

# 5.0 Potential 2030 MnPASS Vision and Next Steps

## 5.1 POTENTIAL MNPASS VISION

In response to the Round 2 findings, the Technical Group and Steering Committee expressed the desire to plan an interconnected system of MnPASS lanes. The consultant team worked with the project committees to develop a map of MnPASS projects that might be developed over the next 25 years in the general timeframe of the current Transportation Policy Plan (TPP).

The proposed 2030 Vision Map is intended to show projects that would:

- Implement a portion of the current TPP as toll lanes, meaning all the projects shown in Concept A-2 in the previous section; and
- Implement other projects not yet in the TPP, but which were shown to be potentially viable; these are all of the projects that were included in Concept A-1, in addition to others that were not immediately recommended.

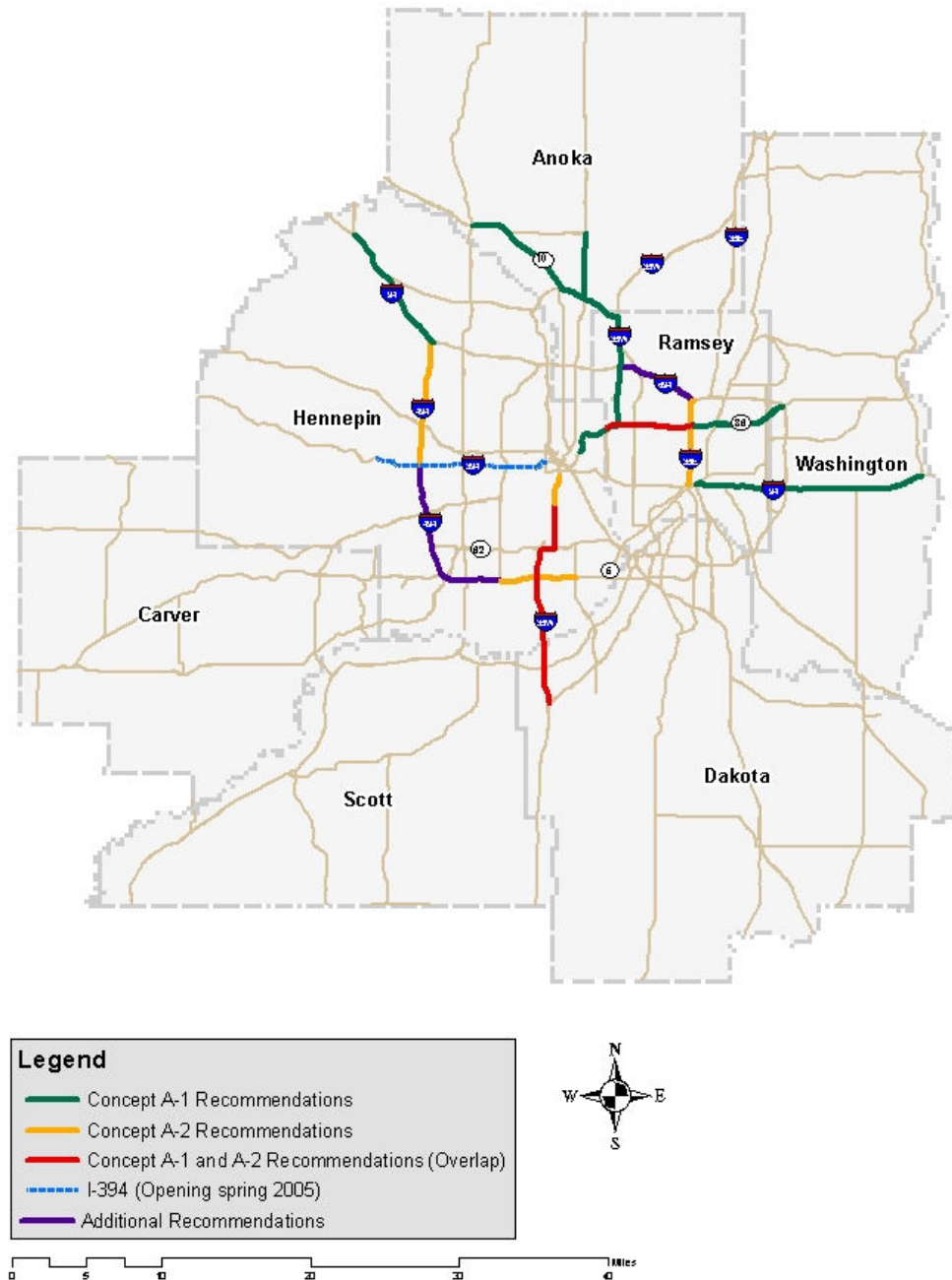
The Vision Map, shown in Figure 11, includes most of the projects that were in Concept A, with the exception of the segments of I-694 between I-494 and I-35W (segments 694-1 and 694-5). These two segments were not included because these sections were recently widened, and the need for additional improvement was not anticipated within the 25-year time horizon. Early in the study, the project committees agreed that no existing lanes could be converted to toll lanes, except for short segments needed for system continuity. However, not all members of the committees agree with this “rule.”

