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Final Report

ADVANTAGE I-75 CASE STUDY

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This operational test case study is one of six performed in response to a Volpe National Transportation Systems Center technical task directive (TTD) to Science Applications International Corporation (SAIC) entitled, "IVHS Institutional Issues and Case Studies." ADVANCE, Advantage I-75, HELP/Crescent, TRANSCOM/TRANSMIT, TravTek, and Westchester Commuter Central were the subjects of the six case studies. The case studies were performed to determine (1) institutional issues and legal impediments encountered during the operational test, (2) the point in life cycle of the operational test at which the impediments occurred, (3) how project partners and participants overcame impediments, and (4) lessons that were learned that are applicable to future deployments of IVHS products and services. This case study also describes the operational test and documents its history. Interviews for this case study were conducted during the summer of 1993.

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Final Report

IVHS Institutional Issues and Case Studies

Advantage I-75 Case Study Report

Contract DTRS-57-89-D-00090

Technical Task Directive RA 3078

Prepared for
Volpe National Transportation Systems Center

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Preface

This case study on the Advantage I-75 operational field test is one of six performed in response to a Volpe National Transportation Systems Center technical task directive (TTD) to Science Applications International Corporation (SAIC) entitled, "IVHS Institutional Issues and Case Studies." Other case studies were performed on the following projects: ADVANCE; HELP/Crescent; TRANSCOM/TRANSMIT; TRAVTEK; and the Westchester Commuter Central. SAIC conducted interviews and case studies of the ADVANCE, HELP/Crescent, TRANSCOM/TRANSMIT, and Westchester Commuter Central projects, and is leading the production of a separate "Analysis and Lessons Learned" report that synthesizes results from all six case studies. Cambridge Systematics, Incorporated (CSI), SAIC's primary subcontractor for this TTD, assisted with interviews of ADVANCE personnel and independently conducted interviews and case studies for the Advantage I-75 and TRAVTEK programs. CSI is also assisting with production of the Analysis and Lessons Learned Report.

"Intelligent Vehicle-Highway Systems" (IVHS) is part of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 that formed the basis for the Department of Transportation's (DOT) initiative to solicit proposals for operational field tests of IVHS products and services. The goals of the DOT IVHS Program are:

1. To improve the safety of surface transportation.

2. To increase the capacity and operational efficiency of the surface transportation system.

3. To enhance personal mobility and the convenience and comfort of the surface transportation system.

4. To reduce the environmental and energy impacts of surface transportation.

5. To enhance the present and future productivity of individuals, organizations, and the economy as a whole.

6. To create an environment in which the development and deployment of IVHS can flourish. (DOT, 1992)

In response to the ISTEA's emphasis upon meeting both the technical and non-technical challenges toward achieving the above goals, the Federal Highway Administration developed the "1992 Intelligent Vehicle Highway Systems Institutional Issues (Non-technical Constraints) Program." As part of this program, the Volpe Center TTD has initiated the performance of six case studies with the primary purpose of answering four questions:

1. What institutional and legal impediments were encountered establishing partnerships and deploying IVHS services and products during the operational test?

2. Where in the life cycle of the operational test did these impediments occur?

3. How were these impediments overcome?

4. What lessons were learned in dealing with these impediments that can be applied to future deployments of IVHS products and services?

The secondary purpose of the case studies is to describe the operational test and document its history.

Information to support the development of the case studies included available documents on each program as well as interview notes and summaries based on an interview protocol especially created for this contract. A detailed description of the standardized procedures and methods followed during the conduct of the interviews is documented within a "Detailed Field Guide," produced as a separate deliverable of this TTD. A list of agencies interviewed is provided as Appendix A, and a bibliography of key references to the project being studied is provided as Appendix B.

Unlike many case studies where projects have been deployed and positive and negative lessons were learned after the total success of the system could be assessed, this case study report is on a project that is still in the development phase. Therefore, interviews represented a snapshot in time during the progress of the project, and issues identified at the time of the interviews may only be temporary.

Interviews for this case study were performed during the summer of 1993 and attempted to provide a balanced presentation of the issues as portrayed by those interviewed. An attempt was made to use corroborating stories as evidence of the accuracy and/or significance of issues raised. However, as with any report heavily dependent upon interviews, the accuracy and completeness are only as good as the accuracy and completeness of personal accounts told to and recorded by the interviewers. To help ensure accuracy and a balanced view of the issues, the Advantage I-75 program manager received a draft of the case study report for his project and was given the opportunity to comment. These comments were received and the author has responded to them in this version. Nevertheless, the author takes sole responsibility for the accounts portrayed in the case study reports.

As with any case study or lessons learned report, authors are subject to criticism that their evaluations either seek out the negative aspects with little emphasis on positive lessons, or are incorrect, biased, or lay blame. It is with great sensitivity to these issues that this case study report was written. Postured to identify issues, the authors acknowledge the fact that interviews were oriented toward finding problems; however, some attempt to identify positive lessons was also made, and so reported. The intent of the authors was to avoid inaccuracies, bias, or blame, and to provide helpful hints to others who are about to embark on similar initiatives.

Separate from this case study, the "Analysis and Lessons Learned Report" will provide conclusions and observations about the institutional issues identified across the six case studies. It will also provide lessons that can be applied to the deployment of IVHS products and services and recommendations regarding: new procedures and programs; the relative magnitude of barriers and respective priorities for their amelioration; and, training requirements for those entering into IVHS programs.

Acknowledgements

Of special note is the expert consultation and review provided to this effort by a specially formed, "Institutional Barriers Advisory Group." This group, chaired by Mr. John Mason of SAIC, consisted of Dr. Christopher J. Hill of Castle Rock Consultants, Mr. Lance Grenzeback of Cambridge Systematics, and Mr. Kenneth Orski of Urban Mobility Corporation. The contributions of this group added greatly to the insight of the interviewers and writers.

The authors would gratefully like to acknowledge the assistance rendered by the Advantage I-75 operational field test program manager and the program's public and private sector partners. Also, special thanks go to all of those who participated in the interview process and contributed such thoughtful insights that can be valued by others facing similar tasks. Finally, many thanks go to Mr. Allan DeBlasio from the Volpe Center for his guidance, understanding, and support.

1.0 Summary

The Advantage I-75 project was established as an international public/private partnership to provide a testbed for deploying advanced IVHS technologies designed to increase transport efficiency, improve safety, and enhance mobility along the 2,200-mile Interstate 75. Using the Mainline Automated Clearance System (MACS), trucks equipped with transponders and proper documentation will be able to travel any segment along the Ontario-Florida corridor at mainline speeds with no more than one stop at an enforcement station.

