MnPASS
Downtown Connections Study
APPENDIX T18 – MNPASS DOWNTOWN CONNECTIONS STUDY

Introduction

Since 2016, MnDOT has been working with neighborhoods, community groups, district councils, local governments and others interested in the future of I-94 between St. Paul and Minneapolis in an effort to plan for transportation changes on and along the freeway. This effort is known as Rethinking I-94. The work described in this technical memorandum was conducted as part of the initial phase of Rethinking I-94 conducted between 2016 and 2018.

This memorandum documents the concept development process for MNPASS connections to downtown Minneapolis and Saint Paul. This process is preliminary and will require additional analysis as the study moves forward into the environmental phase. Continued coordination with Metro Transit and the Cities of Minneapolis and Saint Paul also will be required.

Background

The Rethinking I-94 Study Team developed and analyzed potential options to connect MNPASS lanes on I-94 to downtown Minneapolis and Saint Paul. As part of this process, the Study Team identified five options for each downtown. These options were then presented at two meetings (one meeting for each City) with Metro Transit, City of Minneapolis, City of Saint Paul, and MnDOT study and Area staff for input and recommendations.

Concept Development

Five concepts were developed for each City that would provide direct connections to each downtown to/from a potential future MNPASS facility on I-94. These concepts were developed with the intent to provide the most benefit for all users including transit service while minimizing impacts to the local roadway system. Conceptual sketches of each concept are shown in Attachment 1 (Technical Advisory Committee (TAC) presentation dated January 17, 2018).

Concepts Considered

As stated previously, all five options for each City were analyzed using the following considerations:

1. Transit Considerations
2. Local Street Considerations
3. Geometric Feasibility/Constructability

The results of the analysis are shown in Tables 1 and 2.
MINNEAPOLIS CONNECTIONS

As shown in Table 1, Options M2 and M3 generate more transit delay (longer route and more signals) and local street impacts due to an increase in traffic on lower volume roadways. In addition, option M2 has ice concerns. Option M4 will increase traffic at the 11th Street ramp (high crash location) and will have access concerns for Hennepin County Medical Center (HCMC). Option M5 does not complete the complete the connection for transit users between the MnPASS lane on I-94 and the local roadway network. Options M1 may be challenging due to steep grades and may require more infrastructure replacement to implement within design standards. In addition, option M1 could be modified to improve transit access (see Attachment 1) and should be considered as this concept moves forward into the upcoming environmental phase.

TABLE 1 – MNPASS CONNECTIONS MINNEAPOLIS

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Transit Impacts</th>
<th>Local Street Impacts</th>
<th>Geometric Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>New ramps at 6th St./7th St.</td>
<td>No local change</td>
<td>Minimal change</td>
<td>Steep ramp grades</td>
</tr>
<tr>
<td>M2</td>
<td>New ramps at 11th Ave.</td>
<td>9 signals per round trip (3 signals today), ¼ mile longer route</td>
<td>Current AADT on 11th Ave. is 5,100 with bike lanes and parking concerns</td>
<td>More room to develop ramps. Intersection on 11th Ave. bridge (ice concerns)</td>
</tr>
<tr>
<td>M3</td>
<td>New ramps at 13th Ave.</td>
<td>5 signals and 2 stop signs per round trip (3 today), 1/3 mile longer route</td>
<td>Low volume road On-street parking concerns</td>
<td>Elevation concerns with existing ramp from southbound I-35W</td>
</tr>
<tr>
<td>M4</td>
<td>MnPASS Only ramps at 6th St./7th St.</td>
<td>No local change Potential to increase transit rides</td>
<td>Adjacent interchanges (and connecting local streets) may see an increase in volume</td>
<td>Easier than M1</td>
</tr>
<tr>
<td>M5</td>
<td>M4 + Remove MnPASS designation</td>
<td>No local change</td>
<td>Minimal change</td>
<td>Easier than M1</td>
</tr>
</tbody>
</table>
SAINT PAUL CONNECTIONS

