

Mr. Rayman concluded by emphasizing an important point about integrated traffic management systems. He noted that it isn't just systems working together, it is the people who must work together.

### **Houston ITMS**

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Mr. Kosik provided a brief case history of a traffic management project on I-10 West in Houston. He used the project as an example to discuss some of the lessons that have been learned in Texas. The highlights of his presentation are summarized below.

- The project involved the instrumentation of a 6-mile stretch of HOV lane for surveillance, communications, and control. Design work for the system began in 1982. In 1984, the project was let and computer equipment was purchased. Construction was substantially complete in 1985, but the system was not put into operation until 1988.
- The system has an assortment of surveillance and control devices, including closed-circuit television cameras, inductive loop detectors, changeable message signs, lane control signals, and an on-site control center. The system uses a distributed computer architecture, and the communications are by standard coaxial cable.
- One of the biggest problems with the project was the fact that it was designed by a committee. It was a large group that included TxDOT, Houston METRO, the city of Houston, Harris County, the Texas Transportation Institute, the Houston-Galveston Area Council, and consultants and suppliers. Because of the size and diverse nature of that group, resolving detailed design issues was very difficult.
- The project was initiated because TxDOT was planning to reconstruct I-10. However,

there was a funding shortage in the department at that time. Houston METRO had funds, and they agreed to help finance the reconstruction, an HOV lane, and the instrumentation.

- A good working relationship was developed between TxDOT, METRO, and the other participants. This was built on the previous relationships between METRO and TxDOT, which were formed during the joint implementation of the HOV lanes in the Houston area.
- Many of the problems that had to be overcome were design differences. Some specific issues that the design committee struggled with were the control system architecture, the joint chairmanship of the committee, and a proposed fast-track construction schedule that had to be coordinated with other construction activities. Developing the specifications was also a major issue.
- Some other problems were more typical of traffic management projects. For example, there was not enough consideration given to the operation and maintenance of the system during its design, the project inspectors were not familiar with either the technology or the contractors, and there were weather-related delays. Also, the contractors should have been given some flexibility to improve some of the designs if possible.