Government participants in the project include the states of Florida, Georgia, Kentucky, Tennessee, Ohio, and Michigan; the province of Ontario, Canada; the Federal Highway Administration (FHWA); and Transport Canada. Industry partners include the American Trucking Associations, the National Private Truck Council, the National Automobile Transporters Association, the Ontario Trucking Association, state trucking associations along the corridor, and individual carriers (such as the United Parcel Service) who travel the corridor. The Kentucky Transportation Center at the University of Kentucky serves as the program's research and operational center on behalf of the lead state, Kentucky.

To understand the institutional issues encountered in Advantage I-75 as well as the project's history, milestones, and contributions, project documentation was reviewed and individual or small group interviews were conducted with a representative sample of people knowledgeable about the Advantage I-75 project. Based on the recommendations of a large number of potential interview candidates, the 14 interviewees were selected to ensure coverage of both the public and private sectors, various project roles, and involvement at all project stages. The interviews, which followed a structured protocol, collected quantitative and qualitative data which were summarized, integrated, and interpreted; these data are the primary source of the opinions and perceptions that form the body of this report.

Most of the interviewees were the leaders, initiators, and champions of the Advantage I-75 project who have been with the project since its inception and are extremely knowledgeable about the issues that have been encountered since the planning phase, and how they have been resolved. Their roles have included serving as the program manager, policy committee members, trucking association representatives, and contractors, as well as providing funding and project oversight.

The project's development, goals and objectives, management structure, and initiators and champions, as well as the selection and involvement of sponsoring agencies are described in Section 2.0 of this report, along with a detailed description of the operational field test.

Section 3.0 of this report summarizes the non-technical impediments that have been faced by the project or which are affecting the project at this time. The most significant issues identified were as follows:

- Difficulties in establishing an effective working relationship between the public sector (as a contracting entity) and the private sector system integration contractor;
- Internal communications problems within the FHWA and between the FHWA and the project partners and staff;
- Conflict over the level of effort to be devoted to the evaluation, and who should conduct it;
- Problems with defining the goals, roles, and responsibilities of the project with respect to the FHWA;
- Problems reaching agreement among the states on an acceptable regulatory and enforcement protocol; and
- Overcoming skepticism on the part of both public and private sector participants.

Most of these issues caused delay to the project, either directly or indirectly, by creating friction or confusion that slowed the decision-making process. For the most part, these issues have been resolved, but some are still matters of concern to the project.

A variety of strategies were adopted to address these issues, with some being more effective than others. Examples of some of the strategies employed for the major issues include the following:

- Contractor relationship problems:

  Problems were evident almost from the beginning of the systems integration contract. Project personnel at first tried to work around the problems, based on their hope that the performance of the contractor would improve. Eventually, the lack of responsiveness by the contractor led to the issuance of a stop work order by the project. In order to continue the contract, the contractor pledged a new commitment to the project, including the installation of a new project team. Some of the interviewees do not consider this issue resolved.

- Internal and external FHWA communications problems:

  The project's communications protocol required that information be transmitted to FHWA headquarters through the division and region offices. Headquarters wanted more timely and more detailed information, while the field offices

wanted headquarters to trust their judgement as information "filters." This problem predates the Advantage I-75 project and was not directly addressed. However, the MACS FAX, which was developed by project staff as a timely means of communicating important information to all project parties, indirectly addressed this problem.

? Conflict over the scope and conduct of the evaluation:

FHWA headquarters personnel wanted to conduct a more extensive data collection and evaluation effort than the project had originally intended, and wanted an evaluation conducted by an independent party to remove the appearance of bias. There was concern that expanding the scope of the data collection effort and hiring a third party would increase the costs beyond those originally projected. To resolve this issue, it was agreed that the FHWA would pay the additional costs and that a non-profit institution would be selected to conduct an outside evaluation in addition to the internal evaluation that would be done by the Kentucky Transportation Center.

? Problems with defining the appropriate goals, roles, and responsibilities for the FHWA:

The original goal of the project was to use available technology, not to set a technology standard. When reviewing the draft technology procurement specifications, however, the FHWA was adamant about requiring a higher level of capability than was currently available. A compromise was reached to ensure that the vendor would produce a minimum acceptable level of capability but would get extra credit for delivering more advanced capability while remaining within the original cost.

? Reaching agreement among the states on a regulatory and enforcement protocol:

Each of the partner states has different statutes and operating procedures for motor carrier regulation and enforcement. There was extensive debate over how to accommodate the right of each state to enforce its own laws while finding sufficient common ground for the project to proceed. By focusing on the project's overall goals instead of each participant's parochial interests, a compromise was reached, which allows a truck meeting the criteria of the state in which it entered the corridor to be allowed to travel through the other states. However, this issue continues to be revisited.

- Overcoming motor carrier skepticism:

  Many of the project's motor carrier participants initially feared that the Advantage I-75 program could be a step on the road to a national weight-distance tax, were concerned about potential requests for information they considered to be proprietary, and questioned the real potential of the project to produce benefits. Significant amounts of education and persuasion were necessary to bring the skeptics on board and demonstrate the benefits of industry participation in this project.

The interviewees also were asked to project which issues they expected to be the most critical in future project phases. They believe that the most critical issues are likely to be as follows:

- Interstate communications, cooperation, and progress towards regulatory uniformity;
- Market uncertainty regarding the public's willingness to pay for the services offered by Advantage I-75; and
- Continuing federal support of the project as a national priority.

More detail on these issues may be found in Section 4.0 of this report.

In summary, based on the Advantage I-75 experience, the most important lessons learned are as follows:

- Public/private partnerships require building trust, understanding, commitment, and communication;
- Securing upper management buy-in is critical to success;
- Complex projects require flexibility by all parties;
- Demonstrable benefits are critical to participation, and participation by public and private sector organizations (e.g. state and federal regulatory agencies, motor carrier associations, and individual carriers) is critical to success;
- Mixed messages create confusion, tension, and friction; and
- Efficiency is important and requires strong leadership; it also requires having the right people making decisions and establishing an efficient decision-making process.

These lessons are discussed in detail in Section 5.0, along with recommendations for addressing the types of institutional issues encountered in this project.

2.0 Project Description

2.1 Project Background

Project Development

The idea of applying IVHS technologies to motor carrier operations in the I-75 corridor was initiated in March 1990 as a result of discussions among representatives of the FHWA, the Kentucky Transportation Cabinet, and the Kentucky Transportation Center (the Center) in which they discussed their mutual interest in establishing an IVHS project in this corridor. Advantage I-75 was one of a number of IVHS concepts developed by the Center at the request of the FHWA. The original aim of the proposed concept was to allow transponder-equipped and properly documented trucks to travel any segment along the entire length of I-75 at mainline speeds with no more than a single stop at a weigh/enforcement station. The intent was to use existing technology so that the project could get up and running quickly and begin to demonstrate its potential. Refinements were made to the concept, management plan, and activities timetable until the first meeting involving government agency and motor carrier representatives from the corridor states (plus Ontario) was held on May 10, 1990. Plans were then made for a conference to gauge the level of interest of potential partners as well as the feasibility of the concept.