The committees were also interested in pursuing a potential policy that would ensure any future capacity expansions are considered for MnPASS lanes. This means that potential projects that are not on the 2030 Vision Map might ultimately be developed as MnPASS lanes. For example, the eastern portion of the Beltway did not pass the initial screening exercise to become part of Concept A. This was primarily because the need for expansion of these segments was not anticipated within the forecast time horizon (2030). However, since Mn/DOT’s goal is to make the entire beltway three lanes in each direction, there is no reason not to consider this ultimate expansion as MnPASS lanes when the time comes. The same might be true for the northern portion of the beltway between I-494 and I-35W.

The proposed 2030 Vision Map does not attempt to prioritize projects. It also does not distinguish between regular MnPASS lanes where all drivers pay and HOV lane conversions to HOT lanes. Certainly, the HOV lane conversions will need to address the issue of HOV definition if toll lanes are to be advanced on

these corridors. Finally, this Vision Map does not presume that MnPASS lanes are the preferred or most cost-effective solution to congestion and mobility in the Twin Cities region.

**Figure 11. Potential 2030 MnPASS Vision**



## **Costs and Long-Term Revenue Potential of the 2030 Vision Map**

To put the 2030 Vision Map in perspective, we developed an overall estimate of the costs and toll revenue potential of the projects on that map. We used the Concept A-2 view of considering costs, which results in a cost estimate over and above the costs already planned to be spent in the 2030 TPP. Table 14 shows the cost and revenue potential of each of the segments on the Vision Map.

Additional detail regarding the metrics associated with each of the segments, including costs, cost recovery ratio, funding gap, and other issues related to MnPASS development is provided in Appendix D.

Overall, the cost of implementing MnPASS on these highway segments would be \$2,363.3 million. Assuming these projects were all built by 2008, the cost recovery ratio for this project set is forecast to be 31 percent, from a revenue stream whose present value is \$656.2 million. It is important to note that the assumption of all projects being built by 2008 is strictly an analytical device that allows us to compare projects to one another on an even footing. In reality, these projects would be built over the cycle of the TPP, meaning that the actual revenue potential from a MnPASS system would be considerably less for the period of time indicated. However, projects developed later in the TPP cycle would have a life for purposes of analysis that extend beyond the 2030 timeframe. A more refined estimate of revenue over the life of the TPP would need to include some assumptions regarding the phasing of projects over time.

In addition to revenue potential, the MnPASS system shown in the Vision map would be expected to generate other benefits, such as opportunities for improved transit service, improved reliability, reduced air pollutants, and the value of offering drivers an uncongested travel choice. Although not quantified in this study, these characteristics would also provide great benefits to the Twin Cities.

