Session Two
Presentation of ITMS White Papers

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What is ITMS?

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I would like to thank Les Jacobson for his assistance as a co-author of this paper. The ISTEA and the Clean Air Act Amendments have provided needs and challenges for close cooperation between governmental agencies within urban metropolitan areas. Further, the predictions for increasing congestion support this need for cooperation between city, county, state, and federal agencies. Studies have shown that if nothing is done to relieve congestion, delay on freeways will increase by approximately 430 percent within 20 years and delay on city streets will increase by approximately 240 percent.

During the 1970s and early 1980s, TSM projects improved traffic operations considerably, even though many were provided only on a piecemeal basis. During the 1980s, however, congestion began to increase significantly. Today's traffic and transportation requirements challenge agencies to view the transportation network as one system and to begin integrating many aspects of the urban transportation system. It is necessary to view the transportation network as one system and to bring together and coordinate as many aspects of transportation management as possible.

Further, the opportunity to develop integrated traffic management systems is with us at present. Many systems developed under the federally-funded TOPICS program for improving traffic operations are becoming obsolete. Also, developments in automating traffic management for public transportation have increased significantly, providing further opportunities to bring transit within an integrated system. Communication capabilities and systems have improved. Telecommuting, through the use of satellite offices, makes it easier to route traffic over short distances. All of these elements, and others, make this an opportune time to develop ITMS.

ITMS brings together all aspects of transportation management within a community. We often think of ITMS as coordinating hardware with software elements, traffic signal systems with freeway management systems, and motorist information systems. These are all parts of ITMS. However, they are not the only elements of ITMS. In order to carry out ITMS as a coordinated operating system, it is necessary to bring together all aspects of traffic management. These include the following four elements: an integrated approach to transportation management, resource integration, sharing information, and integrating hardware and software systems.

The way in which we view the transportation system is one of the critical elements of the ITMS concept. Everyone involved must believe that the entire metropolitan network will function as a single system. This includes administrators, managers, planners, traffic and transportation engineers, and the operators of these systems. All of these people and their agencies must work together, cooperate, and support each other for a successful program. Institutional issues between these groups must be addressed and overcome.

The integrated approach to transportation management draws together all efforts to create a balanced system. For example, when congestion is severe, the demand can not be accommodated with only modified control strategies. Motorists must be encouraged to change routes, change modes of travel, or change travel times. Assistance must also be provided to motorists when incidents occur and accurate information must be provided to other motorists on the facility. Further, if motorists are informed, they must be able to change routes and have adjustments made to traffic signals and freeway traffic controls for rapid movement to their destination.

Research also represents an important part of the integrated approach to transportation management. Research will become even more important as we move forward with the development and operation of ITMS. Research is needed in all phases of ITMS and will play an important role in solving problems that will emerge as we move forward with development. Research feeds design and implementation. Design and development in turn provide input for future research.

Training is another important area to be addressed in implementing ITMS. Training is needed to ensure that the results of research studies are properly implemented and that systems are properly designed, operated, and maintained. Ongoing training will be needed to keep pace with changing technologies.

The second area is resource integration. Resource integration involves the integration of facilities, personnel, and financing. These resources apply to combined planning, development, and use of HOV lanes, integrated communications, and traffic control centers. Resource integration will reduce the lifetime costs for all systems and provide optimum pay back.

