I-35E MnPass Extension Concept Development Study
Scope of Work
SP 6281-46

Background
In August 2012, MnDOT received a Federal Value Pricing Pilot Program grant to conduct a study on the feasibility of extending MnPass express lanes on Interstate 35E (I-35E) between Little Canada Road and County Road (CR) 96 in the northeast area of the Twin Cities. A portion of this study will be conducted by the University of Minnesota’s Humphrey School and Center for Changing Landscapes. The remainder of the study will be conducted under this Contract.

MnPass express lanes are a key regional strategy for improving highway and transit performance in the Twin Cities. MnDOT and Met Council long range transportation plans identify the I-35E corridor north of St. Paul as the top candidate for expanding the MnPass system. MnPass Express Lanes are being constructed on I-35E between Cayuga Street and Little Canada Road during the 2013-15 timeframe. This study will evaluate options for extending the MnPass express lanes on I-35E north of Little Canada Road to CR 96.

Task 1 Project Management
This task focuses on managing the I-35E MnPass Extension Concept Development study utilizing effective communication to expedite the decision making process and maintain the project schedule. It assumes Contractor involvement for 14 months from notice to proceed, however, the majority of the work is expected to be completed within the first 10 months of the study.

1.1 I-35E MnPass Concept Development Study Advisory Committee
The Contractor will lead up to six I-35E MnPass Extension Concept Development study Advisory Committee meetings during the term of the Contract. MnDOT will provide the Contractor with a membership list for this advisory committee. In coordination with MnDOT, the Contractor will schedule and secure the venue for these meetings, invite members, prepare meeting agendas and reminders, and prepare and distribute meeting minutes to attendees and other interested parties.

1.2 Coordination with other I-35E MnPass Managed Lanes Extension Study Components and Committees
The Contractor will coordinate the I-35E MnPass Extension Concept Development study tasks with the work being performed by the University of Minnesota under the I-35E MnPass Extension Community Outreach & Education Study and the I-35E MnPass Extension Land Use & Transit study. Coordination will include providing information to the other studies as requested and attending meetings of each of the other studies’ advisory committees as necessary.

The Contractor will also coordinate with the overall I-35E MnPass Managed Lane Extension Study Steering Committee and Project Management Team attending meetings, providing updates and input, and soliciting feedback as necessary.

1.3 Develop project schedule, quarterly progress reports, and project summary
The Contractor will develop and maintain a project schedule, and prepare periodic progress reports. The purpose of the report is to keep project stakeholders and partners informed of the status of the study. Contents of the report will include a summary of the work completed for each
period, a preview of the work to be completed during the next period, and an overview of issues and/or decisions that have been resolved or remain open. The Contractor will prepare study summary materials, including power point presentations and one-page summaries as requested.

**Task 1 Deliverables**
- Project schedule - within 30 days of project onset, maintained and updated throughout project
- Progress reports – every two months throughout the study
- Meeting agendas/reminders - 3 days prior to scheduled meeting
- Meeting minutes - within one week after meeting
- Study one-pagers and Power Point presentation – as requested by MnDOT

**Task 2 Purpose & Need Summary and Concept of Operations**
The Contractor will develop a purpose & need summary and a Concept of Operations (ConOps) for extending MnPass on I-35E as a means to formulate goals and objectives that can be agreed upon by the stakeholders, operators, and interest groups. The Contractor, in cooperation with MnDOT and other project stakeholders, will develop operational processes and thresholds for initiating, developing, modifying, and maintaining a MnPass facility on I-35E between Little Canada Road and just north of Ramsey CR 96. The ConOps will also identify potential strategies, tactics, policies and constraints that affect the corridor.

**2.1 Document operational needs of I-35E between Little Canada Rd. and CR 96**
The Contractor will summarize and gain consensus on the user and stakeholders' needs along the corridor including recurring congestion points, known bottlenecks, and needs for transit advantages. This will be accomplished primarily through the review of existing documentation and reports for the I-35E corridor. The study needs will identify existing traffic and transit volumes, congestion levels, high crash problem areas, and the expected life of the project.