**Table 14. Potential 2030 MnPASS Vision Financial Analysis, Concept A-2 Costs**

Segment	Net Revenue (2004\$M)		PV of Net Revenue Stream (2004\$M) 2008-2030	Capital Cost (2004\$M)	PV of Capital Cost (2004\$M)	Cost Recovery Ratio	Funding Gap (2004 \$M)	Average Daily Speed Savings in 2030 (Build versus No-Build) (mph)
	2010	2030						
I-494-a	\$1.6	\$2.8	\$27.2	\$34.7	\$31.5	86%	\$4.3	4.3
I-494-b	0.2	0.9	6.1	132.5	120.2	5%	114.1	2.2
I-494-c	3.0	6.2	55.2	265.6	240.8	23%	185.7	4.2
I-494-d	4.1	8.0	72.4	18.7	17.0	427%	-55.5	5.2
I-694-2	1.2	3.1	24.9	241.4	218.9	11%	194.0	4.2
I-94-e	0.6	2.3	16.5	115.5	104.7	16%	88.2	3.5
I-94-4	1.9	3.0	30.2	122.1	110.7	27%	80.5	13.2
I-94-5	1.2	2.3	21.5	105.4	95.6	23%	74.1	2.8
36-1	1.7	2.5	26.2	72.1	65.4	40%	39.2	5.2
36-g	2.5	4.4	42.0	172.6	156.5	27%	114.5	5.2
36-5	0.9	2.1	17.9	122.4	111.0	16%	93.1	7.3
I-35E-1	0.0	0.6	2.8	64.8	58.7	5%	55.9	3.5
I-35E-2	3.4	4.8	51.3	47.7	43.2	119%	-8.0	6.3
I-35W-1	-0.7	-1.6	-13.7	50.7	46.0	-30%	59.7	12.0
I-35W-2	0.0	-0.4	-1.9	3.0	2.7	-68%	4.6	-3.1
I-35W-3	-0.6	-1.6	-12.5	2.0	1.8	-684%	14.3	-8.4
I-35W-8	-1.0	-2.0	-18.0	2.0	1.8	-983%	19.8	6.9
I-35W-f	2.4	2.9	34.2	140.0	127.0	27%	92.7	3.8
I-35W-6	2.1	3.4	34.1	159.7	144.8	24%	110.7	3.9
I-35W-7	3.2	5.0	50.9	126.2	114.4	44%	63.5	3.2
10-1	4.4	7.0	70.9	141.4	128.2	55%	57.4	6.4
10-2	1.3	2.2	21.7	15.3	13.9	156%	-7.8	6.2
10-3	0.9	2.3	18.5	51.8	47.0	39%	28.5	4.0
65	2.6	5.3	47.4	155.6	141.1	34%	93.7	6.2
I-394-1	1.6	1.7	21.9	N/A	N/A	N/A	N/A	1.0
I-394-2	0.8	0.5	8.8	N/A	N/A	N/A	N/A	1.2
<b>MnPASS Vision Total</b>	<b>\$39.3</b>	<b>\$67.7</b>	<b>\$656.2</b>	<b>\$2,363.3</b>	<b>\$2,143.0</b>	<b>31%</b>	<b>\$1,486.8</b>	<b>3.7</b>

Notes: Real Discount Rate:  $\frac{4\%}{3\%}$   
 Inflation Rate:  $\frac{4\%}{3\%}$   
 PV = Present value of future cash flows, discounted to 2004.  
 Cost Recovery Ratio = PV of Net Revenue Stream/PV of Capital Cost.  
 Funding Gap = Net Present Value of discounted future costs minus revenue.

## 5.2 POTENTIAL NEXT STEPS

The MnPASS System study has developed, at a planning level of analysis, two types of results. First, the study has shown the potential user benefits and financial implications of individual segments and several systems of MnPASS lanes. Second, the study has developed a proposed vision for a long-term (25-year) system of MnPASS lanes around the Twin Cities. The study has also provided a forum for various stakeholders to express their ideas about how the MnPASS system might actually be developed. A separate document related to overall policy recommendations has been drafted by the MnPASS System Study Steering Committee. If Mn/DOT chooses to move forward with implementing the MnPASS vision outlined above, numerous issues still remain to be addressed. The following is an outline of the potential next steps that Mn/DOT might pursue.

