Performance target

Delay is the extra time wasted by travelers due to congestion.

Current annual delay per person is 42 hours.

Delay/person is projected to increase by 33% to 56 hours by 2040 with no investment in this area.

Use a Twin Cities Highway Mobility target of 40-hours of annual delay per person to calculate MnDOT’s 20-year investment needs on the state highway system.
# Met Council 2050 Forecasts (2021)

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>2040</th>
<th>2050</th>
<th>2020-2050 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>3,163,000</td>
<td>3,476,000</td>
<td>4,001,000</td>
<td>+818,000</td>
</tr>
<tr>
<td>(Census)</td>
<td>(Census)</td>
<td>(Census)</td>
<td>(Census)</td>
<td></td>
</tr>
<tr>
<td>Employment</td>
<td>1,548,000</td>
<td>2,055,000</td>
<td>2,175,000</td>
<td>+627,000</td>
</tr>
</tbody>
</table>
Connection to TAB

1. Regional Solicitation (Project Selection in late 2022):
   – Metro cities and counties have assisted in the planning and partial funding of
     highway mobility projects on MnDOT’s system.
   – 10 different cities and all 7 counties have been awarded funding for highway
     mobility projects on MnDOT’s system (primarily new interchanges) since 2014.
   – Typically, the Regional Solicitation pays 1/3 of the project cost, the local
     city/county 1/3, and MnDOT 1/3.
   – The Regional Solicitation helps make these locally-led, multi-agency,
     partnership projects possible.
Connection to TAB Continued

2. Transportation Policy Plan (TPP) 2050 (Drafting Chapters in 2023)

Investment Priorities for Highway Mobility in 2040 TPP

1. Travel Demand Management (TDM)
2. Traffic Management Technologies
3. Spot Mobility (Lower Cost/High Benefit) (e.g., roundabouts or turn lanes)
4. MnPASS (E-ZPass)
5. Strategic Capacity Enhancements (e.g., new interchanges or lanes)

These investment principles were used throughout the project and contributed to the positive outcomes that were identified.
Project overview

• The Metropolitan Council and the MnDOT developed a performance-based approach to mobility investment on highways in the Twin Cities. Similar efforts have been completed for other investment areas like pavements & bridges.

• This approach
  – Recommends a **highway mobility target**
  – Estimates a 20-year capital **investment need** on metro-area state highways

• This study focused on **capital** highway investment. It is expected that a **range of solutions** from travel demand management, transit/bicycle/pedestrian investment, land use changes, and other strategies will be needed to meet the target.
Planning Context

- Twin Cities highway mobility
  - Requires coordinated, collaborative planning at the local, state, and federal levels
  - Is not currently guided by a performance target
  - Helps to make strategic decisions based on data and to focus limited resources on the highest priorities
Delay per Capita

*Why measure highway mobility system performance in terms of delay per capita?*

- Simple
- Relatable at the regional, corridor, project and person-level
- Responsive to MnDOT/Met Council highway investment strategies
- Supportive of economic analyses
- Captures the extent to which highway mobility contributes to broader transportation goals

There are many measures of highway congestion that are important to consider in fully understanding the issue.
Modeled Results – Average Annual Delay

Delay per person per yearly workdays (in hours)

Year 2018: 42.0
2040 No Investment: 55.0
2040 Current Revenue: 50.7
2040 Increased Revenue: 45.9
2040 Beyond Increased Revenue 1: 43.3
2040 Beyond Increased Revenue 2: 39.5
Modeled Results – Job Access

Number of Jobs Accessible to the Average Twin Cities Resident by Auto in 30 minutes (7-8am)

- Year 2018: 735,000
- 2040 No Investment: 735,000
- 2040 Current Revenue: 802,000
- 2040 Increased Revenue: 846,000
- 2040 Beyond Increased Revenue 1: 904,000
- 2040 Beyond Increased Revenue 2: 923,000
Modeled Results – Vehicle Miles Traveled

- Year 2018
- 2040 No Investment
- 2040 Current Revenue
- 2040 Increased Revenue
- 2040 Beyond Increased Revenue 1
- 2040 Beyond Increased Revenue 2
Vehicle Miles Traveled 2040 Modeling

- Follows methodology used in the 2040 Transportation Policy Plan (TPP).
- **Population growth (+550,000 more people by 2040) is the primary driver of VMT.**
- Accounts for some level of induced demand (increasing roadway capacity encourages more people to drive).
- Uses 2040 regional land use allocations by city as approved by the Met Council and shown in approved, local comprehensive plans. More study is planned to examine how land use changes may result from the increased mobility investment.
- Holds 2040 land use constant and does not change further based on investment.
- Modeling uses EPA’s MOVES model for assumptions for the rate of EV adoption and future fuel efficiency standards as it relates to emissions.
Freight Bottlenecks Improved

- 2040 Current Revenue: 39%
- 2040 Increased Revenue: 65%
- 2040 Beyond Increased Revenue 1: 90%
- 2040 Beyond Increased Revenue 2: 95%
Equity analysis

• How does job access of equity populations change under each funding scenario?
  o The number of additional jobs accessible due to the highway mobility investment was similar across income, race, and ethnic groups.