**2.2 Identify concept alternatives**
The Contractor will develop and summarize the following concepts for extending MnPass on I-35E between Little Canada Rd. and CR 96:

- Discontinuous MnPass Option – No MnPass lanes added through the I-35E/I-694 Interchange (i.e. between Little Canada Rd. and CR E). MnPass lanes only added between CR E and CR 96.
- Priced Dynamic Shoulder Lane Option (PDSLs) – Convert the inside shoulders through the I-35E/I-694 Interchange (i.e. between Little Canada Road and CR E) to MnPass PDSLs. Typical MnPass lanes added between CR E and CR 96.
- General Purpose Lane Conversion Option – Convert recently constructed general purpose lane capacity through the I-35E/I-694 Interchange (i.e. between Little Canada Road and CR E) to MnPass. Typical MnPass lanes would be added between CR E and CR 96.
- Other options or hybrids of the above option to be determined through the study.

The ConOps should provide a high level explanation of each concept and the expected benefits of each. Additional concept details and other alternatives will be developed in Task 4 of study.

**2.3 Operational Concept**
The Contractor will develop an operational concept for the various options for extending MnPass on I-35E identifying the following items:
• General operations of the MnPass express lanes in this segment
• Southbound operations in AM Peak
• Northbound operations in PM Peak
• Hours of operation, pricing segments, and pricing
• Safety of Operations
• Maintenance Operations
• Incident Management and Enforcement
• ITS needs (signing, active traffic management, lane control, DMS, etc.)
• Analysis of improvements to transit in this segment

**Task 2 Deliverables**

- Draft Purpose & Need Summary and Concept of Operations - no later than 2 months after project start
- Final Purpose & Need Summary and Concept of Operations - no later than 3 months after project start

**Task 3 Traffic Forecasting**

**3.1 General Traffic Forecasting**

The Contractor will develop 2015 and 2035 forecasts using the Twin Cities Regional Travel Demand Forecast Model. Forecast data will specifically be reported for the I-35E corridor from County State Aid Highway (CSAH) 14 to I-94 and the I-694 corridor from TH 51 to TH 61.

Traffic forecasting will include local government redevelopment plans. Traffic forecasting will be coordinated with forecasts completed as part of the I-35E MnPass and Cayuga projects.

Travel demand forecasts prepared for MnDOT will be accompanied by a report (approximately ten pages) which documents the methodologies used to develop the forecast. Documentation for multiple forecasts on the same segment of highway (multiple forecast years) can/should be combined in one report. Draft forecasts presented for review/comment should be accompanied by draft documentation reports.

Each documentation report will address every bulleted item in the guidelines Twin City Travel Demand Forecasts prepared for the MnDOT Metro District: “Model and Parameters for Adjustments to Model Inputs” and “Model Output Checks for Reasonableness and Post Processing Adjustments”. In addition, forecasts used for benefit/cost analyses should include the rationale for selecting the forecast area for which benefits are calculated.

The Contractor will prepare traffic lane assignments and turning volumes for all intersections and interchanges within the project limits for the opening year (2015) and the design year (2035). Heavy commercial counts must be included. The data must be assembled in charts or another easily understood form.

The Contractor will report the forecasted Annual Average Daily Traffic, the morning (AM) Peak Volumes, the evening (PM) Peak Volumes, and volumes by lane for the mainline I-35E and I-694 and the ramps at interchanges throughout the corridor(s).
3.2 HOV Demand
The Contractor will develop 2015 and 2035 forecasts for HOV demand along the I-35E corridor from CSAH 14 to I-94.

3.3 HOT Traffic and Revenue Analysis
The Contractor will forecast the reserve capacity available for toll paying MnPass customers in this segment of the I-35E MnPass express lanes after accounting for HOV and transit use. In addition, the Contractor will forecast the demand for single occupant drivers using the HOT facility and will estimate toll revenues resulting from the new MnPass lanes.

3.4 Transit Operations
Working with the transit partners along the corridor, the contractor will forecast 2015 and 2035 transit ridership along the corridor with and without proposed improvements.

Transit assumptions in the corridor shall be verified and/or developed in coordination with transit planners and appropriate changes made to the model transit network, if needed. Travel times on the transit network shall be reviewed and revised as necessary to reflect the presence of bus only shoulder lanes or transit lanes.

