

The Implications of Telecommuting for the Twin Cities Metro Area



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Overview of TPEC

- This research is funded through the TPEC program
- MN legislature established TPEC in 2013 to advance research on the relationship between transportation and economic development
 - Research has the potential to influence policy
 - Outreach component
- Overseen by an Advisory Board
 - Legislators
 - Mayors
 - Business leaders
 - Other stakeholders
- Three research areas
 - Finance
 - Industry Clusters and Freight
 - Technology*



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Twin Cities Metro Area



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- The Twin Cities Metro Area is growing
 - Gained 314,000 residents over the last decade, bringing the total population to 3.16 million in 2020
 - Significant growth in both urban center cities and suburban edge cities.
 - Share of residents who identify as Black, Indigenous or people of color (BIPOC) now stands at 31%, up from 24% in 2010.
 - Over 55% of Minnesota's population, 3.16 million people, lives in the Twin Cities seven-county region.
 - The Twin Cities accounted for 78% of Minnesota's population growth between 2010 and 2020.
 - Outer-ring suburban communities like Lakeville, Woodbury, and Blaine grew dramatically, with growth rates exceeding 20%.
 - Older, more established suburbs like Brooklyn Park and Bloomington added thousands as well.



Encouraging Telecommuting



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eWorkplace

- Started in 2008, a state-sponsored initiative to encourage telecommuting to reduce greenhouse gas emissions and travel congestion
 - \$3.2 million set aside to establish and evaluate eWorkplace
 - eWorkplace successfully encouraged telecommuting during a multi-year downtown freeway reconstruction project for the Super Bowl in 2018
- Improvements in productivity, work-life balance, and overall well-being from telecommuting employees
- Teleworkers eliminated more than 94 commute hours, saved over \$3,600, and reduced emissions by nearly 1,900 pounds of carbon dioxide each year.



Participants included: Minnesota Department of Transportation (MnDOT), the Minnesota Department of Education, 3M, Thrivent Financial, Allina Health, and Medtronic

From Encouraging Telecommuting to Managing the Impacts



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- eWorkplace established research and investments to encourage telecommuting among businesses and employees who *wanted* to telecommute
- COVID-19 *necessitated* telecommuting
- This research aims to understand:
 - Changes in travel behaviors
 - Congestion and VMT changes
 - Impacts on core urban centers
 - Employer and employee responses
 - Equity during COVID-19 - who is able to telework? Can we mitigate disparities if telecommuting remains a long-term option?



From Encouraging Telecommuting to Managing the Impacts



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COVID-19 Impacts for the Twin Cities

- About 60% of Twin Cities workers telecommuted in May compared with 26% in March. Likewise, 48% worked full time from home in May compared to 12% before the pandemic. (Source: Metropolitan Council)
- Trips to the workplace fell 40% throughout the state—and 50 percent in Hennepin County. (Source: Google mobility report, January 15, 2021)
- Of the 218,000 downtown Minneapolis workers in February, just 12.5% were still working there in the summer, rising to 15.8% in November (Source: Minneapolis Downtown Council, GreaterMSP)
- Statewide, about 42% of Minnesota households had at least one person who telecommuted during early December compared to 44% during late August. (Source: Bureau of Transportation Statistics)
- Minnesota has one of the highest rates of telecommuting in the country, ranking 6th during late August, dropping to 15th during early December. (Source: Bureau of Transportation Statistics, 2020)
- Telecommuting disparities by income are *stark*
 - In late August 2020, approximately 17% of Minnesotans with an income of less than \$50,000 telecommuted, dropping to about 15% in early December.
 - In contrast, 72% of Minnesotans with an income of \$100,000 or more telecommuted in late August, dropping to about 70% in early December. (Source: Bureau of Transportation Statistics)

- Quantitative
 - Utilized MnDOT sensor data at key commuter routes to analyze traffic volumes and peak travel times
- Qualitative
 - Conducted interviews with key transportation management organizations, transit stakeholders and downtown organizations
 - Analyzed reports from MetCouncil, Metro Transit, and Downtown organizations when an interview was not possible.