The conference was held on June 28-29, 1990 in Lexington, Kentucky, with financial support provided by the FHWA. Representatives were solicited prior to the conference for a policy committee and three working groups (on project management, technology, and finance) to participate in the process of evaluating the concept's feasibility and its application. Each working group had a secretary and facilitator; their efforts were documented in reports.

As a result of the enthusiasm for the concept demonstrated at the conference, a project proposal was drafted in the summer of 1990 by the Center with assistance from the states. The conference task force reports were used to build the proposal. The proposal was submitted to the FHWA in late 1990 and was approved for IVHS operational test funding as a Commercial Vehicle Operations (CVO) Project by the FHWA in 1991. The project timetable is shown as Figure 1.

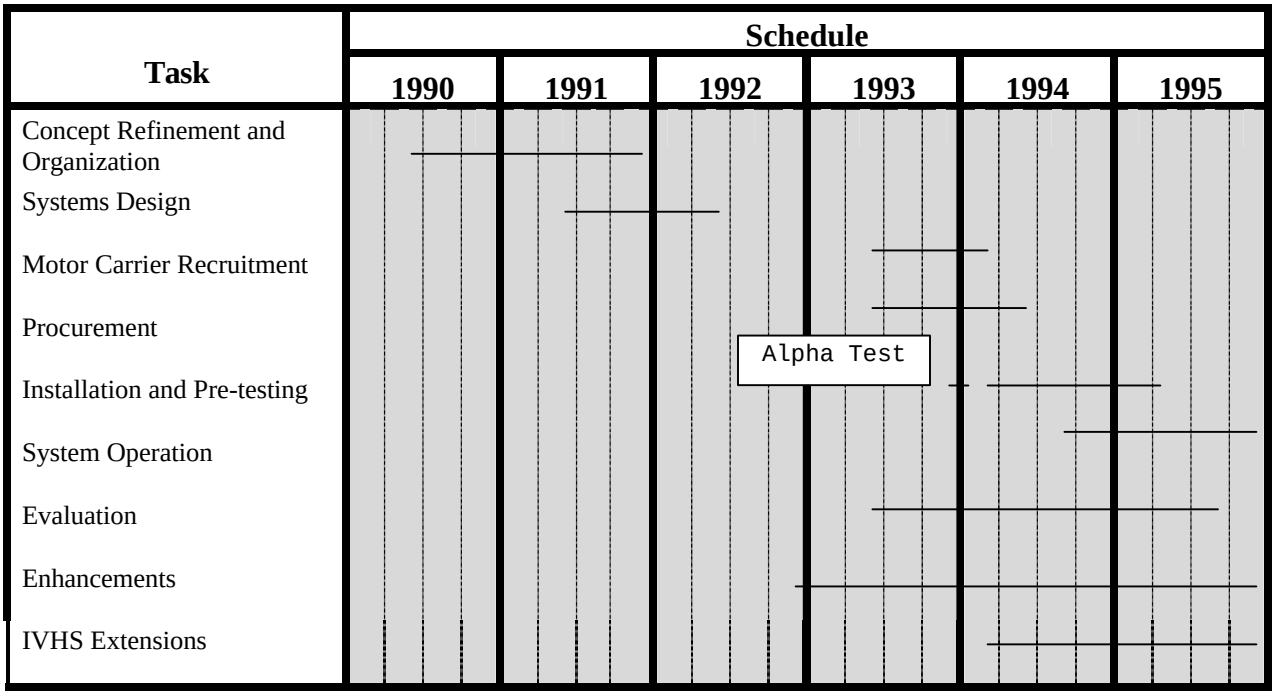

Figure 1. Advantage I-75 Timetable

Goals and Objectives

The initial phase of Advantage I-75 is directed toward improving the efficiency of movement of trucks operating in the I-75 corridor. The original goal of the proposed Advantage I-75 concept was to allow transponder-equipped and properly documented trucks to travel any segment along the entire length of I-75 at mainline speeds with no more than a single stop at a weigh/enforcement station. To achieve this goal, the project has the following objectives:

- Work within the existing institutional framework to the maximum feasible extent;
- Use off-the-shelf technology meeting the most appropriate "open" specifications as are available at time of procurement;
- Work towards immediate implementation;
- Require no changes in state statutes; and
- Share funding among the participants.

Management Structure

The Advantage I-75 program is managed by a Policy Committee, which provides overall guidance. It has 23 members representing the partner organizations. Committees and specific task forces, such as the Evaluation Task Force and the Procurement and Contracts Task Force, are formed to deal with specific issues. Staff support is provided by the Kentucky Transportation Center (the Center), under the auspices of the lead agency, the Kentucky Transportation Cabinet.

The Kentucky Task Group was established by the lead state to serve as the day-to-day sounding board for work done by the Center and the project's contractors. The Task Group includes representatives from functional areas within the Kentucky Transportation Cabinet that were affected by the proposed project planning, vehicle regulation, vehicle enforcement, and computer systems; other involved Cabinet organizations include fiscal management and the general counsel's office.

Initiators/Champions

Leon Larson (FHWA Region 4 Administrator) and Calvin Grayson (Director, Kentucky Transportation Center) were named by the interviewees almost without exception as the initiators of Advantage I-75. Those listed most frequently as continuing champions of the project, working to ensure its success, were Gene Bergoffen (NPTC), Don Kelly (Kentucky Transportation Cabinet), Calvin Grayson, Leon Larson, and Kevin Sondrup (United Parcel Service).

Sponsoring Agencies and Partners

Government participants in the project include the Departments of Transportation of the states of Florida, Georgia, Tennessee, Ohio, and Michigan; the Kentucky Transportation Cabinet; the province of Ontario, Canada; the Federal Highway Administration (FHWA); and Transport Canada. Industry partners include the American Trucking Associations, the National Private Truck Council, the National Automobile Transporters Association, the Ontario Trucking Association, state trucking associations along the corridor, and individual carriers who travel the corridor. The Kentucky Transportation Center at the University of Kentucky serves as the program's research and operational center on behalf of the lead state, Kentucky.

Participant Selection

Participants were selected to achieve a balance of interests by including representation from each state and province physically located in the corridor, plus state and national motor carrier associations and individual carriers with vested interests in the conduct of a highway project aimed at motor carrier movements.

Level of Involvement

During the operational test phase, the participants with the highest level of involvement are considered to be: FHWA HQ, responsible for the evaluation of the operational test; the FHWA Regional and Division Offices; the Kentucky Transportation Cabinet; the Kentucky Transportation Center at the University of Kentucky; the United Parcel Service; and, the National Private Truck Council. Should this project reach the commercial deployment phase, it is anticipated that these organizations will continue to be the most involved.

