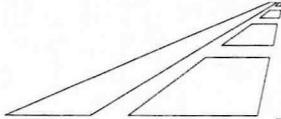




Separator

1885-1



Memorandum

To: Al Kosik
Program Manager, ITS Branch Office, TxDOT

From: Beverly T. Kuhn, Ph.D., P.E.
Division Head, System Management

Date: October 27, 1999

Re: Letter Report 1885-1, Project No. 0-1885
Multi-State Operations Research and Implementation Program (MORIP)

Introduction

California and Texas share common challenges in population growth, travel demand, urban and suburban development, and transportation infrastructure needs. Having three cities in the top most populated urban areas in the country, these states face challenges not shared by many others, especially in the light of trying to have statewide consistency for the motoring public. In addition to being leaders in the design, construction, maintenance, and operations of transportation systems, California and Texas have developed nationally recognized research programs that are continually working to find solutions and develop tools that help alleviate the challenges they face. The deployment of intelligent transportation systems (ITS) is one such tool to assist in transportation management and improve the efficiency of existing transportation systems. The application of technology to the freeway and surface street systems will improve travel conditions and safety, and may prolong the service life of some facilities.

As ITS is implemented, there is a need to share information about successful accomplishments, challenges encountered, and topics needing more research. Such sharing can foster consistency and interoperability between urban areas and between states, as well as educate professionals about the latest in emerging technologies, advanced operating strategies, and multimodal integration. To facilitate this sharing of ideas and information, California and Texas initiated a three-year nonbinding agreement to hold a series of peer-to-peer meeting exchanges. Washington and Minnesota have also chosen to participate in this initiative. This memorandum synthesizes the results of the meeting held by these states in May 1999 in San Antonio, Texas.

Pooled Fund Projects: Overview and Keys to Success

Pat Conroy, Caltrans / Tom Urbanik, TTI

The assembled representatives from California, Minnesota, Texas, and Washington opened the meeting with a discussion about the concept of pooled fund projects and their potential for success. Pooled fund projects work to coordinate research and were developed as a result of the concern that states and research entities were operating in isolation, creating a considerable potential for duplication of efforts. Through collaborative efforts, the needs of various organizations can be met and research results can be easily shared across state boundaries.

Discussion centered on various issues related to pooled fund projects. Primarily, a mechanism needs to be in place to foster ongoing discussion and interaction to determine the mutual interests of the participating states. Pooled funds seem to be the best financial resource for furthering the multistate effort. However, concern was raised that pooled funds may be a short-term means of funding meetings and travel, but that future identified research projects might be funded through other sources. Such alternative funding sources would especially be appropriate for joint proposals that are larger scale initiatives.

In the near term, it was determined that the leadership of the Multi-state Operations and Research Implementation Program (MORIP) would be shifted to Texas under the direction of Al Kosik. Also, due to staff changes within the Texas Transportation Institute (TTI), Beverly Kuhn will replace Christopher Poe as the research supervisor. It was also determined that a ways and means committee should be created to determine in what direction MORIP should go and to organize the efforts in the most effective and comprehensive manner possible.

Current Status: To date, the leadership of MORIP is in the process of shifting to Texas as planned. The ways and means committee is under development with representatives from all key organizational partners.

FHWA TMC Consortium Idea

Jim Wright, Minnesota Department of Transportation (MnDOT)

The initial Transportation Management Center (TMC) Consortium proposal was presented by Dr. Thomas M. Granda with the Federal Highway Administration (FHWA), to the Advanced Traffic Management Systems (ATMS) committee in April 1999. The pooled funds proposal has a national focus rather than the regional one under discussion by MORIP. The need for such a proposal emerges from the growth of TMCs, which create a need for communication about information requirements, successes and lessons learned, the state of the practice, and operational and research questions. The goal is to assemble a consortium of regional, state, and local traffic management agencies and FHWA to identify common problems, solution mechanisms, and technical assistance, and to disseminate results.

The potential areas of interest that might be addressed by the consortium include, but are not limited to, surveillance and intelligence gathering, operations and maintenance support tools, driver response to traffic control devices, safety, data fusion, detector malfunctions, and

optimizing regional networks. FHWA sees Turner-Fairbank Highway Research Center as a source for ATMS research staff, publication and information dissemination, and support for identifying issues and in initiating and monitoring the research under the program. Agencies that participate in the program would benefit in a variety of ways. First, they would have the ability to direct the research and information dissemination based on their specific needs. Furthermore, they would be able to leverage research dollars and have access to FHWA research facilities. Finally, they would be able to reduce some of the guesswork of ATMS deployment. Based on the existing concept, FHWA is expecting a total of \$600,000 to \$750,000 per year for six years.

Discussion regarding the proposal included concerns regarding possible duplication of effort and the uncertainty of value to be added by the TMC Consortium. The MORIP team agreed that Jim Wright should draft a letter providing response and feedback to FHWA regarding the proposal of the TMC Consortium. This letter would include the efforts of the MORIP team and that part of the proposal (if any) on which the team might express interest in working.

Current Status: To date, a letter was sent to FHWA that provided feedback to the TMC Consortium proposal. Furthermore, FHWA has made many changes to the original proposal that probably address many of the concerns of the MORIP partners. Interest at the state level exists because of the proposal's potential as a benchmarking tool. With these changes and new developments, the MORIP team will reexamine the TMC Consortium proposal at the next meeting, which is tentatively schedule for February 2000.

Management and Operations of multimodal TMCs

Joy Dahlgren, California Partners for Advanced Transit and Highways (PATH)

The MORIP team discussed the merits, benefits, and feasibility of establishing a multiagency cooperative agreement regarding the operation of a TMC as a system. In Texas, the multiagency operation is accomplished by placing all the partner agencies in one central location. However, in California, this strategy is not always possible, so the linking of the various agencies is virtual rather than actual. Thus, the goal of the discussion was to go beyond information sharing and the identification of issues. Rather, the intent was to scope out potential research activities while focusing on near-term applications and those issues of mutual interest.

