Southeastern Wisconsin Regional Freeway System Reconstruction Study

October 9, 2001
Agenda Item 3

Presentation of Costs and Impacts Associated With the Freeway System Reconstruction Alternative That Would Address Design and Design-Related Safety Deficiencies but Not Add Traffic Lanes
Elements of Reconstruction
Alternative Which Would Provide Design and Design-Related Safety Improvements

- Improve Freeway System Interchanges
  - Reconfigure freeway-to-freeway system interchanges
    - Relocate left hand on- and off-ramps to right hand side of freeway
    - Minimize lane drops and provide route continuity
    - Improve freeway-to-freeway ramps to provide ramp speeds that are closer to freeway mainline speeds
  - Address closely spaced service interchanges with grade-separated or collector-distributor roadways
Elements of Reconstruction Alternative Which Would Provide Design and Safety Improvements -- continued

- Improve Freeway System Service Interchanges
  - Improve ramp terminal spacing and tapers
  - Separate ramps from frontage roads in Kenosha and Racine Counties

- Freeway Mainline
  - Improve freeway horizontal and vertical curvature, grades, and vertical clearance to meet standards
  - Provide full inside and outside shoulders
  - Provide selected auxiliary lanes to address closely spaced interchanges
Estimated Costs and Impacts of Reconstruction Alternative Which Would Provide Design and Design-Related Safety Improvements

- Construction Costs
- Right-of-Way Needs
- Traffic Congestion
- Safety

Reminder: System planning estimates of costs and impacts. Firm estimates would be made in preliminary engineering.
Construction Cost

- Estimated Cost of Freeway System Reconstruction Alternative Which Would Provide Design and Safety Improvements
  - $4.4 billion
  - Approximately $145 million annually over the next 30 years (Does not include Marquette Interchange which has estimated cost of $1.1 billion)
Elements of Construction Cost of this Reconstruction Alternative

<table>
<thead>
<tr>
<th>Cost</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.9 Billion</td>
<td>Freeway-to-Freeway Interchanges</td>
</tr>
<tr>
<td>$3.5 Billion</td>
<td>Mainline Freeway Segments</td>
</tr>
<tr>
<td>$4.4 Billion</td>
<td>Total</td>
</tr>
</tbody>
</table>

Note: Does not include Marquette Interchange. Estimated Cost of Marquette Interchange is $1.1 billion.
Reconstruction Cost Per Mile of Freeway System

- $5-20 Million per Mile in Outlying Counties
- $20-60 Million per Mile in Milwaukee County
Comparison of Construction Costs of Reconstruction Alternatives

- Rebuild to Meet Design Standards and Address Design-Related Safety Problems
  - $4.4 billion (Not including Marquette Interchange at $1.1 billion)

- Replace-in-Kind
  - $2.9 billion (Not including Marquette Interchange at $450 million)

- Difference of $1.5 Billion or 51 Percent to Address Design and Design-Related Safety Problems
Comparison of Construction Costs of Reconstruction Alternatives - Replace-In-Kind and Rebuild with Design and Safety Improvements

- Major Areas of the $1.5 Billion Construction Cost Difference
  - Freeway-to-freeway interchanges
    - $490 million (33 percent)
  - Mainline Freeway Segments
    - $210 million (14 percent) IH 94 in Kenosha and Racine Counties (24 miles)
    - $370 million (25 percent) Other selected freeway segments (31 miles)
      - IH 94 from Stadium Interchange to STH 16
      - IH 43 from Mitchell to Marquette Interchange
      - IH 894 and USH 45 from Mitchell to North Interchange
    - $420 million (28 percent) Remainder of freeway system (195 miles)
Right-of-Way Acquisition Needs

- Reconstruction Alternative of Meeting Modern Design Standards and Addressing Design-Related Traffic Safety Problems
  - 561 acres
  - 157 residences
  - 18 commercial buildings
  - 2 governmental buildings

(Marquette Interchange reconfiguration may be expected to require 16 acres, 10 residences, and 5 commercial buildings)
Right-of-Way Acquisition Needs

- Reconstruction Alternative of Meeting Modern Design Standards and Addressing Design-Related Traffic Safety Problems