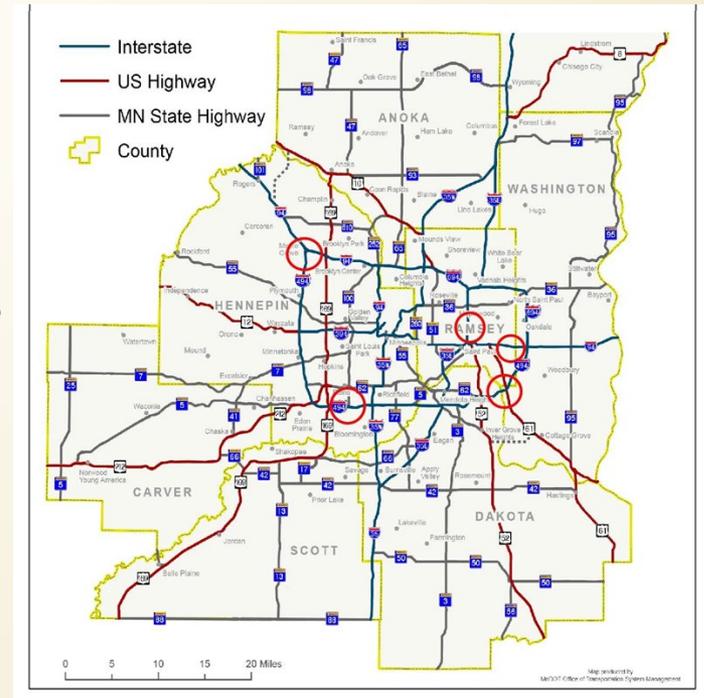
Gathering Information

- The team collected data through
 - US Labor Statistics
 - American Community Survey (ACS)
 - ReferenceUSA to determine industry and job-related demographics for the research area.

This allowed the team to determine positions held in regions of the Twin Cities metropolitan area, travel behaviors, and income status.

MnDOT Sensors

- We analyzed the weekday travel demand, congestion, and peak travel throughout the Twin Cities metro and suburban areas using MnDOT detectors.
- Locations:
 - 35E north of downtown St. Paul
 - Northwestern corner where 494 and 694 come together
 - 494 crossing Mississippi River
 - East Metro: 1-94 east of Downtown St. Paul
 - West of downtown Minneapolis 100 and 494 highway 394 crossings
- These locations were chosen due to their high volume of commuter travel
- For the above locations, the hourly traffic volumes were compared for the years 2019 and 2022 for the months of March, April and May.



Preliminary Results

MnDOT Sensor Data



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General Observations

- Throughout the Twin Cities Metro Area, the morning peaks are *generally lower* compared to pre-covid levels.
- However, the evening peaks have returned to pre-covid levels and even surpassed them in many locations.
- The evening traffic volumes are more distributed throughout than the morning traffic volumes.
- In traffic volumes towards the downtown, there is a slight increase in traffic volume between 11am and noon.

