

# 1.0 Project Background

The Minnesota Department of Transportation (Mn/DOT) uses ramp meters to manage freeway access on approximately 210 miles of freeways in the Twin Cities metropolitan area. Mn/DOT first tested ramp meters in 1969 as a method to optimize freeway safety and efficiency in the metro area. Since then, approximately 430 ramp meters have been installed and used to help merge traffic onto freeways and to help manage the flow of traffic through bottlenecks.

While ramp meters have a long history of use by Mn/DOT as a traffic management strategy, some members of the public have recently questioned the effectiveness of the strategy. A bill passed in the Year 2000 session by the Minnesota Legislature requires Mn/DOT to study the effectiveness of ramp meters in the Twin Cities Region by conducting a shutdown study before the next legislative session [Laws 2000: Chapter 479, HF2891].

The study occurred in the fall of 2000, with the results presented to the Legislature and the public in early 2001. The goal of the study is to evaluate and report any relevant facts, comparisons, or statistics concerning traffic flow and safety impacts associated with deactivating system ramp meters for a predetermined amount of time. This study was conducted as a cost of \$651,600.

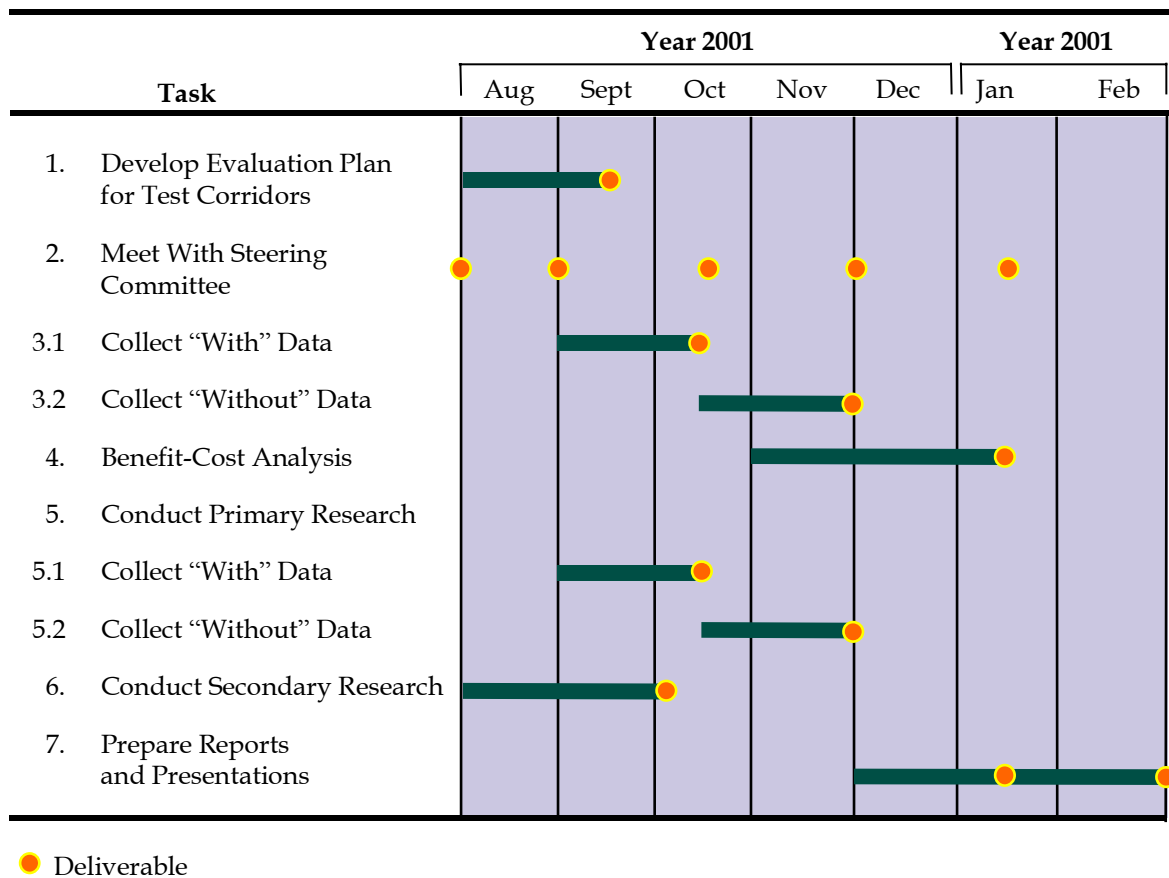
In response to the Legislative mandate, Mn/DOT formed two committees to represent the public and ensure the credibility/objectivity of the study, including:

- **Advisory Committee** - Provided policy oversight and input into the consultant selection process, the proposed study work plan, measures of effectiveness, and evaluation measures.
- **Technical Committee** - Provided technical guidance, expertise, and quality control. Also provided technical input to the consultant selection process, proposed study work plan, measures of effectiveness, and evaluation measures.

On June 19, 2000, Mn/DOT issued a Request for Proposals (RFP) to study and report on the traffic flow and safety results of deactivating ramp meters in the Twin Cities Region. Members of both the Advisory Committee and the Technical Committee served on a selection committee to design and approve consultant selection criteria, and evaluate proposals from consultants received in response to the RFP. A consultant team led by Cambridge Systematics, Inc. (CS) was selected to conduct the ramp meter evaluation. Joining Cambridge Systematics on the evaluation team were SRF Consulting Group, N.K. Friedrichs Consulting, and a panel of nationally-recognized experts in the field of ramp metering and transportation evaluations.

The project schedule and key task deliverables are shown in Figure 1.1. The evaluation team developed the Evaluation Plan (Task 1) during the months of August and September 2000. The secondary research (Task 6) also began immediately. During September and the first half of October 2000 the evaluation team prepared for and conducted the “with ramp metering” data collection, including both traffic field data (Task 3) and survey data (Task 5). After the meter shutdown, data collection was prepared for and conducted in the second half of October and November 2000 (Tasks 3 and 5). Preparations for the cost/benefit analysis (Task 4) began in November 2000 and were completed by January 2001. The draft report and legislative presentation (Task 7) were completed by mid-January 2001, in time for Mn/DOT and committee review and comment, such that the documents were ready for delivery to the legislature by February 1, 2001.

**Figure 1.1 Project Schedule**



The CS team met with the committees at eight critical milestones in the project, as follows. The objective of these meetings was to ensure that a broad cross-section of stakeholders with both technical and non-technical levels of expertise participated in and guided the study to ensure that the results have credibility throughout the community.

- Kickoff meeting;
- Evaluation strategy: Recommendation for the study period, corridor selection, corridor criteria, and metering shut down;
- Completion of evaluation plan;
- Completion of “with ramp metering” data collection;
- Completion of “without ramp metering” data collection;
- Completion of “top-down” overview of draft study report;
- Completion of cost/benefit analysis and draft report; and
- Completion of the secondary research.

The CS team also participated in media briefings and supplied the following materials for the meetings and presentations. Electronic and hardcopy versions of all materials were provided to the Mn/DOT project manager.

- Presentation materials;
- Hard copy handouts to all attendees; and
- Drafts of technical memoranda in advance of the meetings.

This document represents the Final Report developed for the study by the CS team with significant input from the Technical and Advisory Committees. The organization of this Final Report is as follows:

- **Evaluation team** and organizational hierarchy (Section 2.0).
- **Evaluation objectives and performance measures** (Section 3.0).
- **Evaluation methodologies** (Section 4.0) presents a summary of methodologies and technical approaches for corridor selection, field data collection, focus groups and traveler surveys, benefit-cost analysis (including the corridor extrapolation process), and secondary research.
- **Field evaluation results** (Section 5.0) presents a summary of findings in terms of travel time, reliability of travel time, traffic volume and throughput, crashes, and transit operations.
- **Primary market research** (Section 6.0) presents a summary of findings from focus groups and surveys conducted as part of the evaluation.
- **Benefit-cost analysis** (Section 7.0).
- **Secondary research** (Section 8.0).

- **Conclusions and recommendations** (Section 9.0).
- The **Executive Summary** is a separate document that presents a summary of the evaluation conclusions, supporting evaluation findings, and recommendations. The **Appendix to the Final Report** is a separate volume which includes more detailed summaries of evaluation data and data analysis methodologies.