As shown in Table 2, Option S2 will generate more transit delay (longer route and more signals) and local street impacts due to an increase in traffic on Wabasha Street and St. Peter Street which are lower capacity roadways and have on-street parking. Option S2 also has concerns about ice forming on the new intersection on the bridge due to the grade and T-intersection. Option S3 will have a negative impact to the local system due to removing the general purpose ramps. Option S4 does not complete the connection for transit users between the MnPASS lane on I-94 and the local roadway network. Options S1 and S5 may be challenging due to steep grades and may require more infrastructure replacement to implement within design standards.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Transit Impacts</th>
<th>Local Street Impacts</th>
<th>Geometric Feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>New ramps at 5th St./6th St.</td>
<td>No local change</td>
<td>No change</td>
<td>Steep ramp grades (7%)&lt;br&gt;Short merge distance for 5th St. ramps</td>
</tr>
<tr>
<td>S2</td>
<td>New ramps at Wabasha St./St. Peter St.</td>
<td>6 signals per round trip (2 signals today)&lt;br&gt;1/3 mile longer route</td>
<td>More traffic on Wabasha St./St. Peter St.&lt;br&gt;New intersection on St. Peter St. bridge</td>
<td>More room to develop ramps&lt;br&gt;Meets vertical and horizontal design standards</td>
</tr>
<tr>
<td>S3</td>
<td>Replace ramps at 5th St./6th St.</td>
<td>No local change</td>
<td>Non MnPASS traffic would divert to other interchanges</td>
<td>Grades not as steep as S1 option, but still challenging</td>
</tr>
<tr>
<td>S4</td>
<td>Same as S3, but remove MnPASS designation</td>
<td>No local change</td>
<td>No change</td>
<td>Same as Option S3</td>
</tr>
<tr>
<td>S5</td>
<td>New ramps develop west of Kellogg Blvd.</td>
<td>No local change</td>
<td>No change</td>
<td>Meets horizontal design standards&lt;br&gt;Vertical grades of at least 6%</td>
</tr>
</tbody>
</table>
Recommendations

Based on the analysis results shown in Tables 1 and 2 and from feedback from Metro Transit, the Cities of Minneapolis and Saint Paul, and the MnDOT study team and area staff, Option M1 (Minneapolis) and Options S1 and S5 (St. Paul) were determined to be most promising and are recommended for consideration as the study progresses into the environmental phase. Concepts of each of these options are shown in Figures 1 through 3 below. Details of each option including ramp profiles are shown in Attachment 2.
FIGURE 1 – OPTION M1 – MNPASS RAMPS AT 6TH ST./7TH STREET IN MINNEAPOLIS (PRELIMINARY CONCEPT DRAWING ONLY)

FIGURE 2 – OPTION S1 – MNPASS RAMPS AT 5TH ST./6TH STREET IN SAINT PAUL (PRELIMINARY CONCEPT DRAWING ONLY)

FIGURE 3 – OPTION S5 – MNPASS RAMPS AT 5TH ST./6TH STREET IN SAINT PAUL (PRELIMINARY CONCEPT DRAWING ONLY)

Prepared by: SRF Consulting Group, Inc.
Rethinking I-94 – Draft MnPASS Connections

TAC Meeting - 1/17/2018
MnPASS Connections – Saint Paul

• Five Options Were Developed

• Screened for:
  • Geometric Feasibility
  • Transit Considerations
  • Local Street Considerations

• Met on December 11, 2017 with:
  • City of Saint Paul
  • Metro Transit
  • MnDOT Project and Area Staff
Downtown Saint Paul
MnPASS Connection Options
S1 (5th/6th St)

MnPASS Connections would tie into the existing 5th/6th Street Ramps
Bus routes currently use the 5th/6th Street Ramps

Grade of ramp would be over 7%.

