OREGON'S TRAFFIC MONITORING SYSTEM FOR HIGHWAYS (TMS-H)

OUTREACH PROGRAM FOR LOCAL GOVERNMENTS

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History of TMS-H

Oregon first began to develop the Traffic Monitoring System for Highways (TMS-H) after the Intermodal Surface Transportation Efficiency Act (ISTEA) was enacted in 1991. The Management and Monitoring Systems Interim Final Rule (December 1, 1993) offered additional guidance, allowing Oregon to begin developing their TMS-H in earnest.

 The purpose of the TMS-H, which is required by the ISTEA, is to collect and process highway and vehicle traffic data sufficient to meet the needs of decision-makers and other users. The TMS-H is also used to support the six management systems which were at one time mandated by the ISTEA but have since been developed only if the State Department of Transportation (DOT) wishes to develop it for their own needs. Oregon has chosen to proceed with the six management systems, in addition to the TMS-H.

A work plan was developed in November 1994. It included sections under the subheadings of 1) Objectives and Overall Approach; 2) Major Activities and Responsibilities; 3) Oversight Procedures; 4) Organizational Changes and Resources; 5) Agreements/Contracts that Need to Be Negotiated with Outside Agencies; 6) Work Tasks, Participants, and Schedule and 7) Certification Statement. The work plan was approved by FHWA in March 1995.

TMSH Workbook

Oregon has, for many years, had a well-documented traffic monitoring program. It is explained in the TMS-H Manual, titled TMS-H Program Documentation. In November 1990, ODOT commissioned a study by Portland State University to assess the sufficiency of the statistical coverage of the permanent Automatic Traffic Recorder (ATR) network in Oregon. Portland State University certified that the present ATR network was statistically valid to use for estimating vehicle traffic on the non-ATR highways in the state and to publish the annual Transportation Volume Tables.

The workbook explains, in detail, ODOT's Traffic Monitoring Program, with separate sections on the Continuous Count Program, the Coverage Count Program, and the Classification Count Program. It includes a section on Equipment Testing, and several sections on data processing procedures used on the traffic count data. There are copies of survey results, as explained later in this paper, and a section on future items planned to be included in Oregon's TMS-H.

This document constitutes conditional federal approval of the State's TMS-H. It is an evolving document, which will change as time passes and new procedures and processes are developed. There has already been one update. Records of manual holders are kept and future updates will be furnished to them.

3. Survey Summaries

A survey, developed by the state, counties, and cities in 1994 provided a basis for development of the local government portion of the TMS-H. The survey was sent to all jurisdictions in the state (36 counties and 240 incorporated cities). The survey asked each jurisdiction to detail their traffic monitoring program by check boxes on Data Storage, Factoring, Program Type, Count Types, and Road Types Monitored. We received responses from all 36 counties and 121 cities. We were quite pleased with the response and it provided a good idea of the strengths and weaknesses of the local government traffic monitoring programs.

ODOT followed up that survey with another survey in September 1995, titled TMS-H County Traffic Integration Survey. The following questions were asked of each county:

How is traffic data used in your organization?
Who submits requests for traffic data and how frequently, both inside and outside your organization?
The TMS-H requires integration of state, county, and city data. The TMS-H also required specific procedures to be followed when collecting traffic data. How do you plan to respond to the traffic counting requirements in the TMS-H?
How would you like to respond to these requirements?
How committed is your jurisdiction to your traffic counting program?
The state is experimenting with different types of technology, such as WIM and video monitoring of traffic operations. What alternate methodologies would you like to see tried in your jurisdiction?
The state believes that it would be advantageous for the state, counties, and cities to pool resources for traffic data. We suspect the same is true of cities and counties. What would need to happen for this to be (1) possible and (2) advantageous for you? For example, the state could supply seasonal factors, database layouts, and manipulation programs.
Would you be interested in accessing a common data base for state, county, and city traffic data: For example, the State Transportation Volume Tables could be accessed via Internet or a BBS (Bulletin Board System).
What kinds of training do you see a need for?
When and where should this training occur?
Should the T2 Center coordinate this training?
Would you be interested in serving on a talk force of state/county/city employees to study data and collection methodology?
Who would you recommend as an additional participant?

The following responses stood out, and formed a framework for organization of the TMS-H program for local governments.

Most of the counties did not have the resources or budget necessary for a sophisticated traffic monitoring program. The majority of counties requested some assistance from the state, particularly in the area of training.
Most of the counties wanted to pool resources with the state, particularly in the area of data base management.