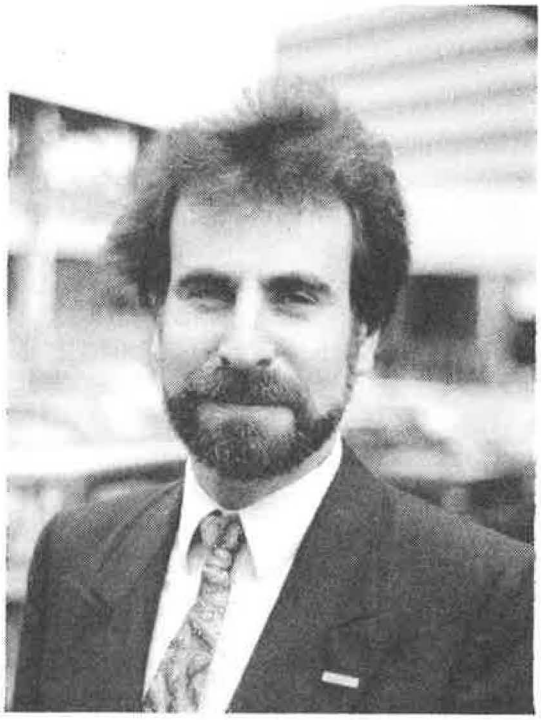
The coordination of the transportation system in Houston provides one example of resource integration. A regional freeway corridor traffic management system has been designed for the Houston/Galveston metropolitan area. Each freeway corridor is designed for the use of one fiber optic cable as a "backbone" for a communications system which will serve the HOV and freeway general purpose traffic lanes along with the frontage roads and freeway corridor street network. The concept has also been designed for one traffic management center which can house the city, county, state, and public transportation personnel. Also, the financing of the project is being coordinated to provide reduced costs to the taxpayer.

The third area is information exchange. It is imperative that agencies share information. We must develop and maintain communication, cooperation, and coordination between all agencies. This can be carried out through periodic meetings, and the utilization of management teams to permit engineers, planners, enforcement personnel, and other groups to share information and jointly solve problems. Further, historic traffic and accident data must be shared to develop an ongoing traffic data base for making system improvements, and real-time information must be shared to permit rapid response during incidents, recurring congestion, and changes in traffic patterns.

The fourth area is the traffic management system. Traffic management systems must be designed to ensure that traffic leaving one traffic control system can be accommodated by the adjacent system. Also, motorists must be given accurate travel information so that they can make proper decisions. This can be done through the integration of the freeway, HOV, arterial street, travel information, incident management, and IVHS systems. ITMS systems need to be capable of adding new emerging

advanced technologies. Thus, we need to design our systems today with the future in mind.

In closing, I think the integration of traffic management systems is a must today. ITMS will be increasingly important in the future. Communication, cooperation, and coordination will be required to accomplish this. All agencies must focus on developing and operating these integrated systems in a coordinated and comprehensive manner. These agencies and their personnel must think of ITMS as one system. A balanced system must focus on the four elements I have discussed: integrated transportation management, resource integration, information sharing, and integrated traffic management systems. We must begin today to develop ITMS to reduce congestion, emissions, fuel consumption, and accidents.



Institutional Issues of ITMS

Matthew Edelman
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I would like to introduce the co-author of this white paper, Sergeant Paul Einreinhofer from the Bergen County, New Jersey Police. I think the fact that Paul is a co-author shows that local agencies can think in a regional perspective when dealing with ITMS. To twist around a much quoted quote, he acts locally and thinks regionally.

I would like to use TRANSCOM and the New York/New Jersey area to give you an example of why we need to think regionally in the development and operation of ITMS. I will use the example of a trip from Rockland County in northern suburban New York to Queens in NYC to show this.

To make this trip you would first use the New York State Thruway, owned by the New York State Thruway Authority, with incident response provided by the New York State Police, and pay a $.40 toll at the Spring Valley toll barrier. Second, you would use the Garden State Parkway owned by the New Jersey Highway Authority, with incident response provided by the New Jersey State Police and pay a $.35 toll at the Hillsdale toll barrier. Third, you would get on Interstate 80, owned by New Jersey DOT, where incident response is provided by the New Jersey State Police. Fourth, you would use the New Jersey Turnpike Authority's Eastern Spur, paying a $.45 toll at Interchange 17W. You would then get on Route 495 East, a New Jersey DOT facility, where incident response is provided by a combination of local police. At the Lincoln Tunnel, operated by the Port Authority of New York and New Jersey, you would pay a toll of $4.00 (round-trip) and enter into NYC. Once in Manhattan, you are on streets under the jurisdiction of the New York City Department of Transportation. Once you cross Manhattan, you go through the Queens Midtown Tunnel, which is run by the Triborough Bridge and Tunnel Authority, and pay a $2.50 toll. This provides access to the Queens Midtown Viaduct and Long Island Expressway, where incident response is provided by NYCDOT and the New York City Police Department, and the highway is owned by the New York State DOT.