In 2021, Minnesota dedicated \$10 million of its state omnibus transportation funding package to the project.⁷² Combined with funding from Wisconsin and Amtrak, this provides a full match for the federal grant awarded to the project.⁷³ MnDOT and the Wisconsin Department of Transportation will now lead the process through final design and construction. The line is expected to be operational as soon as 2024 and is expected to carry 124,000 passengers a year.

⁶⁵ [“Minnesota Intercity Bus Study,”](#) (MnDOT, 2014).

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ [“Amtrak Fact Sheet, Fiscal Year 2017 State of Minnesota,”](#) (Amtrak, 2017).

⁶⁹ [“Amtrak Fact Sheet Fiscal Year 2019 State of Minnesota,”](#) (Amtrak, 2019).

⁷⁰ [“Evaluation of a Second Daily Intercity Passenger Rail Frequency between Minnesota and Chicago,”](#) (MnDOT, 2015).

⁷¹ Ibid.

⁷² Nick Ferraro, “State moves forward with second daily Amtrak train to Chicago. Service could begin 2024,” (Pioneer Press, June 28, 2021).

⁷³ Ibid.

RELATED TRENDS

- [Aging Population](#)
- [Logistics](#)
- Public Transportation
- Shared Use Mobility

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 our 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.

REVISION HISTORY

Date	Summary of revisions
November 2015	Original paper.
March 2022	Updated with new data.