The 5th Street tunnel only has room for one lane. MnPASS needs to merge before the tunnel.
Similar to the previous 11th/12th Concept
WB On ramp would repurpose the existing 12th
St Ramp to MnPASS Only
EB I-94 Off ramp would bridge up to St. Peter St
Downtown Saint Paul
MnPASS Connection Options
S3 (5th/6th St MnPASS Only)

Grade of ramp would be less than S1 option, but still over 6%. More room with removing existing ramps.

No issues with 5th Street tunnel with removal of existing ramp.
MnPASS Connections would tie into the existing 5th/6th Street Ramps. Same as S3, but the MnPASS designation would end west of Dale St.
Downtown Saint Paul
MnPASS Connection Options
S5 (5th/6th St MnPASS)

MnPASS Connections would tie into the existing 5th/6th Street Ramps. MnPASS would bridge across I-94 GP lanes west of Kellogg Blvd.
## MnPASS Connections Saint Paul – Screening Matrix

<table>
<thead>
<tr>
<th>Option #</th>
<th>Description</th>
<th>Transit</th>
<th>Local Street</th>
<th>Constructability</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>New ramps at 5th/6th St</td>
<td>No Local Change</td>
<td>No Change</td>
<td>Steep ramp grades (7%) Short merge distance for 5th St Ramps</td>
</tr>
<tr>
<td>S2</td>
<td>New ramps at Wabasha/St. Peter</td>
<td>6 signals (2 signals today) 1/3 mile longer route</td>
<td>More traffic on Wabasha St/St. Peter St New intersection on St. Peter St Bridge</td>
<td>More room to develop ramps Meets vertical and horizontal design standards</td>
</tr>
<tr>
<td>S3</td>
<td>Replace ramps at 5th/6th St</td>
<td>No Local Change</td>
<td>Non MnPASS traffic would divert to other interchanges</td>
<td>Grades not as steep as S1 option, but still challenging</td>
</tr>
<tr>
<td>S4</td>
<td>Same as S3, but remove MnPASS designation</td>
<td>No Local Change</td>
<td>No Change</td>
<td>Same as option S3</td>
</tr>
<tr>
<td>S5</td>
<td>New ramps develop west of Kellogg Blvd</td>
<td>No Local Change</td>
<td>No Change</td>
<td>Meets horizontal design standards Vertical grades of at least 6%</td>
</tr>
</tbody>
</table>
Based on feedback, the following options were dismissed:

- S2 (Ramps at Wabasha/St Peter)
  - Concerns about intersection on bridge and increased transit travel time
- S3 (Remove 5th/6th St General Purpose Ramps)
  - Negative impacts to the local system
- S4 (Drop MnPASS Designation)
  - Does not complete the connection for transit users

S1 and S5 will be carried forward
- S5 could be modified
MnPASS Connections would tie into the existing 5th/6th Street Ramps
Bus routes currently use the 5th/6th Street Ramps

The 5th Street tunnel only has room for one lane. MnPASS needs to merge before the tunnel.

Downtown Saint Paul
MnPASS Connection Options
S1 (5th/6th St)

Grade of ramp would be over 7%.
MnPASS Connections would tie into the existing 5th/6th Street Ramps
MnPASS would bridge across I-94 GP lanes west of Kellogg
MnPASS Connections would tie into the existing 5th/6th Street Ramps. MnPASS would bridge across I-94 GP lanes west of Kellogg.
MnPASS Connections - Minneapolis

• Five Options Were Developed

• Screened for:
  • Geometric Feasibility
  • Transit Considerations
  • Local Street Considerations

• Met on December 15, 2017 with:
  • City of Minneapolis
  • Metro Transit
  • MnDOT Project and Area Staff
Ramps would either go over or under I-94
The ramp to 7th would tie into the existing bridge (needs to be widened)
The ramp to I-94 would come from the 6th Street Ramp
Downtown Minneapolis
MnPASS Connection Options
M2 (11th Avenue)

Reconfigured Bus Routes
Downtown Minneapolis
MnPASS Connection Options
M3 (13th Avenue)