With respect to a multimodal TMC, the benefits of such an operation are varied. Such an arrangement works to establish a more effective management of all transportation systems. It balances traveler demands and facilitates better incident response. Furthermore, it leverages existing investments and creates a synergy regarding available transportation technologies. However, such a centralized operation is not always feasible. Institutional and jurisdictional barriers often exist along with the difficulty of creating and sustaining partnerships. Also, partnering agencies must make a long-term commitment to operations and maintenance of the system, and such centers often require a large capital investment with concrete information regarding the return on that investment.

Additional positive results emerge from a multimodal TMC. Primarily, a multimodal TMC provides the opportunity to develop a number of partnerships, including public/private,

public/public, and public/academia partnerships. Furthermore, the concept demonstrates the public sector's response to current and emerging transportation issues. A regional intermodal operational concept facilitates the cooperative management of transportation operations through a regional intermodal transportation management network. Modal operations to include are traffic management, transit management, traveler information management, incident response management, and commercial vehicle operations management. Inclusion of these operations, whether initially or once successful cooperation is proven, works to ensure a multimodal system that meets the needs of all users.

Information and Experiences

The discussion of the group centered on the benefits and interest of research in the multimodal TMC arena. The concept of a multimodal TMC is a complex issue. While it is ideal to involve all agencies in the operation of the center, having a large number of agencies with different agendas, including multiple law enforcement jurisdictions, can make cooperative efforts difficult. The number of partners involved should be carefully considered. Furthermore, it is important to listen to the various agencies to gain an understanding of their problems and concerns.

One important factor that agencies should consider is the leveraging of resources, which is also a way to foster cooperation. Partnering agencies can gain through the combination of resources. However, it is important that each agency gains what it needs from the partnership. A second factor to consider in the multimodal TMC equation is the interaction and familiarity of the players. While face-to-face operations in the same facility can work to break down barriers, such scenarios are not always feasible or practical. Thus, agencies must ensure that interactions between all participating agencies are facilitated on a regular basis to foster trust and cooperation. Communication is the key to cooperative success. Each urban area is different, so the nature of these interactions may also vary accordingly. One issue that must be resolved is determining what needs to be coordinated and communicated between the partnering agencies to arrive at an effective and efficient multimodal TMC.

Action Items

The MORIP team determined that a task list is needed to map future efforts regarding multimodal TMC research. Furthermore, a beneficial exercise would be to document the experiences of existing TMCs and share that information with other agencies considering such a system. As a result, two action items emerged from this discussion. First, it was determined that Joy Dahlgren would prepare a proposal for the next MORIP meeting that lists in detail the tasks of a multimodal TMC and presents a method to capture the experiences, lessons learned, user results, and other facets of a multimodal TMC. Second, the group agreed that TTI should develop a white paper that documents the Houston experiences to date.

Current Status: To date, the proposal is under development and should be ready for distribution to the MORIP team prior to the next meeting, which is tentatively scheduled for early February 2000 in Seattle, Washington. Also, staff at Houston TranStar have been interviewed and the

white paper on the Houston experience has been completed. It is anticipated that paper will be distributed to the MORIP team prior to the next meeting.

Proposal Discussion – “Detectorization for Support of System Performance Measures”
Christopher Poe and Shawn Turner, TTI / Wil Recker, UC Irvine

Christopher Poe presented a proposal that Wil Recker of University of California-Irvine (UC-Irvine), Shawn Turner of TTI, and he developed. The primary focus of the proposal was to develop improved sensor/detector designs to support transportation performance measures. The proposal did not call out specific data elements that will be collected using various sensors/detectors, but it is clear from previous research that travel time is a basic quantity of many recommended transportation performance measures. The representatives from each of the states agreed with the problems as stated in the proposal and agreed that this was a critical area of research.

There appeared to be less of a consensus on how to address these sensor/detector needs, as well as the degree to which they are currently being researched. A Texas Department of Transportation (TxDOT) representative noted that there were several ongoing TxDOT research projects related to sensors/detectors as well as others related to performance measures. Representatives from other states also discussed the best ways to accomplish the research objectives without significantly duplicating other recently completed nonintrusive detector studies.

The MORIP team identified a number of action items resulting from the proposal discussion. First, it was determined that a summary of detector research being undertaken by Texas and California should be prepared for comparison and dissemination. Furthermore, this research should be mapped to the proposal to ensure that it does not duplicate efforts currently under way. The mapping exercise can also help clarify where the proposed sensor/detector study can contribute the most. The detector proposal should be revised to reflect the discussion that took place during the presentation. The proposal should incorporate related research and use it to illustrate what already exists, gaps in the research, and the direction the proposal should go. The proposal would then be circulated among the MORIP team for comment.

Current Status: To date, the summary and mapping exercises have been completed and the proposal is under revision. It will be revised as appropriate and circulated among the MORIP team for comment prior to the next meeting.

Summary

As illustrated by the previous sections, MORIP is a forum for peer-to-peer exchange between researchers and practitioners in the partnering states. This exchange works to assess best practices, share lessons learned, and disseminate pertinent research findings on ITS deployment. By sharing this knowledge, participating states can gain useful deployment practices that will help current ITS deployment operate more efficiently and assist in planning for new

deployments. These meetings also assist in forming new alliances to leverage research resources. It is hoped that the efforts of these states can work to identify critical research agendas regarding ITS that will enhance deployment and operation while maximizing the benefits of shared resources and collaborative efforts.