Risks and Benefits for Project Partners

There are potential risks and benefits for each of the organizations involved in the Advantage I-75 project. For the state agencies, the risks are that resources will be committed to the project with no way to recoup the investment if the project fails to reach commercial deployment, and some concern that enforcement effectiveness may be reduced. There also is the risk that states may withdraw from the project - without at least three contiguous states, there would be no point to becoming operational. The potential benefits for the states include reduced weigh station congestion, improved safety and productivity, experience with new technology, better traffic flow, lower future enforcement costs, and better information on which to make future transportation investment decisions. In addition, the states stand to gain some national credibility and recognition if the test is successful.

The FHWA runs a number of risks at all levels of the organization. There are risks that if the project fails, or never reaches commercial deployment, that the FHWA's reputation may suffer and that states may be discouraged from participating in other operational tests; that the wisdom of running "another preclearance program" could be questioned; and that the motor carrier industry might be alienated by this project. There also are risks that pushing too hard by headquarters might alienate its field offices, as well as the participating states. The potential benefits of the project to the FHWA also are viewed as substantial: the opportunity for the FHWA to demonstrate its ability to use cutting-edge technology to help achieve its broad goals of increasing safety and mobility; to learn first hand about difficulties arising from the lack of uniformity among state regulatory and enforcement procedures; and to secure more resources to expand IVHS-related projects as a result of the demonstrated success of this effort.

Involvement in a project with national exposure is a benefit that may add credibility to the Kentucky Transportation Center's reputation. Their risk is that this project is outside the mainstream of regular university research activities and that the devotion of staff resources to this effort could be questioned.

The motor carriers balance the prospect of greater productivity with their fear of greater regulation, compounded by the fact that the lead state, Kentucky, is a weight-distance tax state. The motor carrier associations run the risk of alienating some of their members through their participation in this project, but also stand to increase their profile and visibility through their association with a successful project.

2.2 Operational Field Test Description

The Advantage I-75 project encompasses the entire 2,200-mile I-75 corridor, which runs from Florida up through Georgia, Tennessee, Kentucky, Ohio, and Michigan through the Canadian province of Ontario (where it is designated Highway 401). The Mainline Automated Clearance System (MACS) is the first project of Advantage I-75.

Using the MACS, AVI transponder-equipped and properly documented trucks will be able to travel any segment along the I-75 corridor at mainline speeds with no more than one stop at an enforcement station. Trucks that are certified legal at an initial weigh station will be allowed to bypass subsequent weigh stations during a single trip, thus reducing delays for motor carriers. Pre-clearance at downstream stations will be based on size and weight measurements taken upstream at the initial weigh station and on computerized checking of operating credentials in each state. By automating weight and credentials screening, the MACS will increase the efficiency of state truck monitoring operations, thereby freeing enforcement personnel to concentrate on safety and other related activities.

The system will encompass technologies and functions for automatic vehicle identification (AVI), scale system interfaces (both static and weigh in motion, or WIM), automatic vehicle classification (AVC), driver pre-clearance notification, computer and communications networking, data base management, weigh station operator interfaces, and truck driver compliance verification. The entire decision logic for weigh station processing will reside in the weigh station infrastructure under MACS. Currently, it is anticipated that 30 of the 36 weigh stations along the corridor will participate in the MACS (22 in the United States and eight in Canada); at least three sites will be mainline WIM.

The Advantage I-75 program began in 1990. Contracts have been awarded for system design, system integration, and for the procurement of AVI transponders. Three test sites will be run as a pilot for three months in the fall of 1993, after which they will be shut down and the system design revisited. It is anticipated that the MACS will be fully operational in late 1994. The Advantage I-75 program costs through the two-year operational test are estimated to total approximately $12 million. The federal government (IVHS [50-60 percent] and other federal funds [20-30 percent] used for infrastructure expenses) is expected to provide up to 80 percent of this total. The remaining amount will be provided by the states and private sector (including the system integration contractor). The overall program costs may increase, however, depending on the accuracy of the estimated state-specific costs of building the infrastructure required to accommodate the MACS equipment at the weigh stations. The experience with creating this infrastructure at one Kentucky weigh station suggests that the actual costs may exceed the estimated costs.

3.0 Past and Present Institutional Issues

Most of the issues mentioned as the most important institutional concerns of the Advantage I-75 project were related to the project's organization and management. These issues manifested themselves in both the planning and design/development phases, and were perceived to be of roughly equivalent magnitude in both phases. Although the project is in transition between the design/development and implementation/test phases, no issues associated with the later phase were identified.

The issue that received the highest quantitative ratings of problems was public/private partnership. This issue was rated as moderate both in the planning phase (where it concerned public agencies and private trucking parties learning to work together on the Policy Committee) and in the design/development phase (where the interviewees perceived it as relating to working with the system integrator). The interviewees expected that the public/private issue would diminish over time to something less than a slight irritant. This was one of the few issues where there were a significant number of responses rating this as a critical issue that could stop the project. Despite a large number of issues raised in the qualitative responses, many of the issues in the organizational category received quantitative ratings indicating that they facilitated progress, rather than impeded it. This is consistent with the interviewees' general level of satisfaction with the project's organization and management.

3.1 Organizational Issues

Contractor Relationship Problems

The most frequently cited issue concerned difficulties with the project's systems integrator. A fixed price contract was let for the system integration services, with the state of Kentucky acting as the contracting agent for the project partners. Soon after the scope of work was made final in July, 1992, it became apparent that the working relationship between the project and the contractor would not be smooth.

Many of the early problems related to what each side believed to be in the contract's scope of work. The contractor was used to working in an environment where contracts were spelled out in precise detail, and where they would receive compensation for any changes in the original scope of work. The states, on the other hand, were not used to writing a contract to that level of specificity, and they approached the contracting process with a greater expectation of flexibility. Even after the contract was written, there were differences of opinion among the project participants over exactly what the contract said; some of this debate may have arisen because too few representatives of the project had actually read the statement of work before it was signed. A major issue of contention was whether or not the contract specified a particular

hardware and software configuration - both sides believed that the contract supported their positions.

In addition, it appeared that the contractor was not fulfilling its side of the agreement in several important aspects. For example, they did not establish an on-site presence or meet with the system designer, as they were required to do. In general, it was perceived that they were not taking the project seriously enough, meeting the schedule for deliverables, dedicating sufficient staff and attention to the project, or demonstrating an attitude of trust, cooperation, and commitment - they appeared to the partners to be more focused on the contract than on getting the job done.

It should be noted that from the partners' perspective, the Advantage I-75 system design contractor had performed successfully and developed an extremely good, very cooperative working relationship with the project partners during the planning phase. This may have exacerbated the situation that developed with the systems integrator from the project partners' point of view, because they were coming off such a successful experience. Many of the partners expressed regret that the systems design contractor had been precluded from bidding for the system integration job. This prohibition was established to ensure that the designer did not design a system that only the designer could produce.