<table>
<thead>
<tr>
<th>Description</th>
<th>Acres</th>
<th>Residences</th>
<th>Commercial Buildings</th>
<th>Government Buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td>IH 94 in Kenosha and Racine Counties (24 miles)</td>
<td>284</td>
<td>24</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Freeway-to-Freeway Interchanges Not Including Marquette Interchange (14 miles)</td>
<td>104</td>
<td>63</td>
<td>1</td>
<td>2</td>
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<tr>
<td>IH 43/94 between Mitchell and Marquette Interchanges (4 miles)</td>
<td>4</td>
<td>43</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>IH 43 between Silver Spring Drive and STH 60 (14 miles)</td>
<td>41</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Remainder of Freeway System (208 miles)</td>
<td>128</td>
<td>27</td>
<td>5</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>561</td>
<td>157</td>
<td>18</td>
<td>2</td>
</tr>
</tbody>
</table>
Forecast Year 2020 Traffic Congestion Under Reconstruction Alternative Which Would Provide Design and Design-Related Safety Improvements

- Assumes Full Implementation of Regional Land Use and Transportation Plans
  - “Smart growth”
  - Public transit expansion
  - Surface arterial improvements
- Incorporates all Design and Design-Related Safety Improvements Under this Alternative
Forecast Significant Increase in Traffic Congestion By Year 2020 Under Reconstruction Alternative Which Would Provide Design and Safety Improvements

<table>
<thead>
<tr>
<th>Type of Congestion</th>
<th>Existing 1999</th>
<th>Forecast 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extreme Congestion</td>
<td>27 miles 10% 8.8 total hours</td>
<td>42 miles 16% 11.1 total hours</td>
</tr>
<tr>
<td>Severe Congestion</td>
<td>26 miles 10% 3.8 total hours</td>
<td>31 miles 11% 3.5 total hours</td>
</tr>
<tr>
<td>Moderate Congestion</td>
<td>12 miles 4% 1.8 total hours</td>
<td>49 miles 18% 2.1 total hours</td>
</tr>
<tr>
<td>Total</td>
<td>65 miles 24% 5.5 average total hours</td>
<td>122 miles 45% 5.6 average total hours</td>
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</table>
Forecast Significant Increase in Traffic Congestion Under Reconstruction Alternative Which Would Provide Design and Safety Improvements

Existing 1999

<table>
<thead>
<tr>
<th>MOST SEVERE LEVEL OF WEEKDAY HOURLY CONGESTION EXPERIENCED</th>
<th>ESTIMATED HOURS OF CONGESTION ON AN AVERAGE WEEKDAY</th>
<th>ESTIMATED AVERAGE WEEKDAY HOURS OF CONGESTION BY CONGESTION LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>--</td>
<td>NO CONGESTION</td>
<td>EXTREME</td>
</tr>
<tr>
<td>MODERATE</td>
<td>1</td>
<td>--</td>
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<tr>
<td>MODERATE</td>
<td>3</td>
<td>--</td>
</tr>
<tr>
<td>SEVERE</td>
<td>3</td>
<td>--</td>
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<tr>
<td>SEVERE</td>
<td>4</td>
<td>--</td>
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<tr>
<td>SEVERE</td>
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<tr>
<td>EXTREME</td>
<td>8</td>
<td>1</td>
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<td>EXTREME</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>EXTREME</td>
<td>17</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: Color represents most severe level of congestion experienced for at least one hour in each direction on an average weekday.
Freeway Traffic Safety

- Improvement in Freeway Traffic Safety Expected
  - Reduced lane changing
  - Speeds on freeway-to-freeway ramps closer to mainline speeds
  - Adequate stopping and decision sight distance
  - Improved service interchange entrance and exit ramps
  - Elimination of rural service interchange designs

- However, safety problems due to traffic congestion would largely not be addressed, and would be exacerbated
Summary

Southeastern Wisconsin Freeway System Reconstruction Alternative

- Rebuild to Meet Modern Design Standards and Address Traffic Safety Problems (No Additional Traffic Lanes)
  - Construction cost - $4.4 billion (Does not include Marquette Interchange at $1.1 billion)
    - $0.9 billion Freeway-to-freeway interchanges
    - $3.5 billion Freeway mainline
Summary -- continued

- **Right of Way Needs**
  - 561 acres
  - 157 residences
  - 18 commercial buildings
  - 2 governmental buildings
  - Marquette Interchange Reconfiguration may be expected to require additional 16 acres, 10 residences, and 5 commercial buildings

- **Traffic Congestion**
  - Forecast increase in miles of congested freeways
    - 1999 - 65 miles 24%
    - 2020 - 122 miles 45%
  - Forecast increase in miles of freeways with extreme congestion
    - 1999 - 27 miles 10%
    - 2020 - 42 miles 16%
Next Meeting

- Incremental Costs and Impacts of Freeway System Reconstruction Alternative Which Would Provide Design and Design-Related Safety Improvements and Provide Additional Traffic Lanes
  - Construction costs
  - Right-of-way needs
  - Traffic congestion
  - Safety
  - Also, for both freeway system reconstruction alternatives
    - Air pollutant emissions
    - Motor fuel consumption
    - Land use