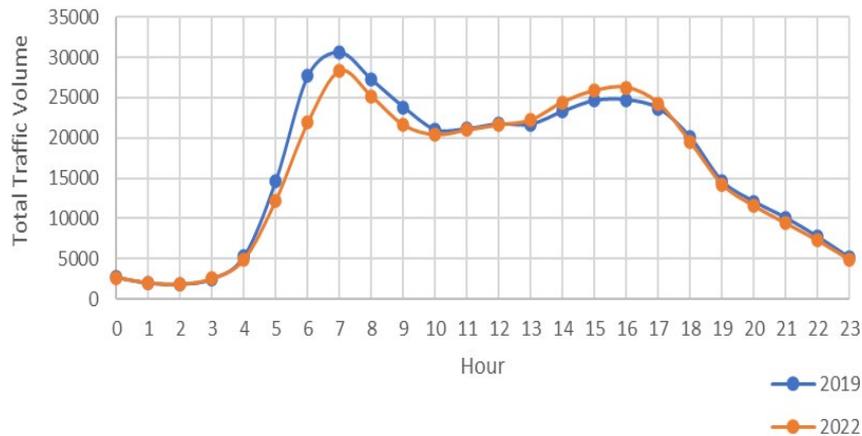
March 2019 Vs March 2022



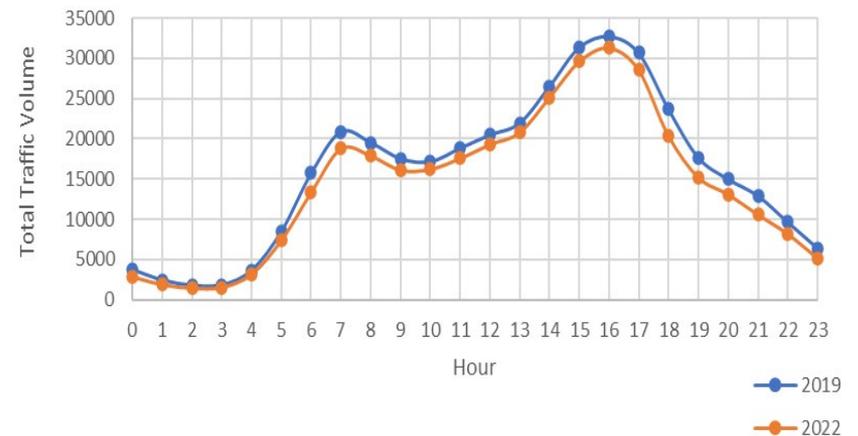
March

- In general, the morning and evening peaks are comparable for traffic going into Downtown.
- The evening traffic volumes for 2022 have surpassed the traffic volumes in 2019.