The problems with the system integrator came to a head soon after the contractor delivered an admittedly late and inadequate functional requirements document (which was supposed to serve as the basis for developing technology procurement). Upon receipt of the document, the Kentucky Transportation Center complained to the state of Kentucky that the document was not useful, and that the contractor was asking for additional money. The state directed the Center to work things out as best they could with the contractor, but the problems, relating to both communications and substance, persisted. For example, the development of a system maintenance philosophy became a matter of contention. The contractor wanted the philosophy to be established by the Center, while the Center saw this as the contractor's responsibility. When the Center did develop a maintenance philosophy, the contractor complained that the required level of maintenance was too high for them to meet.

Various attempts were made by the lead state and the Center to communicate the seriousness of the situation to the contractor; eventually, these efforts involved high-level officials on the public sector side. Nevertheless, the problems persisted and resulted in a stop work order being issued on February 28, 1993.

The issuance of the stop work order was a major and unusual event - in general, states do not issue such orders because of their reluctance to become involved in contract-related litigation - but the Policy Committee, the Center, and the lead state believed that this was the only effective way to get the contractor's attention. Discussions about how to proceed were held with the contractor, as well as among the project staff and all the project partners. The contractor requested the opportunity to make a presentation at the Policy Committee meeting that had been called to resolve this issue. At the meeting, a high-level contractor official apologized and suggested that the company was willing to commit its own funds, as well as install a new dedicated project team, for the right to continue on the contract. The debate in the closed committee session that followed centered on whether it was better to continue working with

them or to absorb the costs of breaking the contract (which would include time lost on the project, the effort of starting a new procurement process and negotiating with other parties, and the additional funds required to cover the funds already sunk into this contract).

In the end, it was agreed to pursue negotiations on continuing the contract. Thirteen items were specified for negotiation, with the expectation that the matter would be resolved within two weeks. During the negotiations, the contractor raised two additional issues of its own: they did not want the contract to include a stipulation that the system work, and they wanted to be relieved of the requirement to post a performance bond. Agreement finally was reached on all items, including an acceptable clause stating that the system would work plus some relief on the performance bond, but it took three times as long as anticipated (i.e., six weeks instead of two weeks) to complete the negotiations.

The question of the contractor's performance and commitment remains an issue - some of the interviewees still do not consider this issue resolved and will not consider it resolved until a working system is delivered. Some estimate that the problems and their resolution probably cost the project a six or seven month delay, and heightened the partners' concerns over making appropriate contractor selections in the future. The hard line taken by the contractors during the negotiations led some to question their "good faith." It was generally agreed, however, that the new project team was a significant improvement over the original one, with greater dedication and a much better appreciation for the communication required in a project with a large number of partners, including many public sector parties.

The FHWA: Problems with Communications and with Definition of Goals, Roles, and Responsibilities

Communications problems within one of the project participants, the FHWA, as well as confusion over the appropriate roles and responsibilities for the FHWA, were cited as having had a significant impact on the project. Three levels of the FHWA were involved: headquarters, region, and division. Sometimes, it appeared that these groups were working at cross purposes; confusion over conflicting messages created tension among the project participants.

It appeared to many observers that headquarters had a different agenda than the field (i.e., the region and division). Part of this problem arose because of the timing of the project. When the original scope of work was being developed, headquarters did not have much involvement. At the time of the Advantage I-75 initial meetings, the IVHS program was evolving from very small beginnings into a much larger program. Mutual interest among the I-75 and the FHWA IVHS organizations led to a submission of an operational test proposal to FHWA Headquarters. Headquarters got more involved because the Advantage I-75 proposal was accepted for IVHS operational test funding. Consequently, there was a significant increase in interest in IVHS at the headquarters level, and this prompted their desire to increase their level of involvement.

As part of headquarters' involvement, they wanted more input in the direction of the project. In some cases, their desires conflicted with the original intentions of the project. For example, the project's originators never intended to use the project to set a technology standard rather, the intent was to use available, off-the-shelf technology. When the procurement specifications were drafted for the transponder, they were sent to headquarters for review. Headquarters' response was that the specified Type I transponder (i.e., a transponder that supports only the one-way transmission of an identifier or other fixed information from the transponder to the receiver), which was the simplest and most widely available, was outdated. Headquarters was adamant about including the more advanced Type II or Type III capabilities in the specifications. (Type II transponders support two-way data transmissions and, typically, a variable message component; Type III transponders support not only two-way data transmission but also electronic communication interfaces with external devices, such as on-board computers.) A compromise was reached to ensure that the vendor produced at least a Type I but would get extra credit for delivering a Type II or Type III while remaining within the original cost. Despite this change from the project's original intention, many agreed that using this project to "push the technology envelope" was appropriate.

Conflict Over the Scope and Conduct of the Evaluation

There was also conflict over the level of effort that would be devoted to evaluating the I-75 project, based in part on different perceptions of the project by the partners and by the FHWA. FHWA headquarters, in particular, sees the project as an operational test; from their point of view, operational tests are run in order to collect evaluation data. In contrast, the project partners tend to view the project more as a deployment with a strong potential for payback. The disagreement within the FHWA contributed to the general friction surrounding this issue, with the field offices generally more sympathetic to the states' position.

The original plan was to conduct a simple operational evaluation, focusing primarily on whether the system was working as originally intended. It also was assumed that the evaluation would be conducted by the Center. Headquarters, which is responsible for the evaluation and is very involved in the evaluation of all operational tests, wanted a more extensive evaluation that would make it possible to compare the results of Advantage I-75 with those of other IVHS operational test projects. In addition, based on an FHWA policy formulated to remove the appearance of bias, FHWA headquarters wanted an evaluation to be conducted by an independent party in addition to the internal review. This required a different scope of data collection than had been planned. Both expanding the data collection and hiring a third party would increase the evaluation costs beyond those originally projected. [This issue was resolved when headquarters agreed that the FHWA would pay for all the evaluation costs beyond those in the original budget, and through the selection of a non-profit institution from outside the I-75 corridor states to develop and conduct an independent evaluation; the Center will also conduct its own evaluation of the project.]

Some contend that the evaluation problems arose because of difficulties communicating within the various levels of the FHWA, as well as between the FHWA and the project partners and staff. The project's communications protocol required that the project staff communicate

information to the Kentucky Transportation Cabinet, as the representative of the lead state. The Cabinet communicated directly with the FHWA division; the division selected information to be passed on to the region, which in turn decided what information was transmitted to headquarters. This protocol caused some consternation at headquarters, which wanted to be kept informed in what they perceived to be a more timely fashion and at a greater level of detail. On the other hand, the field offices wanted headquarters to "turn down the volume" of their interest in the routine details and trust their judgement as information "filters." It is widely accepted that these field/headquarters communication problems predate the Advantage I-75 project.