Reconfigured Bus Routes
Ramps would either go over or under I-94
The ramp to 7th would tie into the existing bridge (needs to be widened)
The ramp to I-94 would come from the 6th Street Ramp
Same as M1, but existing GP Ramps to/from 6th/7th would be removed
Ramps would either go over or under I-94
The ramp to 7th would tie into the existing bridge (needs to be widened)
The ramp to I-94 would come from the 6th Street Ramp
Same as M4, but the MnPASS designation would end near Riverside or the River
# MnPASS Connections Minneapolis–Screening Matrix

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
<th>Transit</th>
<th>Local Street</th>
<th>Constructability</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>New ramps at 6th/7th St</td>
<td>No Local Change</td>
<td>Minimal Change</td>
<td>Steep ramp grades (6 to 8%) on 7th St Ramp. Adjustments to new 7th St Bridge. 6th St ramp may have 10%+ grade.</td>
</tr>
<tr>
<td>M2</td>
<td>New ramps at 11th Ave</td>
<td>9 signals per round trip (3 signals today) 1/4 mile longer route</td>
<td>Current AADT on 11th Ave is 5,100, 10-15k with concept Bike lanes and on-street parking concerns</td>
<td>More room to develop ramps. Meets vertical and horizontal design standards. Intersection on 11th Ave Bridge (ice concerns).</td>
</tr>
<tr>
<td>M3</td>
<td>New ramps at 13th Ave</td>
<td>5 signals and 2 stops, signs per round trip (3 signals today) 1/3 mile longer route</td>
<td>Low volume road, &gt;10,000 with this concept On-street parking concerns</td>
<td>Elevation concerns with existing ramp from SB I-35W.</td>
</tr>
<tr>
<td>M4</td>
<td>MnPASS Only Ramps at 6th/7th</td>
<td>No Local Change</td>
<td>Adjacent interchanges may see an increase in volume</td>
<td>Easier than M1 due to removal of existing ramps, but still challenging.</td>
</tr>
<tr>
<td>M5</td>
<td>M4 + Remove MnPASS Designation</td>
<td>No Local Change</td>
<td>Minimal Change</td>
<td>Easier than M1 due to removal of existing ramps, but still challenging.</td>
</tr>
</tbody>
</table>
MnPASS Connections - Minneapolis

- Based on feedback, the following options were dismissed:
  - M2 (Ramps at 11th Ave) and M3 (Ramps at 13th Ave)
    - Concerns about intersection on bridge and increase in transit travel time
  - M4 (Remove 6th/7th St General Purpose Ramps)
    - Will increase traffic at the 11th St Ramp (high crash location) and access concerns for HCMC
  - M5 (Drop MnPASS Designation)
    - Does not complete the connection for transit users

- M1 will be carried forward with potential for future modifications:
  - Transit only connections on 8th Street and maybe 11th Avenue to MnPASS
  - Bus contraflow lane on 6th Street with ramps from MnPASS

205/7/2018
Ramps would either go over or under I-94
The ramp to 7th would tie into the existing bridge (needs to be widened)
The ramp to I-94 would come from the 6th Street Ramp
PRELIMINARY CONCEPT DRAWING ONLY

MINNESOTA DEPARTMENT OF TRANSPORTATION
WSP
SRF CONSULTING GROUP
ISTHmus ENGINEERING

RETHINKING I-94
MNPASS DOWNTOWN DIRECT CONNECTION
ALT S1 - ST PAUL 5TH/6TH STREET RAMP

SCALE IN FEET
PRELIMINARY CONCEPT DRAWING ONLY

MINNESOTA DEPARTMENT OF TRANSPORTATION
WSP
SRF CONSULTING GROUP
ISTHMUS ENGINEERING

RETHINKING I-94
MNPASS DOWNTOWN DIRECT CONNECTION
ALT S5 WB - ST PAUL 5TH/6TH ST RAMP

SCALE 1" FEET