• What is the impact of each funding scenario on transit delay?
  o Transit delay decreased as highway mobility investment increased.
Telecommute Sensitivity Analysis

• Illustrative examples developed to understand outcomes at different levels of telecommuting

• Identify mobility needs with 15%, 25%, and 35% telecommuting
  – Pre-COVID, 5% of workers telecommuted at least one time per month
  – Peak of COVID, 35% of workers telecommuted at least one time per month
  – November 2021, 11% of workers telecommuted at least one time per month

• Increasing telework participation reduces the need for capital investment to meet the performance target
Twin Cities Highway Mobility Target
Performance Target

Use a Twin Cities Highway Mobility target of 40-hours of annual delay per person to calculate MnDOT’s 20-year investment needs on the state highway system

<table>
<thead>
<tr>
<th>Target Value</th>
<th>40-hours annual delay per person</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change from 2018</td>
<td>5%</td>
</tr>
<tr>
<td>Change from 2040 base</td>
<td>25%</td>
</tr>
<tr>
<td>20-year cost</td>
<td>$4 to $6 billion</td>
</tr>
</tbody>
</table>
# 2040 Investment Scenarios and Outcomes

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Implement Planned Investments</th>
<th>Extend Current Investment</th>
<th>Manage Decline in Regional Mobility</th>
<th>Sustain Regional Mobility</th>
<th>Improve Regional Mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>20-Year Investment</strong></td>
<td>$0-$375 million</td>
<td>$1-$2 billion</td>
<td>$2-$3 billion</td>
<td>$3-$5 billion</td>
<td>$4-$6 billion</td>
</tr>
<tr>
<td>Annual Delay per Capita</td>
<td>56 hours</td>
<td>52 hours</td>
<td>48 hours</td>
<td>44 hours</td>
<td>40 hours</td>
</tr>
<tr>
<td></td>
<td>14 hours more than 2018</td>
<td>10 hours more than 2018</td>
<td>6 hours more than 2018</td>
<td>2 hours more than 2018</td>
<td>2 hours less than 2018</td>
</tr>
<tr>
<td>Jobs Accessible to Typical Twin Cities Resident</td>
<td>740k jobs</td>
<td>820k jobs</td>
<td>860k jobs</td>
<td>900k jobs</td>
<td>920k jobs</td>
</tr>
<tr>
<td></td>
<td>Same as 2018</td>
<td>80k jobs more than 2018</td>
<td>120k jobs more than 2018</td>
<td>160k jobs more than 2018</td>
<td>180k jobs more than 2018</td>
</tr>
<tr>
<td>2040 Benefit from Travel Time Savings</td>
<td>N/A</td>
<td>$200</td>
<td>$400</td>
<td>$600</td>
<td>$800</td>
</tr>
<tr>
<td></td>
<td>$ = 100 dollars per household</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight Bottlenecks Improved</td>
<td>0%</td>
<td>39%</td>
<td>65%</td>
<td>90%</td>
<td>95%</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Risk of Not Reaching Delay Target</td>
<td>HIGH</td>
<td>HIGH</td>
<td>MODERATE</td>
<td>MODERATE</td>
<td>LOW</td>
</tr>
</tbody>
</table>

4 million metric tons per day in 2040

(Substantial decreases in greenhouse gas emissions through year 2040 are projected based on vehicle efficiency improvements; the overall magnitude of regional emissions in 2040 are not greatly influenced by these highway mobility investment scenarios, but further study is needed.)
Key Messages

– Delay/person is projected to increase by 33% by 2040 with no investment.
– Meeting the highway mobility target value (decrease of 5%) will:
  – Provide access to 180,000 more jobs within a 30-minute drive by 2040
  – $800 in travel time savings annually per household
  – 95% of the region's freight bottlenecks improved
  – Reduced transit delay for transit users
  – Limited impact on greenhouse gas emissions; further analysis is planned in this area in 2022
– This study focused on a capital highway investment approach. A range of solutions including travel demand management, transit, bike/ped, and land use will be needed to meet the target.
– The increase of telework that resulted during COVID-19 suggests that this is an effective strategy in reducing delay per person.
Next steps
Next Steps

- Electric Vehicle Planning Study (being finalized)
- Congestion Management Plan Handbook (ongoing)
  - Consider a range of lower cost alternatives to improve mobility
- Travel Demand Management Study (ongoing)
- Regional Transportation and Climate Change Measures (2022 start)
  - More study needed to understand and quantify the connection between transportation project types and greenhouse gas emissions
- Transportation Policy Plan Goals, including a review of the Regional Approach to Congestion (late 2022 start)
More information

• Project website: metrocouncil.org/mobility

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