Problems With Communication Among the Partners

The FHWA had problems not only with internal communication but also with communicating with the other project partners. The communications protocol described above may have contributed to these problems. For example, it may have hindered headquarters' ability to communicate their needs (e.g., regarding evaluation) to the project's staff and Policy Committee.

Another inter-partner communication issue arose when actions were taken that affected the project without official direction from the Policy Committee. In one instance, the Governor of Kentucky, who at the time was the Chair of the National Governors' Association Transportation Committee, got the governors of all six I-75 states to sign a letter of support for the project. This occurred during the planning phase, when it was considered that such a demonstration of top-level support for the project would help convince reluctant state officials to cooperate with the project and therefore improve its chances of success. The idea for this action did not originate with the Policy Committee and was pursued without its approval - the Committee was only notified after the fact. The carrier participants, in particular, were upset that they were not kept informed of this important activity. In response to their concerns, the project staff developed the MACS FAX as a timely means of communicating information to all project parties.

Concerns Over the Size of the Policy Committee

The Policy Committee, whose role is to provide the overall direction for the project, has representatives of each partner as members. The sheer size of the 23-member committee alone made meaningful participation in meetings difficult; this difficulty was compounded by the addition of staff and visitors, many of whom chose to join in as participants. During the planning and early design/development phases, decision-making was slowed by the unwieldy meetings - rambling discussion and unfocused dialogues prevented issues from being resolved in a timely fashion. This problem was resolved through the establishment of a more formal meeting structure, under which only Policy Committee members (or their official designates) had seats "at the table" and permission to speak. In addition, a small, informal working group with representatives from the FHWA, the Center, and the state of Kentucky took it upon

themselves to review the results of each meeting and pursue action to keep the project moving, where appropriate.

One reason the Policy Committee came to be so large is because some parties have multiple representation on the committee. When the committee was being formed, some states wanted multiple representatives because their motor carrier-related functions are scattered among several agencies. This prospect upset some of the single-representative states, who feared that it would be more difficult to protect their interests without equal representation. It turned out that those fears were unfounded, and the decision to let several states have multiple representatives has had no real impact on the project. In fact, some argue that it is critical to have every state agency with control over any aspect of trucking industry operations to be involved in such a project from the beginning in a substantive way.

Problems With Designation of Appropriate Policy Committee Representatives

Another organization and management issue concerned getting the "right" people to serve on the Policy Committee, especially during the planning phase. Part of the problem was that the project was not fully defined at this time, which was when the committee was being formed; therefore, it was difficult for the states to determine who were the most appropriate people, in terms of expertise and interest as well as political clout within their home states, to assign to the project. In addition, continuity of participation was important, so states had to ensure that the designated participants were likely to be available throughout the project's life span.

It was perceived that some of the early representatives on the Policy Committee lacked sufficient interest in the project to participate actively, and lacked the expertise to appreciate the productivity benefits that could be generated by Advantage I-75. Some were concerned that this would affect the potential success of the project because top management, both at the carriers and in the states, would not be getting full information about the program. It was generally agreed that these concerns were resolved with assistance from the system design contractor, who helped the states designate and commit the appropriate resources, thereby avoiding any long-term impact on the potential success of the project.

3.2 Regulatory and Legal Issues

Difficulty Cooperating on Regulation and Enforcement

The states had difficulty reaching agreement on an acceptable regulatory and enforcement protocol. Each of the partner states has different statutes and different operating procedures relating to regulations and enforcement. For example, the states have different scale tolerances and weight limits; they also have different approaches to enforcement, with some states focusing more on weight enforcement and others on citations for moving or safety violations.

The original intent of the project was that no state would have to change its laws in order to participate in the program. During the planning phase, there was extensive debate over how to accommodate the right of each state to enforce its own laws. In theory, the states eventually agreed that for the purposes of this project only, a truck meeting the criteria of the state in which it entered the corridor would be allowed to travel through the other states. However, this issue was revisited to some extent during the design/development phase, and some believe that it will not be completely resolved until the structure of the trip data packet is final.

To reach agreement, the participants needed to focus on the overall project goals, rather than their own parochial interests - the project objective of "no more than one stop" helped to overcome resistance. One factor that promoted this focus was the letter of support for the project signed by the governors of the six Advantage I-75 corridor states; this evidence of top-level commitment provided many of the participants with the justification they needed to reach an acceptable compromise.

The states also struggled with reaching agreement on acceptable evidence of truck safety inspections. It was suggested during the planning phase that valid Commercial Vehicle Safety Alliance (CVSA) stickers could serve as surrogates to indicate that participating trucks had passed recent safety inspections. This caused friction on two fronts. First, some of the motor carriers noted that they conduct self-inspections that meet or exceed CVSA criteria but do not participate in the CVSA program; these carriers did not want to be made worse off (i.e., have duplicative requirements imposed on them) in order to participate in Advantage I-75. These concerns were resolved by agreeing that either a CVSA sticker or its equivalent would be acceptable for enrollment.

The second area of concern was among some of the states, which did not accept the idea that having a valid CVSA decal should automatically exempt a carrier from safety inspection while in the corridor. This was resolved by agreeing that carriers will continue to be subject to random or for-cause inspections.

Motor Carrier and State Skepticism about Participation

Long-standing suspicions about the motivations of government programs that profess to generate benefits to the motor carrier industry, but require cooperation with state regulatory agencies, surfaced in the early stages of the Advantage I-75 project. The trucking representatives, particularly the ATA, did not like the HELP program because they had too little influence in the project and because the technology selected for the program was not what they preferred. In addition, because two of the initiating HELP states have weight-distance taxes, they were afraid that the program would lead to an expansion of this tax.

Concerns were heightened here regarding the Advantage I-75 program as a possible step on the road to a national weight-distance tax because the lead state, Kentucky, had such a tax in place. These fears, coupled with concerns about potential requests for information they considered to be proprietary (e.g., the number of a company's trucks on a particular route) and questions about

the real potential of the project to produce benefits, made for early participation that was perceived as less than enthusiastic by some participants. Skepticism on the part of the motor carrier participants slowed the project's early progress and could have derailed it entirely. It took a significant amount of education and persuasion to convince the skeptics that it was not the intention of this project to promote a national weight-distance tax and to bring the skeptics among the Policy Committee members on board. The carriers realized that the states could run this program with or without the industry's cooperation, and they made the decision to participate so as to influence the program's development as much as possible.

Some of the state participants shared the carriers' skepticism regarding the benefits they would realize from the Advantage I-75 project. In at least one case, this problem was resolved when a change in the state administration brought in management who strongly supported the project. In addition, some state concerns were eased when they realized there was an independent financial justification for their participation: the ability to extend the useful life of the weigh stations, which are expensive to replace, by reducing the amount of traffic going through them.

