MnPASS System Study Phase 2
Prepared for the Minnesota Department of Transportation by Cambridge Systematics, Inc. with SRF Consulting

presented by
Michael S. Sobolewski
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Today’s Agenda

• Background/Historical perspective
  – MnPASS I and II

• Methodology and Results
  – MnPASS II Vision

• Next Steps/Opportunities
MnPASS I

• Evaluated impacts of overlaying MnPASS onto the Twin City Highway System

• Identified a potential MnPASS system
  – Studied cost, operational, revenue and system implications
MnPASS II

- Developed prioritized list of MnPASS corridors that could be implemented in the ‘near’ term
  - Criteria to identify viable MnPASS projects
    - Traffic and revenue analysis
    - Conceptual engineering analysis

- Identified technological, policy, financial, and institutional issues and barriers
MnPASS II

• Took into account lessons learned’ from MnPASS implementations
  – Proven MnPASS ability to safely provide increased trip reliability and user choice in a cost-effective manner (I-394)
  – New lower cost design options (I-35W Urban Partnership Agreement)

• Served as an input to the Met Council Transportation Policy Plan
Corridor Selection Process

• Initial set of 19 corridors identified through stakeholder involvement, general assessment of need

• Narrowed down through high-level geometric screening

• List further refined through iterations of analysis and stakeholder meetings – ultimately leaving eight good candidates for consideration as MnPASS corridors
Performance Evaluation Approach

- Measures consistent with Met Council and Mn/DOT Long-Range Transportation Policy and Investment Plans

Selected Performance Measures

- Travel Time Reliability
- Throughput
- Travel Time Reduction/Average Trip Time
- Change in Congested VMT
- Transit Suitability:
  - Daily bus volumes
  - Peak bus volumes
  - Existing bus-only shoulder lanes
  - Future plans
Financial Analysis Approach

- Financial analysis assumptions consistent with standard practice and typical Mn/DOT values

- B/C analysis consistent with analysis performed for the Met Council System Investment Study as well as Mn/DOT standard B/C methodologies
  - Benefits = vehicle operating and maintenance benefits and travel time savings
  - Costs = capital costs, operating and maintenance costs, and salvage costs
Tier I and II Corridor Characteristics

- Could be built in conjunction with other planned construction
- Strong transit services
- Provide for regional equity
- Direct linkages to the downtowns
- Build on the existing MnPASS system
Tier III Corridor Characteristics

• Serve as a powerful MnPASS beltway system for growing outlying markets
<table>
<thead>
<tr>
<th>Tier 1</th>
<th>35E: I-94 to CR E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 2</td>
<td>TH 36: I-35W to I-35E (EB Only)</td>
</tr>
<tr>
<td></td>
<td>I-35W: Downtown Mpls. to Blaine</td>
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<tr>
<td></td>
<td>I-94: Downtown Mpls. to Downtown St. Paul</td>
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<tr>
<td>Tier 3</td>
<td>I-494: TH 212 to MSP Airport</td>
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<td></td>
<td>I-494: 1-394 to I-94</td>
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<td></td>
<td>TH 169: CR 17 to I-494</td>
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<tr>
<td></td>
<td>TH 77: 141st St to TH 62 (NB Only)</td>
</tr>
</tbody>
</table>
MnPASS II System Vision
The Next Opportunity

- Construct a MnPASS lane in each direction through the Cayuga project area
  - From downtown St. Paul to Northern suburbs
  - Open after follow up project is completed north to Little Canada Road and connection made into downtown St. Paul
  - Needed MnPASS related infrastructure will be put in place during construction

Next Steps

- **MnPASS Planning Manager Mobility position established** (Brad Larsen) at Metro District
  - Address financial, legal, policy, marketing and organizational/structural issues
  - Address project delivery issues and explore opportunities to integrate MnPASS with innovative finance approaches
  - Liaison with any future Minnesota Value Pricing Pilot Program
  - Coordinate overlap between functional groups currently dealing with MnPASS
Next Steps

Planning & Policy

Program Delivery

Operations

Finance/Funding

Research

Marketing

Design

MnPASS Functional Groups and examples of potential for overlap
Policy Considerations for New Corridors

• Legislative direction related to use of revenue
• Different Federal programs/rules then previous MnPASS corridors
• Local approvals for pricing
• New consideration for toll organization to manage implementation and operations
• Capital requirements (above revenue from tolls)
  – Innovative financing/ transit funding could play a role
Policy Considerations for New Corridors

• **Designs should provide best value to public**
  – Issues: Shoulder use, access management, direct connections

• **New operations issues will be established by the next corridor, these are critical policy decisions for long term**
  – Hours of operation
  – Occupancy requirements- a key issue for revenue and performance
  – Pricing strategy
Issues for Short-Term Implementation

