

MINNESOTA DEPARTMENT OF TRANSPORTATION
FREEWAY TRAFFIC MANAGEMENT PROGRAM
Status Report – January, 2002

CONTROL FACILITY: Mn/DOT's Traffic Management Center (TMC) has been the operations base for Twin Cities metro area freeway traffic management since 1972. In 2001, the Traffic Management Center and Freeway Operations Section became a part of Mn/DOT Metro Division's Office of Traffic Engineering. The TMC is located at 1101 4th Avenue South, Minneapolis, MN 55404, and is managed by Glen Carlson and Amr Jabr. The phone number is 612.341.7500.

A new Regional TMC is under construction and should be complete within the next year. The facility will house Metro Division Traffic Engineering (including existing TMC staff) along with State Patrol dispatch and Metro Division Maintenance dispatch.

RAMP METERS: In late 2000, the effectiveness of ramp metering was studied by an independent consultant. Conclusions showed that ramp metering is beneficial for increasing freeway volumes, decreasing travel times, increasing speeds and decreasing crashes. Another part of the study - a public opinion survey - found that while most motorists agreed that metering improved traffic conditions, they felt ramp meter wait times were excessive. On a temporary basis, an unrestrictive set rate, which didn't factor in real-time changes in traffic flow, was deployed. During that time, a new ramp metering algorithm was developed. *Stratified Zone Metering - the Minnesota Algorithm* strives to ease congestion while limiting ramp meter wait times. This is done by releasing vehicles onto the freeway based on ramp demand so that freeways are safer, travel times are more reliable and wait times are not excessive. Modeling and simulation are in progress and the new algorithm will be implemented in March, 2002. There are currently 213 meters which may operate in the a.m. peak period and 266 which may operate in the p.m. peak period (not all meters are used during metering operations based on traffic demand and directional use).

CLOSED CIRCUIT TV: There are 241 cameras located along segments of the freeway system. Plans call for a total of 300 cameras by the end of year 2005. The standard design includes color cameras mounted on 50-foot poles, one mile apart, with fiber optic communications. Video from all of the cameras is shared via a distribution network with stakeholders including the State Patrol, Metro Division Maintenance, Metro Transit, cities, counties and all local TV stations. A current project will have all cameras on the web during 2002.

CONTROL ROOM: A new computer platform and operator interface was developed which combines the functionality of several stand-alone systems. Transition to the new system was completed in fall, 2001. Online versions of the Maintenance Log and Incident Log were introduced and an online help system (eHelp) replaced hard copies of policies, procedures and operating instructions. An AVL (automatic vehicle location) system was added to aid in dispatching Highway Helpers.

During peak periods, a staff of five (plus an on-call supervisor) operates the control room. Staff includes two operators, a radio broadcaster, a traveler information operator and a dispatcher.

- ❖ Each operator station has 24-20 inch CCTV monitors with video switcher control. Operators run ramp meters, dynamic message signs (DMS) and lane control signals. They also log any equipment malfunctions in the maintenance log database.
- ❖ The radio broadcaster gives live traffic updates every 10 minutes on KBEM 88.5 FM.
- ❖ The dispatcher operates CAD 911(computer aided dispatch) and communicates with State Patrol and Mn/DOT Maintenance. They also monitor the AVL system and dispatch Highway Helpers to incidents. The dispatcher is responsible for logging all events into the incident log database.
- ❖ The traveler information operator shares incident information with traffic partners via 800 mhz radio. They also run the TIC (traffic incident capture) workstation, which displays event icons and incident information on the web map.

DYNAMIC MESSAGE SIGNS: There are currently 64 DMS in operation including both amber LED and rotary display-type signs. As the older rotary signs are replaced, they are often relocated to optimize visibility and effectiveness. The 27 newest DMS are NTCIP compliant. Plans call for approximately 8-10 more signs on the current system. The TMC also operates 23 LCS (Lane Control Signals).

DETECTORS: There are approximately 3780 inductive loop detectors on the system. In addition, around 40 queue detectors were added on ramps in the fall of 2001.

HIGH OCCUPANCY VEHICLE (HOV) FACILITIES: I-394 is a six-lane freeway with three miles of reversible HOV lanes and eight miles of concurrent (diamond) HOV lanes. Six HOV ramps on I-394 provide direct access to the reversible lanes between the Minneapolis CBD and TH 100. On I-35W, a diamond lane runs in each direction between Highway 13 and I-494 (7 miles). Mn/DOT operates 73 HOV ramp meter bypasses. Through a partnership with Mn/DOT, Met Council, Metro Transit and other cities and counties, there are 158 miles of bus-only shoulders so transit buses can bypass congested freeway areas. The Legislature has ordered a study on the effectiveness of HOV lanes. A consultant has been selected, the study is underway and results are expected this spring.

HIGHWAY HELPER PROGRAM: The Highway Helper program was initiated in December 1987 to remove stalled vehicles from the roadway, assist stranded motorists and aid the State Patrol with incident management. The Highway Helpers are located in a shared facility which houses the 17 person staff and nine fleet vehicles along with a State Patrol station of 10 officers.

Fully equipped pickup trucks patrol eight routes (or 170 miles) of the most congested freeway segments from 5:00 AM to 7:30 PM Monday through Friday. Each year the program assists approximately 13,000 motorists. In 2001, all vehicles were equipped with portable message boards to enhance safety and assist with incident management. Plans for the near future include adding the Highway Helpers to the State Patrol CAD 911 system.

TRAVELER INFORMATION PROGRAM:

Traffic Radio - Mn/DOT has a partnership with the Minneapolis Public Schools (MPS) to provide a Traffic Radio service for the Twin Cities metro area. Public radio station KBEM (88.5 FM) provides live traffic broadcasts from the TMC control room. During weekday peak periods, a two to three minute report is broadcast every ten minutes. During major incidents, traveler information is broadcast continuously and drivers are alerted by DMS to tune to Traffic Radio for live reports. TMC operators also communicate frequently with commercial traffic reporters via two-way radio, updating them on current situations.

Traffic Internet - Real-time traffic information is available on a number of sites with several others under development. The data for most of these web sites comes directly from the TMC data distribution server:

www.dot.state.mn.us/tmc/trafficinfo/ (the Traffic Management Center site. Real-time video coming soon)

www.startribune.com – (click on latest traffic)

www.twincitiesexpress.com/travelerinformation.asp - (a personalized e-mail service)

www.smartraveler.com

www.trafficstation.com

Traffic Telephone - SmarTraveler, a private sector company, offers a route-specific traffic telephone service, free to the public. The number is (651) 633-8383 or #211 on most cellular phones.

For more information on Mn/DOT's Traffic Management Center, please contact us at 612.341.7500 or tmc@dot.state.mn.us.