Another area of concern was the liability that could be incurred if the system integration contract was cancelled. This issue arose when the stop-work order was issued during the design/development phase. The FHWA was particularly concerned because they would be liable if the system integrator chose to sue. Despite these concerns, the FHWA pledged to support the states' decision whether or not to continue working with the system integrator.

3.3 Human Resources Issues

The only significant human resource issue mentioned by the interviewees related to the staff originally dedicated to the project by the system integrator. As discussed above, it appeared that the contractor did not provide on-site staff, as required by the contract; assigned a project manager who was so overwhelmed by other responsibilities that he was unable to devote sufficient attention to Advantage I-75; and in general did not staff the project adequately. A new project management team was brought in after the stop-work order was issued, and these problems appear to have been reduced, if not resolved entirely.

3.4 Financial Issues and Findings

Size of the Evaluation Budget

The most significant financial issue cited by the interviewees was the change in the cost of the evaluation due to the new requirements imposed by FHWA headquarters. Originally, the project budget for evaluation was $200,000, of which 80 percent was going to be provided by the FHWA. Once the scope of the evaluation changed, the FHWA resolved the cost issue by agreeing to pay for all evaluation costs beyond the original budget.

Conflict Over the Cost-Sharing Protocol

One financial issue, which arose during the planning phase, related to the cost sharing protocol. Each state's share was supposed to be pro-rated according to its number of weigh stations. One state withheld some of its weigh stations from participating in the project; to some participants, this appeared to be done solely to reduce the state's share of the project costs. This created bad feelings among some of the state participants. It was recommended that in future projects, all facilities are included in each of the participating states.

4.0 Issues Projected for Future Program Phases

At the time of the Advantage I-75 interviews, the project's planning phase had been completed, the design/development phase was coming to an end, and the testing and implementation phase was about to begin. The interviewees were asked which institutional issues they believed would be the most critical in future program phases. In their opinion, no critical issues were likely to surface until the commercial deployment phase.

4.1 Organizational Issues: Interstate Communications and Cooperation

Nearly all of the interviewees believe that issues related to getting the states to cooperate would be the most critical in the commercial deployment phase. These issues include interstate communications and cooperation on expanding the program beyond the MACS test.

4.2 Financial Issues

Market Uncertainty

The market uncertainty regarding the willingness of the public to pay for the services offered by Advantage I-75 was perceived as a critical issue with respect to commercial deployment. This concern relates both to the willingness of the trucking industry to pay to participate as well as the public sector's willingness to make the required investment in infrastructure and continuing program support.

National Priority

Continued federal support of the program was seen as critical to keeping the states working together during commercial deployment, but concerns were raised regarding continued federal interest in the Advantage I-75 project as a high national priority. There is some fear, for example, that the federal government's focus on newer programs, such as the projected I-80 corridor program, will come at the expense of funding and other support for relatively more established programs such as Advantage I-75.

Cost Sharing

There was some concern over how costs would be shared among the states as well as between the United States and Canada under commercial deployment. In addition, some interviewees questioned how the allocation of costs would change should the program expand beyond the current corridor states.

4.3 Other Issues

Regulatory/Legal

Related to the issue of interstate cooperation was concern about progress toward regulatory uniformity among the states (e.g., deciding what constitutes pre-clearance). Concerns also were raised about how the program's technology will fit with the development of national standards and protocols.

Human Resources

With respect to staffing expertise, there is concern that not enough human factors experts are involved with program design, particularly regarding the communications interface between the system and the driver.

Privacy

There was some concern expressed that privacy-related issues (e.g., knowing when a particular truck entered and exited the corridor) might dissuade some trucking companies from participating in the commercial deployment phase if participation was not mandatory.

5.0 Lessons Learned

5.1 Findings

For the most part, the project participants believe that the project has been managed and conducted extremely well. They also generally perceive the program as a success to this point, with a number of positive benefits being generated. With respect to technology, these benefits include increasing awareness of the potential of AVI and pre-clearance technology for commercial vehicle operations. The project also is credited with improving communications and relationships among the I-75 corridor states and between the public sector and the motor carrier industry.

Several findings can be drawn from the experience of the Advantage I-75 project to date:

Public/private partnerships require building trust, understanding, commitment, and communication. When any of these ingredients are missing, problems will arise; when all of them are compromised, as appears to have been the case with the system integration contract, severe difficulties are inevitable. In the Advantage I-75 project, the partnership generally has been a success with respect to the trucking industry and the public sector. Trust has been built by working together and seeing team members live up to their commitments. Understanding of roles and responsibilities and commitment to mutual goals has kept the project moving towards implementation. Despite some problems, communication among the project partners generally has been sufficient.

Securing upper management buy-in was a success factor. Getting the governors to sign an agreement to participate in the project and provide matching funds helped the project move beyond fragmentation and avoid many institutional concerns.

Complex projects require flexibility by all parties. It is important to accept at the outset of a complex project such as an IVHS operational test that many problems that cannot be anticipated will arise during the course of the project. Rigid adherence to project requirements, both in contracts and in less formal agreements, is unlikely to be the best course in such a project. Building in some periodic reviews of the work statement in the Advantage I-75 systems integration contract, for example, might have prevented some of the problems that arose with a fixed price contract. At the same time, the project demonstrated its flexibility by bending the requirement to use off-the-shelf technology.

Demonstrable benefits are critical to participation, and participation is critical to success. Operational tests must have a high probability of generating real benefits; those benefits must be clearly communicated to prospective participants

if they are expected to contribute resources as well as their reputation to the effort. In the case of Advantage I-75, the process of educating the participants on the prospective benefits did not end with the project kick-off - this continuing process is necessary to recruit the commitment of representatives with the clout to keep the project moving forward, and who are able to balance their individual organizational concerns with the project goals.

Mixed messages create confusion. The lack of clarity within the FHWA as to who was in charge and what roles the various organizations would play created confusion that affected the progress of the project. Establishing clear roles and responsibilities, as well as a protocol for communication between the project and the FHWA, would have reduced some of the tension and friction associated with this project, particularly those problems associated with the evaluation. It is likely that this confusion contributes to the fears that the Advantage I-75 project will lose its federal support to other programs.

Efficiency is important. Complex, multi-state projects like Advantage I-75 have a limited window of opportunity for performance and many potential obstacles to completion such as changes in state administrations, project personnel, and the national economy. Therefore, efficiency - moving the project on a fast track and doing everything possible to keep near to schedule - is important. Keeping the project moving requires strong leadership; it also requires having the right people making decisions and establishing an efficient decision-making process. Advantage I-75 has been fortunate in the leadership provided by its Policy Committee, which has approached institutional issues with an attitude of resolution, rather than confrontation, and has maintained its focus on achieving the project's goals.

5.2 Recommendations Based on Interviews

The interviewees had a number of recommendations for addressing the institutional issues encountered during the course of the Advantage I-75 project.