- Regional consensus on purpose of the lanes (congestion management, revenue generation, or ???)
- Equitable treatment of travelers across the region
- Work with FHWA to develop safe/cost-effective designs
- Strategies for financing new lanes
- Continued advantages for transit
- Communications/Marketing plan
Thank You!
<table>
<thead>
<tr>
<th>Corridor</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TH 36:</td>
<td>I-35W to I-694</td>
</tr>
<tr>
<td>I-94:</td>
<td>TH 101 to I-494</td>
</tr>
<tr>
<td>I-35E:</td>
<td>I-94 to CR 6E</td>
</tr>
<tr>
<td>I-35W:</td>
<td>Downtown MNPLS to Blaine</td>
</tr>
<tr>
<td>I-494:</td>
<td>TH 212 to I-94</td>
</tr>
<tr>
<td>TH 169:</td>
<td>TH 101 to I-94</td>
</tr>
<tr>
<td>TH 77:</td>
<td>141st Street to TH 62 (NB)</td>
</tr>
<tr>
<td>I-94:</td>
<td>Downtown MNPLS to Downtown SP (convert temp lane)</td>
</tr>
<tr>
<td>I-394:</td>
<td>TH 100 to I-94</td>
</tr>
<tr>
<td>I-494:</td>
<td>TH 212 to MSP Airport</td>
</tr>
<tr>
<td>TH 280:</td>
<td>I-94 to I-35W</td>
</tr>
</tbody>
</table>

**Potential MnPASS Corridors – Final Filter**

1. 1A. I-35W to I-35E (EB)
2. 3A. I-94 to TH 36 (add lane)
3. 3B. TH 36 to CR E
4. 4A. Downtown MPLS to TH 36
4B. TH 36 to Blaine
5A. TH 212 to I-394 (peak)
5B. I-394 to I-94
6A. TH 169: TH 101 to I-494

- Combined Corridors
- X (Peak Only)
Summary Assessment of Results

Higher Performing MnPASS Corridors in Terms of –

1. Change in VHT
2. Change in Throughput
3. Delay/Trip Saved
4. Change in Congested VMT
5. Transit Suitability
Summary Assessment of Results

Higher Performing MnPASS Corridors in Terms of –

1. B/C
2. Percent of Total Capital Funding Requirement
3. Additional Investment Required
## Benefit-Cost Results

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Length (miles)</th>
<th>Capital Costs (millions)</th>
<th>Operating Costs (millions)</th>
<th>Salvage Costs (millions)</th>
<th>Time Savings Costs (millions)</th>
<th>Vehicle Operating Costs (millions)</th>
<th>B/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A. TH 36: I-35W to I-35E</td>
<td>5.0</td>
<td>$47.5</td>
<td>$250,000</td>
<td>$(19.0)</td>
<td>$4.8</td>
<td>$(290,000)</td>
<td>1.9</td>
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<tr>
<td>2. I-94: TH 101 to I-494</td>
<td>9.0</td>
<td>$82.5</td>
<td>$450,000</td>
<td>$(30.1)</td>
<td>$5.0</td>
<td>$(409,000)</td>
<td>1.1</td>
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<td>3A. I-35E: I-94 to TH 36</td>
<td>3.9</td>
<td>$82.5</td>
<td>$195,000</td>
<td>$(33.1)</td>
<td>$11.2</td>
<td>$(496,000)</td>
<td>2.7</td>
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<tr>
<td>3B. I-35E: TH 36 to CR E</td>
<td>3.8</td>
<td>$35.0</td>
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<td>$(13.3)</td>
<td>$3.0</td>
<td>$(207,000)</td>
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<tr>
<td>4A. I-35W: DT Minneapolis to TH 36</td>
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<td>$(42.9)</td>
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<tr>
<td>4B. I-35W: TH 36 to Blaine</td>
<td>10.8</td>
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<td>$540,000</td>
<td>$(58.6)</td>
<td>$29.8</td>
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<td>5A. I-494: TH 212 to I-394</td>
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<td>$380,000</td>
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<td>$11.3</td>
<td>$(1,074,000)</td>
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<tr>
<td>5B. I-494: I-394 to I-94</td>
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<td>$61.0</td>
<td>$425,000</td>
<td>$(27.1)</td>
<td>$15.0</td>
<td>$(1,006,000)</td>
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<tr>
<td>6A. TH 169: CR 17 to I-494</td>
<td>10.0</td>
<td>$97.5</td>
<td>$500,000</td>
<td>$(34.7)</td>
<td>$42.1</td>
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<td>7. TH 77: 141st Street to I-494</td>
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<td>$41.0</td>
<td>$345,000</td>
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<td>$7.0</td>
<td>$(175,000)</td>
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<tr>
<td>10. I-494: TH 212 to MSP Airport</td>
<td>10.6</td>
<td>$167.5</td>
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<td>$(58.1)</td>
<td>$55.6</td>
<td>$(2,108,000)</td>
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<tr>
<td>2. I-94: TH 101 to I-494</td>
<td>17.5</td>
<td>$192.5</td>
<td>$875,000</td>
<td>$(76.3)</td>
<td>$23.3</td>
<td>$(1,785,000)</td>
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</tbody>
</table>
## Financial Analysis Results

