1.0 Introduction

The primary goal of the MnPASS System Study was to evaluate the impacts of overlaying a MnPASS toll lane system in the Twin Cities Metropolitan area of Minneapolis and St. Paul. MnPASS toll lanes are defined as special-use lanes adjacent to existing general purpose lanes where drivers can pay a toll to achieve more reliable travel times. In corridors where high-occupancy vehicle (HOV) lanes already exist, the HOV lanes would be converted to toll lanes in which HOVs would drive for free. In corridors without HOV lanes, the MnPASS toll lanes would be additional capacity, where the additional capacity is tolled.

The overall objective of the study was to identify a potential Twin Cities Metropolitan Area MnPASS tolling lane system and to provide the Minnesota Department of Transportation (Mn/DOT) and the Metropolitan Council with information on the cost, operational, revenue, and system implications of that system. The intent was not to evaluate the benefits of tolled versus nontolled capacity expansion, but rather to study a potential future system of express toll lanes. The study evaluated impacts that the toll lane system would have on existing transportation system and policy plans, and addressed operational and financial implications of alternative networks of MnPASS lanes in the Twin Cities Metropolitan area, seeking to determine the extent to which these lanes could be self-supporting and how they might fit into the larger transportation system.

To support the project's goals and objectives, the study considered both system performance as well as the performance of individual segments. The study also had two competing interests: to identify those segments that would be the best candidates for near-term implementation by private developers, as well as to draft a long-term regional vision. The original focus of the study was on the segments that could be built relatively quickly in partnership with the private sector, and as a result, the financial viability of potential MnPASS segments was an important factor in developing system recommendations. As the study progressed and it became clear that toll revenues would not recoup the required capital investment, the focus of the study shifted to developing a long-term MnPASS vision managed by the public sector. The initial vision was developed for the general timeframe of the current Transportation Policy Plan, which has a planning year horizon of 2030.[1] Beyond 2030, additional projects might be added to the vision.

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[1] The TPP was still being developed during this study. The analyses in this report are based on the draft plan dated November 16, 2004. The Metropolitan Council's final 2030 Transportation Policy Plan was adopted on December 15, 2004 and is available at: http://www.metrocouncil.org/planning/transportation/TPP/2004/summary.htm

Results from the MnPASS System Study are consistent with Mn/DOT's strategic objectives. The vision articulated in Mn/DOT's 2003 Strategic Plan calls for *"a coordinated transportation network that meets the needs of Minnesota's citizens and businesses for safe, timely and predictable travel."* The MnPASS System Study supports this vision by looking beyond individual corridors to a regionally interconnected system of toll lanes. In addition, the managed-lane concept would be dynamically priced so that the MnPASS lanes could consistently achieve higher speeds and more reliable travel times than the untolled lanes.

The MnPASS System Study is also consistent with Mn/DOT's strategic direction to "make the transportation network operate better." MnPASS supports the objectives of this strategic directive by addressing traffic congestion in the Twin Cities metropolitan area, improving mobility within highly traveled corridors (including transit improvements), and exploring potential partnerships with the private sector.

The study began with a blank slate – meaning that any existing or proposed highway in the metropolitan area was a candidate for MnPASS. The consultant team worked with a study Steering Committee and Technical Group to develop evaluation methods and criteria to narrow the focus of the study as more information became available. An early screening effort using readily available data led to two rounds of technical analysis aimed at understanding the financial and system implications of different combinations of MnPASS lanes.

A series of technical memoranda were prepared during the course of the project to bring interim results to the Steering Committee and Technical Group, and to serve as the basis for discussion that led to Mn/DOT's direction for the next steps of the study.[2] These technical memoranda are part of the project record, and provide additional detail on methods and findings not covered in this report:

- Technical Memorandum #1: Corridor Screening and Evaluation Criteria (September 2004).
- Technical Memorandum #2: Evaluation Criteria and Financial Analysis Framework (October 2004).
- Technical Memorandum #3: Travel Demand Forecasting Approach (November 2004).
- Technical Memorandum #4: Evaluation Results – Round 1 (December 2004).

[2] All technical memoranda are available through the MnPASS System Study website: http://www.mnpass.org/systemstudy.html

1.1 WHAT IS MNPASS?

MnPASS is Mn/DOT's name for what is becoming known as "express toll lanes."[3] The basic idea of MnPASS is to provide a faster, more reliable alternative to congested highway travel by charging a toll for drivers to use one or more specially designated highway lanes. Mn/DOT is considering two types of MnPASS lanes:

1. High-occupancy toll (HOT) lanes, whereby existing (or proposed) high-occupancy vehicle (HOV) lanes are opened up to non-HOV traffic for a toll; or
2. New highway capacity adjacent to existing highways (either freeways or conventional highways), where all traffic except transit vehicles pays a toll.

In both cases, these MnPASS lanes would have the following characteristics:

- Speeds at or near the posted limits would be maintained by a pricing policy that varies with demand and use of the lanes.
- Collection of the tolls would be automated, through the use of electronic toll collection – there would be no toll booths or cash transactions.
- Variable message signs would be used to advise drivers of the toll rate in place at any given time.
- Heavy trucks in excess of 26,000 pounds would be excluded from the MnPASS lanes.
- Transit vehicles would use the MnPASS lanes for free. Although the implications of MnPASS on future transit system performance were not explicitly evaluated, a simplified analysis was performed to illustrate the potential synergies between MnPASS and transit.
- Access into and out of the MnPASS lanes would be provided by slip "ramps" with the adjacent general purpose lanes, which would likely require periodic breaks in a double-striped lane to allow for merging and weaving between the facilities. Other options are possible, such as "T" ramps from a bridge

[3] Formerly known as FAST lanes – Freeing Alternatives for Speedy Transportation. This is the name included in Federal legislation in 2004 for the express toll lane concept that would have had specific statutory requirements associated with it. The current state administration favorably endorsed FAST lanes in a press conference on December 29, 2004, defining them as "… new publicly-owned lanes paid for by private entities which are repaid by users of the lanes." Since that time, Mn/DOT has adopted the MnPASS name to refer to any kind of tolled express lane in Minnesota, and MnPASS is used throughout this report.

above. However, the slip-ramp concept is consistent with Mn/DOT's I-394 toll lane demonstration, and was used as the basis for this study.

Other, numerous details regarding how MnPASS lanes might operate still need to be worked out. However, the above points provide the basic framework.

Mn/DOT is in the process of implementing the first MnPASS project on I-394, with an anticipated opening in May/June 2005. That MnPASS project is the conversion of the existing HOV lane to a HOT lane, and has specific design and operational characteristics which may or may not be relevant to other MnPASS lanes that might be implemented.

1.2 STRUCTURE OF THIS REPORT

Sections 2.0 and 3.0 of this report summarize the progress of the work, from the initial screening exercise through development of a technical approach to travel demand forecasting, cost estimating and financial analysis. Section 3.0 also describes evaluation criteria. The results of the technical evaluation are presented in Section 4.0, followed by a synthesis of potential direction for MnPASS lanes in Section 5.0.