Contractor Selection

When selecting a system integrator, closely examine their track record on similar large-scale, non-defense public sector projects that involve working with multiple parties; pay special attention to the process used to resolve any problems that arose during the course of these contracts. Require that the contractor have on the team someone who has extensive experience working with the states and is familiar with the state contracting environment. Look for a project manager who is not only technically competent but is comfortable working with people in a dynamic environment. A commitment to flexibility is critical in order to work smoothly in a dynamic project situation - make the need for flexibility in the contract abundantly clear during the contractor selection process as well as in the contract itself. Do not preclude the system designer from bidding on the integration contract, but provide for an independent review

of their design to ensure that more than one firm would be qualified to build the specified system.

Contract Definition

Make contracts as clear as possible, but do not overemphasize setting the scope and fee in concrete - anticipate and allow for change by establishing regular, periodic reviews of the scope of work. Use cost plus fixed fee, rather than fixed price, contracts. Make sure that all relevant parties on both sides know what is in a contract before it is signed. Where there is significant potential for disagreement among project participants, seek out the advice of a third party; e.g., the federal government standards for data requirements.

Contractor Problem Resolution

From the beginning, establish that the client is in charge, not the contractor. If problems arise, document them and address them early, using a nonconfrontational approach. If the problems persist, be sure that dissatisfaction is communicated to the contractor's top management in terms that cannot be misunderstood. Give the contractor a chance to resolve the problems if their top management becomes actively involved. Should the situation become untenable, do not delay issuing a stop work order - the earlier the situation comes to an impasse, the less project money is invested and the more options are available for resolution.

Evaluation

Evaluation needs must be considered from the earliest project design and development phases. The FHWA, in particular, should work directly with project staff to communicate their evaluation needs at the beginning of the project and to determine the level and type of resources that the evaluation should involve, including an explicit determination of who should conduct the evaluation. This should facilitate developing an appropriate overall project budget and cost-sharing approach for the evaluation; knowing the scope of the evaluation may also help contain its costs. In addition, this approach should also ensure that evaluation needs, including the types of data that are required to be collected, are accounted for as the project is designed and developed.

FHWA Communications/Roles and Responsibilities

Clarify the roles and responsibilities of the various FHWA offices at the beginning of the project. Get headquarters involved early in establishing the project direction. Many interviewees recommended putting field personnel - particularly the division office, which is the field office closest to the project - in charge of day-to-day project responsibilities and

communications. When more expertise is required, consider establishing a protocol that requires going to the region first, then to headquarters if necessary.

Motor Carrier and State Participation Concerns

Involve the private sector (both individual carriers and industry associations) from the project's earliest stages and have their representatives play an active role with decision-making responsibility. Make sure that any proposed project has definite bottom-line benefits prior to recruiting industry participation. When selecting a lead state, consider any regulatory implications (e.g., does the state have a weight-distance tax). Probe for carrier concerns regarding possible "hidden agendas," such as the promotion of a weight-distance tax; address these concerns directly to allay fears.

Early in the project, secure a public commitment of support from the highest possible level of state officials, preferably the governors. Use this commitment as leverage when necessary to overcome reluctant participation by states (e.g., problems securing funding) or individual state representatives. If any carrier or state participants demonstrate skepticism, identify the other project partners who will have the most influence on them and use "jawboning" to get them on board.

Interpartner Communications

Establish communications mechanisms and protocols to ensure that all project participants get the same information and that it is delivered in a timely fashion. Consider dedicating a project staff person to coordinate communications. Schedule regular and frequent conference calls, with agendas and minutes taken, between formal project meetings. At meetings, have formal agendas and a policy prohibiting participation by people who are not committee members (or their designates) without explicit permission for them to do so. All concerns of a partner should be voiced through their representative(s) on the committee. When appropriate, call an executive session including only committee members and their designates, even if this means that visitors and staff must be expelled from the meeting room.

Regulatory and Legal Concerns

Conduct institutional issues studies prior to setting up a new operational test involving a group of states. Include in these studies an investigation of potential legal problems in multi-state efforts (e.g., what state funds can legally be committed by another); there are probably fewer actual legal problems than perceptions of them, but both can be equally effective in impeding progress. Establish multi-state working groups to resolve the identified issues (such as lack of regulatory uniformity).

Do not let fear of legal actions prevent action from being taken against contractors if things are well documented. Be sure the liable parties will support a decision to break a contract.

Designation of Appropriate Policy Committee Representatives

Develop a clear statement of the project's concept, goals, and objectives; use this statement to get state people with clout to commit funds and industry people who can fully appreciate and communicate the potential project benefits committed to the project's working group.

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The above recommendations are based on observations obtained in the process of interviewing Advantage I-75 participants. The final report of this IVHS Institutional Issues and Case Studies technical task directive will be an analysis and lessons learned report that provides coverage across all projects studied and makes recommendations based not only on interviews with participants in the ADVANCE, TRAVTEK, HELP/Crescent, TRANSCOM/TRANSMIT, ADVANTAGE, and Westchester Commuter Central projects, but also upon the literature and experiences of the interview teams and members of the Institutional Barriers Advisory Group formed for this effort.

6.0 References

Intermodal Surface Transportation Efficiency Act of 1991. U.S. Public Law 102-240.

IVHS Institutional Issues and Case Studies: Field Guide. (June 1993). (Science Applications International Corporation, Contract No. DTRS-57-89-D-00090, RA 3078) Volpe National Transportation Systems Center (unpublished).

IVHS Strategic Plan: Report to Congress. (1992). U.S. Department of Transportation.

Appendix A

Organizations Interviewed

Federal Highway Administration
- Headquarters
- Regional Office
- Division Office

Ohio Department of Transportation

Georgia Department of Transportation

Kentucky Transportation Cabinet

Design Contractor

Kentucky Transportation Center, University of Kentucky

National Private Truck Council

System Integrator

Appendix B

Bibliography

"ADVANTAGE I-75 Motor Carrier Project Final Report," JHK & Associates in association with Street Smarts, May, 1992.

ADVANTAGE I-75 Policy Committee Meeting Minutes, September 12, 1991.

Brochure, "ADVANTAGE I-75 Proving Ground for Advanced Technology," May, 1992.

"Proceedings," ADVANTAGE I-75 Conference, June 28-29, 1990.

"Proposal for the ADVANTAGE I-75 Motor-Carrier Project," submitted to the Federal Highway Administration by the Kentucky Transportation Center on behalf of the ADVANTAGE I-75 Policy Committee, November 21, 1990.

"System Planning for Automated Commercial Vehicle Licensing and Permitting Systems, Interim Report," prepared for the Federal Highway Administration by Cambridge Systematics, Inc. in cooperation with Sydec, Inc. and Science Applications International Corporation, October 5, 1993.