Traffic Volumes to Downtown



Traffic Volumes from Downtown



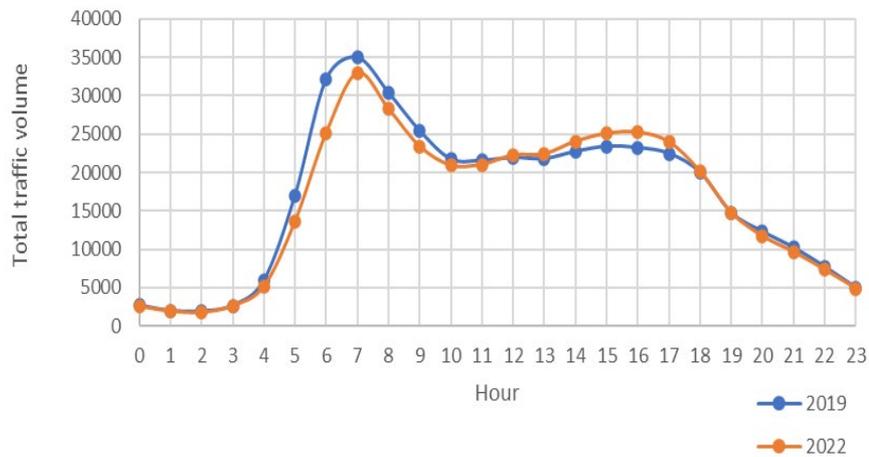
April 2019 Vs April 2022



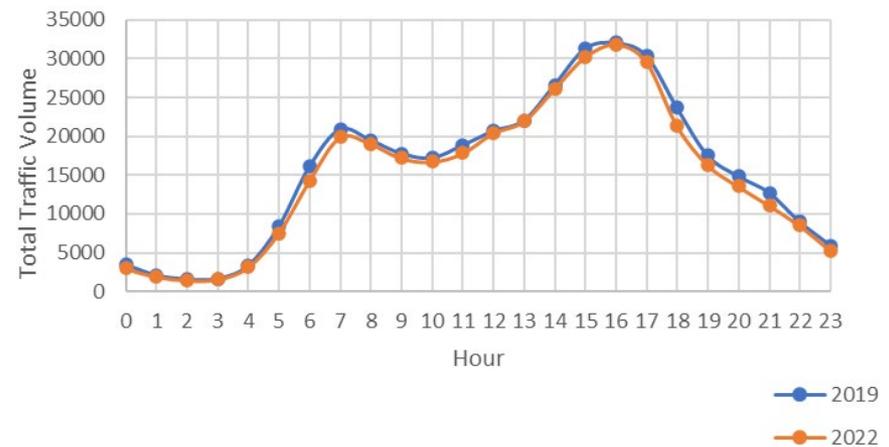
April

- After 2019, April started witnessing a shift in the peak pattern during morning hours.
- Pre-COVID, travel volumes peaked around 6 am, and in 2022, it has shifted to 7 am. This is applicable for people traveling downtown from the suburbs.

Traffic Volumes to Downtown



Traffic Volumes from Downtown



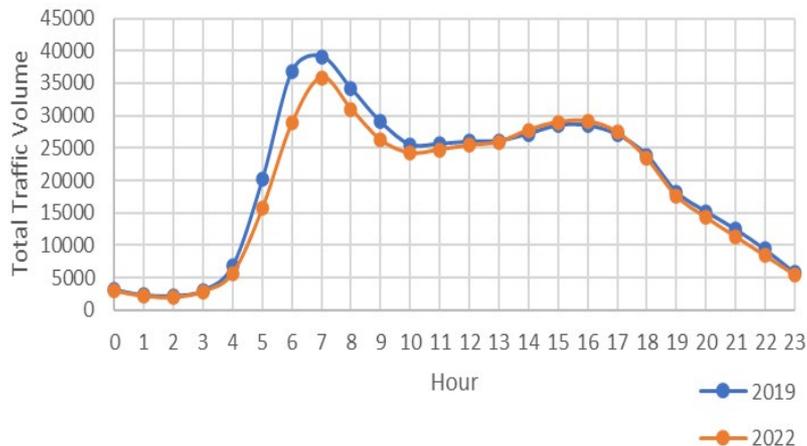
May 2019 Vs May 2022



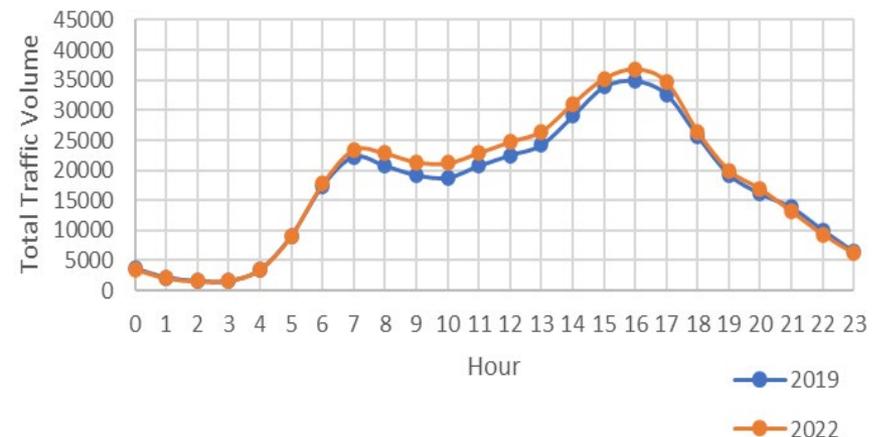
May

- In May, the morning traffic volumes in 2022 reached the levels of 2019 and surpassed the 2019 levels in certain locations for reverse commute
- The evening traffic volumes in 2022 surpassed the traffic volumes of 2019 in many locations and were distributed more than the 2019 levels.
- Pre-COVID, travel volumes peaked around 6 am, and in 2022, it has shifted to 7 am. This is applicable for people traveling downtown from the suburbs.

Traffic Volumes to Downtown



Traffic Volumes from Downtown



- Next we wanted to see whether there is any impact of hybrid work on the distribution of commuting trips between workdays.
- Following are the sites which carry significant commuting trips.
 - 35W at 98th street Northbound
 - 35W at TH96 Southbound
 - I94 at Weaver Lake Road Southbound
 - I94 at Century Ave Westbound
 - I394 at Penn Ave Eastbound including EZ Passlane
 - TH 77 at River Crossing Northbound
 - I35E at Larpenteur Ave Southbound
- We compared the sum of May/June 2019 volume distribution with May/June 2022 for morning peak period i.e from 6am to 9am.
- We calculated the volumes at these locations for weekdays during morning peak period and then the percentage of traffic for each weekday.