### **Demonstrate the MnPASS Concept**

MnPASS represents a new way of building highway capacity. There are numerous questions relating to how the system would operate, the benefits it would generate, and the revenue it would raise. As a potential course of action to advance the MnPASS concept, we suggest closely monitoring the I-394 HOT lane conversion project, scheduled to open in the spring of 2005. This project will be the first in the country to have dynamically priced lanes with multiple on and off opportunities. Mn/DOT and the transportation community in general will learn much by watching and evaluating what happens here.

Mn/DOT should also consider:

- Conducting an analysis that compares the benefits and costs of the MnPASS approach to improving transportation system effectiveness to other potential approaches, such as traditional “free” lanes or dedicated BRT facilities. Such an analysis should more fully capture the user and societal benefits and costs of MnPASS, including quantifying the value of time savings, reliability, improved transit service, and improved air quality. Alternative discount rates and different values of time should be used to capture the uncertainties of benefits and costs in the analysis.
- Analyzing other toll-setting strategies, such as optimizing level of service in lieu of maximizing revenue.
- Evaluating the effect of a high-quality express bus system integrated with the MnPASS lanes, and determining the best way for transit to access these lanes. There is a tradeoff between the cost of building direct access ramps with the safety and congestion benefits from reducing transit and automobile weaving movements in the free lanes.

## Corridor Case Study

It will also be instructive to conduct more focused analysis of one or two potential MnPASS corridors that Mn/DOT thinks it may like to advance in the next few years. This analysis could delve more deeply into issues such as:

- **Design standards.** There are numerous issues related to design standards, such as:
  - Treatment of entry and exit points to and from the toll lanes,
  - Distance between entry and exit points,
  - Distance between entry and exit points and general purpose lane interchanges, and
  - Width of buffer zones.
- **Access/exit options.** These include:
  - At grade connections between general purpose lanes and MnPASS lanes versus direct connections from major interchanges versus ramp meter bypasses,
  - Tradeoffs between MnPASS lanes being on the inside versus on the outside, and
  - Value versus cost of direct connections to other MnPASS lanes in the system.
  - Tradeoffs between a single lane in each direction, or two reversible lanes.
- **HOV policy.** For example, when and how changes to HOV policy should be considered.

A corridor case study might include:

- Detailed evaluation of corridor traffic patterns by time of day and day of week using data from the traffic management center.
- Independent assessment of overall growth forecasts for the corridor, HOV growth, effects of ramp metering, and peak spreading.
- Consideration of entry and exit patterns on the highway, and traffic patterns on roads that bring traffic to and take traffic from the highway.
- Consideration of the ultimate origins and destinations of travelers in the corridor.
- Development of a corridor simulation model to simulate current operational considerations, as well as conditions as they may be in the short-term and long-term future. Growth patterns might be extracted from the regional travel demand model, and the capability to address diversion from the project under different toll scenarios might be built in, allowing for the model to be used for both operational testing and revenue estimation.

- Testing of alternative configurations of entry/exit points using the simulation model.
- Comparisons to alternative system approaches (e.g., “free” lanes).

### **Address Institutional Issues**

Moving forward with MnPASS will require answers to numerous institutional questions. For example:

- What role should the private sector play in developing and/or operating these toll lanes?
- How will MnPASS lanes be financed, if the toll revenues are not sufficient to cover capital costs?
- How do these findings relate to Mn/DOT’s desire to issue a Request for Proposals for Partners (RFPP) to continue the development of MnPASS lanes?
- How should Mn/DOT and the Metropolitan Council modify their project development process to incorporate MnPASS?
- How should Mn/DOT treat revenue from MnPASS lanes? What are valid uses of these funds?
- How should future MnPASS lanes be integrated with policies in place for the current I-394 MnPASS conversion, particularly for HOVs?

Answering these questions will help Mn/DOT to develop the proper strategies, standards, and policies necessary to move forward with the MnPASS program.