<table>
<thead>
<tr>
<th>Corridor</th>
<th>Length</th>
<th>Capital (millions)</th>
<th>Operating</th>
<th>Revenue</th>
<th>Proceeds from Bonds (millions)</th>
<th>% of Total Capital Funding Requirement</th>
<th>Additional Investment Required (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A. TH 36: I-35W to I-35E</td>
<td>5.0</td>
<td>$ 47.5</td>
<td>$ 250,000</td>
<td>$ 1,005,000</td>
<td>$ 6.0</td>
<td>12%</td>
<td>$ 42.8</td>
</tr>
<tr>
<td>2. I-94: TH 101 to I-494</td>
<td>9.0</td>
<td>$ 82.5</td>
<td>$ 450,000</td>
<td>$ 400,000</td>
<td>$ 0.0</td>
<td>0%</td>
<td>$ 82.5</td>
</tr>
<tr>
<td>3A. I-35E: I-94 to TH 36</td>
<td>3.9</td>
<td>$ 82.5</td>
<td>$ 195,000</td>
<td>$ 1,903,000</td>
<td>$ 14.3</td>
<td>17%</td>
<td>$ 71.1</td>
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<tr>
<td>3B. I-35E: TH 36 to CR E</td>
<td>3.8</td>
<td>$ 35.0</td>
<td>$ 190,000</td>
<td>$ 319,000</td>
<td>$ 0.7</td>
<td>2%</td>
<td>$ 34.4</td>
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<tr>
<td>4A. I-35W: DT Minneapolis to TH 36</td>
<td>5.3</td>
<td>$ 105.0</td>
<td>$ 265,000</td>
<td>$ 2,318,000</td>
<td>$ 17.1</td>
<td>16%</td>
<td>$ 91.4</td>
</tr>
<tr>
<td>4B. I-35W: TH 36 to Blaine</td>
<td>10.8</td>
<td>$ 155.0</td>
<td>$ 540,000</td>
<td>$ 3,306,000</td>
<td>$ 22.7</td>
<td>14%</td>
<td>$ 137.0</td>
</tr>
<tr>
<td>5A. I-494: TH 212 to I-394</td>
<td>7.6</td>
<td>$ 97.5</td>
<td>$ 380,000</td>
<td>$ 1,020,000</td>
<td>$ 4.7</td>
<td>5%</td>
<td>$ 93.8</td>
</tr>
<tr>
<td>5B. I-494: I-394 to I-94</td>
<td>8.5</td>
<td>$ 61.0</td>
<td>$ 425,000</td>
<td>$ 1,613,000</td>
<td>$ 4.0</td>
<td>6%</td>
<td>$ 58.2</td>
</tr>
<tr>
<td>6A. TH 169: CR 17 to I-494</td>
<td>10.0</td>
<td>$ 97.5</td>
<td>$ 500,000</td>
<td>$ 3,144,000</td>
<td>$ 21.8</td>
<td>21%</td>
<td>$ 80.2</td>
</tr>
<tr>
<td>7. TH 77: 141st Street to I-494</td>
<td>6.9</td>
<td>$ 41.0</td>
<td>$ 345,000</td>
<td>$ 619,000</td>
<td>$ 1.6</td>
<td>4%</td>
<td>$ 39.7</td>
</tr>
<tr>
<td>10. I-494: TH 212 to MSP Airport</td>
<td>10.6</td>
<td>$ 167.5</td>
<td>$ 530,000</td>
<td>$ 5,876,000</td>
<td>$ 45.0</td>
<td>25%</td>
<td>$ 131.7</td>
</tr>
<tr>
<td>2. I-94: TH 101 to I-494</td>
<td>17.5</td>
<td>$ 192.5</td>
<td>$ 875,000</td>
<td>$ 2,164,000</td>
<td>$ 9.3</td>
<td>5%</td>
<td>$ 185.2</td>
</tr>
<tr>
<td>5B. I-494: I-394 to I-94</td>
<td>17.5</td>
<td>$ 192.5</td>
<td>$ 875,000</td>
<td>$ 2,164,000</td>
<td>$ 9.3</td>
<td>5%</td>
<td>$ 185.2</td>
</tr>
<tr>
<td>1A. TH 36: I-35W to I-35E</td>
<td>21.1</td>
<td>$ 377.5</td>
<td>$ 1,055,000</td>
<td>$ 7,295,000</td>
<td>$ 51.6</td>
<td>13%</td>
<td>$ 336.5</td>
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