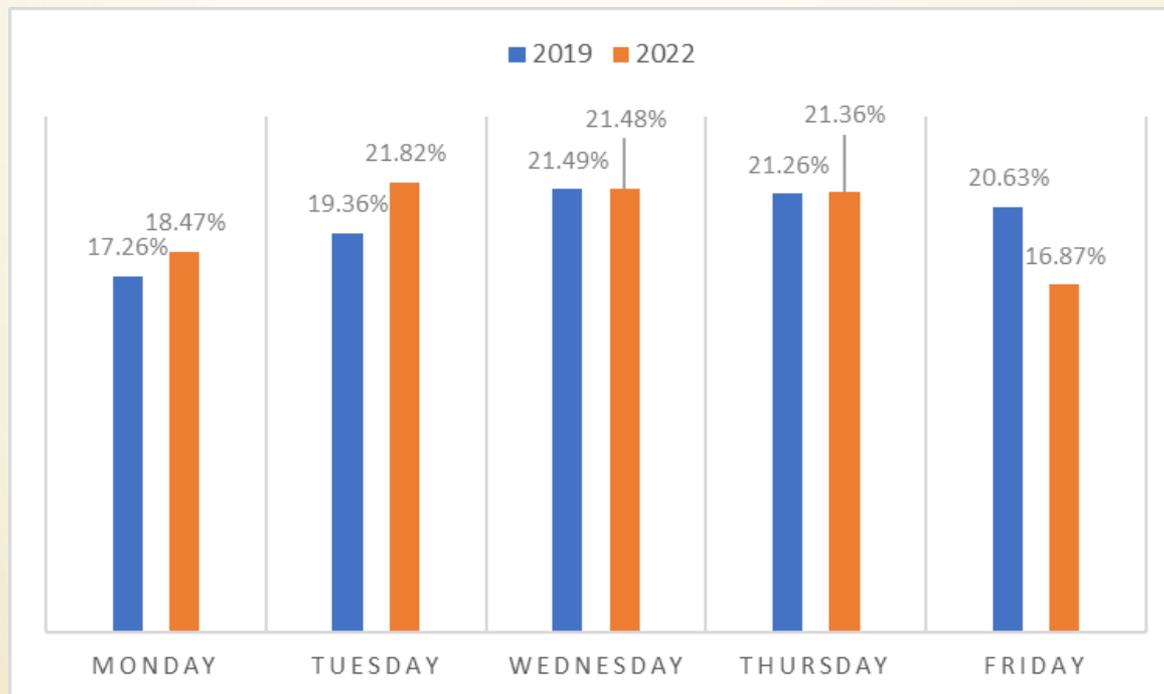
Preliminary Results

MnDOT Sensor Data



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- The overall trend indicates that we are moving towards a *4-day work week*. Friday is the day where people are most likely to do teleworking.
- Morning peak volumes haven't recovered fully and are about 80% of the pre-pandemic levels.



Preliminary Results

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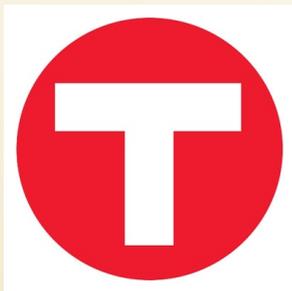
- By 2022, total traffic volumes are 20% lower in commuter corridors
- But, peak travel times rebound, higher than before in some areas
- By 2022, morning peak volumes remain lower than before COVID-19, and evening volumes have fully recovered
 - Does the evening rebound indicate more discretionary trips?
 - Commuters have the flexibility to travel to work later in the day
- How does the hybrid model influence travel behaviors?
 - Distribution of trips is nearly the same
 - Fridays have a lower distribution than previous years, and current weekday volumes for Monday - Thursday

Qualitative

Interviews

- Conducted interviews with:
 - Move Minnesota (Saint Paul Transit Management Organization)
 - Metro Transit
 - Saint Paul Downtown Alliance
 - 494 Corridor Commission

Interviewees were asked questions related to current telecommuting or teleworking trends, longterm ideas related to continued telecommuting, changes to travel patterns, congestion, equity considerations, and modes of transportation (biking, transit, private vehicle use).