Task 3 Deliverables
- Technical memorandum summarizing methodology and assumptions used to develop forecasts and subsequent reasonableness checks.
- Forecasts for the following years: year of opening and design year, including average annual daily traffic, AM peak hour and PM peak hour.
- One paper and one electronic copy of the draft memorandum, three copies of the final memorandum plus electronic copies in PDF and Microsoft Word formats.
- Graphic representation (i.e. maps) of existing volumes plus forecast years 2015 and 2035.
- All relevant Travel Demand Modeling Files.

Task 4 Develop Concept Layout and Cost Estimates

4.1 Develop concept alternatives
Based on preliminary review of design, cost, forecast and CORSIM results, the Contractor will develop concept layouts for the primary concept alternatives for extending MnPass express lanes on I-35E between little Canada Road and CR 96, as identified in Task 2.2.

The Contractor will develop preliminary alignments, profiles, and typical sections for each concept. These concepts will be developed to the extent practicable using current State standards for layout development and in accordance with the HPDP handbook.

4.2 Develop cost estimates
The Contractor will prepare preliminary cost estimates for each of the developed concepts, including capital costs and life cycle/operations costs.

Task 4 Deliverables
- Preliminary alignments, profiles and typical sections for each concept alternative, to be delivered by September 13, 2013.
- Cost estimates for each concept including capital costs and life cycle costs, to be delivered by September 13, 2013.
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- PowerPoint presentation for advisory/steering committee and public information sharing, to be available for public acceptability efforts beginning October 1, 2013.
- All final versions of deliverables under this Task due no later than 5 months from project start.

**Task 5 Analysis and Modeling**
The Contractor will model and analyze I-35E from CR 14 to TH 36. This will include the modeling and analysis of the morning (AM) and afternoon (PM) peak. The Contractor will develop a modeling animation for assistance in explaining results to the advisory committees and for public outreach. VISSIM may be used for the animation modeling.

The modeling will conform to the current "MnDOT Modeling Guidelines" and "CORSIM Calibration Parameters," as well as the modeling process outlined in the current "Advanced CORSIM Training Manual", incorporated herein by reference.

The Contractor will complete CORSIM Modeling for the primary concept alternatives.

To the maximum extent feasible, the Contractor will utilize modeling data and analysis that has already been collected and prepared on the I-35E corridor.

**Task 5 Deliverables**
- A technical memorandum and PowerPoint slides summarizing the modeling methodology and results for advisory/steering committee and public information sharing.
- CORSIM Modeling of each primary design concept (at least three concept alternatives)
- Summary of operations analysis on I-35E from CR 14 to TH 36.

**Task 6 Benefit/Cost Analysis**
The Contractor will complete a benefit-cost analysis for each of the primary project alternatives to understand the economic advantages and disadvantages of each alternative for extending the MnPass express lanes on I-35E. The alternatives will be compared to the "Base Case," which is the current condition on I-35E between Little Canada Rd. and CR 96 with programmed STIP/TIP highway and transit improvements within the I-35E corridor. This analysis will evaluate incremental differences between the Base Case and each of the primary concept alternatives.

The objective of the benefit-cost analysis is to translate the effects of an investment into monetary terms and to account for the fact that benefits generally accrue over a long period of time while capital costs are incurred primarily in the initial years. The primary transportation-related elements that can be monetized are travel time costs, vehicle operating costs, safety costs, ongoing maintenance costs, and remaining capital value, if any, the end of the project life. The benefit-cost analysis will provide an indication of whether travel time and safety savings exceed the costs of design, construction, and the long-term increased operating costs.

**Task 6 Deliverables**
- Comparison of primary concept alternatives including costs and proposed benefits.
- PowerPoint presentation for advisory/steering committee and public information sharing.

**Task 7 Develop Short and Long Term Recommendations**
In consultation with the I-35E MnPass Extension Concept Development Advisory Committee, the overall I-35E MnPass Managed Lane Extension Steering Committee and other project
stakeholders, and based on what was learned over the course of the study, The Contractor will develop short and long term recommendations including discussion of potential phased implementation given programmed improvements within the I-35E corridor.

**Task 7 Deliverables**

- A draft technical memorandum and PowerPoint slides for advisory/steering committee and public information sharing, delivered by February 19, 2014.
- A final technical memorandum and PowerPoint slides for advisory/steering committee and public information sharing, delivered within

**MnDOT Assistance**

MnDOT will provide the following documentation.

- I-35E Forecasts & Modeling done to date
- STIP/TIP project programming information

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