Most of the counties wanted training, in all areas of traffic data collection. They wanted training in the actual field data collection as well as the processing of data.
Most of the counties wanted the training to come to them, rather than traveling a great distance to one central location.

With these concepts in mind, Oregon designed its TMS-H. The FHWA also offered guidance in the following areas:

FHWA wanted ODOT to include a section in the TMS-H Manual about accessing Model 170 Signal Controllers for traffic counting.
FHWA wanted to develop a simplified workshop approach to teach small cities and counties the fundamentals of traffic data collection.
FHWA wanted to stress that the workshops were pilot courses and they would be evolving.

5. Workshops

ODOT developed a partnership with Oregon State University (OSU) to develop the classes. Through an interagency agreement, OSU formulated the following course outline:

Introduction
ISTEA and FHWA Requirements
Introduction to Traffic Counting
Traffic Counting Techniques
Vendor Presentations
Traffic Volume Adjustments and Calculations
Problem Set
Solutions Review
Discussion

Dr. Robert Layton of the OSU Transportation Research Institute was selected to teach the workshops, with assistance from ODOT and FHWA. Dr. Layton teaches upper division and graduate courses in Civil Engineering at OSU, and also teaches 20-25 workshops a year to state and local government employees and consultants. Workshop subjects include Highway Capacity Analysis, Advanced Highway and Traffic Operations, Geometric Highway Design, Traffic Engineering Fundamentals, and Access Management.

In order to accommodate local government wishes, the workshops were offered in four different areas of the state so no one jurisdiction would have to stay overnight. Lunches and breaks were catered, to discourage attendees from leaving the premises during the workshops.

Comments were encouraged at the end of each workshop. Comments were, for the most part, very positive. The negative comments were responded to by revising those parts in the workshops that followed. By the last workshop, we received no negative comments at all.

Most of the comments we received complimented Dr. Layton for his course organization and teaching style. In the three later workshops we included a video during the lunch hour on installation and maintenance of traffic inductance loops. About 50 per cent of the attendees wanted to see more video, and about 20 per cent didn't like the video. Some attendees wanted more focus on the benefits of the TMS-H for local governments. A majority of the people liked the meeting facilities and thought the length of the workshop was about right. Many people liked the manual and agreed that it was a good reference for traffic data collection and analysis.

Sixty-nine State and local government personnel plus four consultants attended the workshops in all. Forty-six different jurisdictions were represented. Technical advice was offered by the Salem ODOT office.

Following are examples of comments we received on the workshops:

"Helps to produce a uniform understanding of traffic data."

David Hotz
Traffic Smithy, Consultants

"Course sets a good foundation and set of standard guidelines that can be expanded on later."

Robert Kortt
City of Medford

"Best explanation of traffic counting I've had yet!"

Jon Mater
Curry County Public Works

"Excellent information and contacts with other agencies using same data. Also, it was a terrific convenience to have the workshop in this area."

Ray Smith
City of Ashland

6. Follow-Up

The main area of technical support to local governments came in the area of equipment testing. The local governments recognized the benefit of equipment validation. ODOT offered to help locals with their equipment testing and were overwhelmed at the response. In fact, ODOT had to purchase additional equipment testers to keep up with the demands of local government.

A toll-free number was offered for one year after the workshops for local jurisdictions needing technical advice. This experiment was a big failure. We also used the toll-free line for the Aircraft Monitoring Program, for the field technicians to call the Salem office. There were many calls for

the Aircraft Monitoring Program, but hardly any calls for the traffic counting assistance. The few calls that did come in were through regular phone lines.

The first update to the TMS-H Manual was offered to all local government personnel and consultants during February and March of 1998. The response to this update, from both people who attended the workshops and didn't attend the workshops was very encouraging. 48 people who attended the workshops asked for updates, and 128 people who didn't attend the workshops asked for the updated manuals.

Another follow-up to the workshops was that a program to develop a common database for state and local governments was included in the 1999-2001 State Planning and Research (SPR) Program for Oregon. This database is to be developed by a consultant, and the initial effort will be funded at a level of $50,000.

ODOT was, all in all, quite pleased with the local government outreach program. There were many local government personnel who received the information and training, who, without the workshops, would not have benefitted from the information. This is to ODOT's advantage, because we often must use traffic data on local roads for our transportation projects. It is good to know that the data is being collected to common standards set by the state and FHWA.