Preliminary Results

Interview Themes



Interviews reinforced preliminary findings, and pointed to ongoing concerns.

- Will telecommuting be sustained long term?
- Can telecommuting address existing issues and new unforeseen issues
 - Equity, transit, downtown impacts, and infrastructure investments
- **Reliability and Reliance**
 - Existing: the “transportation disadvantaged” do not have reliable access to a car, and are reliant on transit and other modes of transportation that have limitations (network extent, service hours, low ridership, etc.)
 - Future: will telecommuting create a lasting, new normal within the four-day work week? How can we address unmet transportation needs with lower congestion, or need, for new routes or transit lines?
- **Equity**
 - Existing: limited income, language barriers, available employment opportunities made more challenging by limited transit network/service hours
 - Future: cost considerations; inequities from poorer access to transportation

Preliminary Results

Interview Themes



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- **Environment**
 - Existing: touted benefits of telecommuting (flexibility, reduced congestion, lower emissions) enjoyed most by those in private vehicles
 - Future: transit, future infrastructure investments, account for lower congestion and shifted peaks in future planning
- **Downtowns**
 - Existing: Concern about perceived safety, adapting to fewer people downtown, reinvented office spaces
 - Future: encouraging people to return to downtowns via events and programming, reconfigured office spaces and leases, reduced travel downtown jeopardizes job security for some, concern about parking investments

Discussion - Short Term



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- Things are still changing
 - COVID-19 still a concern, and actively shaping travel decisions
 - The 20% lower commuter volumes captured by our study are not expected to stay the same
 - Difficult to pinpoint why travel behaviors changed after stay-at-home orders were lifted
- Tension between employers and employees
 - Navigating the flexibility for employees and reinventing an office culture
 - Low unemployment rates could impact travel behavior decisions and long-term telecommuting acceptance
- While discretionary travel may rebound, mandatory or 'work' travel may *never* be the same as it was pre-COVID
 - Overall lower volumes on Friday and shifted peak travel times

- Few interviews discussed the impact telecommuting may have on transit and road infrastructure investments.
 - If congestion during peak travel hours in the morning or evening remained at half of what it was to COVID, justifying road expansion projects across the Twin Cities Metro becomes difficult
 - Even after COVID-19 restrictions relaxed, people chose to use private vehicles rather than return to transit.
 - Low transit ridership makes it difficult to justify transit expansion for the Twin Cities Metro
 - This may encourage greater, more variable financial models to support expanded transit systems in the Twin Cities suburban areas if ridership fails to return to pre-COVID levels.

Policy Implications



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- Policymakers and transit agencies must continue to prepare for continued telework preferences to disrupt transit ridership, funding, infrastructure investments, safety, and other concerns.
- In April, the Minnesota Legislature approved and passed Frontline Worker funds, or Hero Pay.
 - MN Legislature set aside \$500 million to compensate applicants who qualified
 - Different from federal funds, qualified individuals are those who *could not* telecommute
 - Not a long-term solution, but signifies that the legislature, policymakers, and advocates recognize the inequity teleworking during the COVID-19 pandemic perpetuated.



Ongoing Work



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- Ongoing work for this research includes key areas mentioned earlier:
 - Transit impacts with low ridership volumes
 - Ongoing impact of changed travel behaviors on current and future infrastructure for the Twin Cities metro
 - Environmental impact of travel behavior changes on congestion and VMT
 - Equity considerations if telecommuting continues
 - Long-term impact on Twin Cities downtowns



THANK YOU!

Questions?

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