Summaries of Volpe Case Studies by Klick, Kent & Allen

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Case Study: ADVANCE

I. What and where is ADVANCE?

A. Description

ADVANCE (Advanced Driver and Vehicle Advisory Navigation Concept) is and Advanced Traveler Information System (ATIS) in the northwestern suburbs of Chicago designed to provide real-time information that allows travelers to avoid congestion causing incidents, such as accidents and construction. The ADVANCE field test will be conducted in an approximately 300 square mile region in the northwestern suburbs of Chicago which are typical of modem suburban developments and have significant congestion problems. The ADVANCE field test will equip up to 5000 private and commercial vehicles with a special Motorist Navigation Aid to provide navigational and route guidance assistance. These vehicles will serve as probes, providing real-time traffic information to a Traffic Information Center (TIC), which will process and then transmit the information to equipped vehicles in the form of dynamic routing instructions. The field test is expected to last for up to five years and will cost between $40 and $45 million, which will be shared by the public and private sector partners. The intention is that total project funding will be split approximately 50% from federal sources, 25 % from state sources, and the remaining 25% from Motorola, IUTRC, and other private sources. The in-vehicle hardware funding will be split l/3 federal, l/3 state, and l/3 Motorola, IUTRC, and other private sources.

B. How ADVANCE works

The ADVANCE in-vehicle navigation and route guidance system will consist of a video screen, a microcomputer, a data communications radio, and a global positioning satellite (GPS) receiver. The system will use the GPS receiver to determine the vehicle's location. The driver can access navigational information by entering his or her destination, or by viewing a list of services or points of interest in the immediate area. Route guidance information will be displayed on the visually by the video screen and audibly by voice instructions. Route guidance information is available with the addition of current traffic information. This information is gathered and transmitted by ADVANCE probe vehicles over a dedicated radio frequency communications system. Computers in the Traffic Information Center (TIC) will collect, process and distribute the information.

C. Goals

The ADVANCE project is designed to provide information pertaining to trafi?c and road conditions to travelers in hopes of alleviating congestion and enhancing the effectiveness of the existing transportation network. Once deployed, evaluation of the ADVANCE program will provide information about the behavior and perception of travelers, the extent to which congestion can be reduced, and the effectiveness of using vehicles as probes.

II. How did ADVANCE originate? Who is involved?

A. The history of ADVANCE

ADVANCE evolved from a Motorola initiative to develop an advanced route guidance system. In 1989, Motorola, the Illinois Universities Transportation Research Consortium (IUTRC), and the Illinois Department of Transportation (IDOT), decided to cost share a feasibility study equally, 33-33-33, with IDOT providing $50,000 and Motorola and IUTRC providing in-kind services. IUTRC was responsible for developing the concept of a Traffic Information Center (TIC), while Motorola was responsible for developing the communications and navigation components. IDOT served as a project manager, monitoring activities, insuring compatibility among systems, and using an advisory committee to foster communications among all parties involved.

B. The Partners

Design and development of ADVANCE began in July 1991 with the signing of a formal IVHS Agreement between the partners. The partners involved with ADVANCE are: Federal Highway Administration (FHWA), the Illinois Department of Transportation (IDOT), the Illinois Universities Transportation Research Consortium (IUTRC), and Motorola. The program plan was created in late 1991/Early 1992. Design and technical testing has been ongoing ever since. Implementation of the operational field test and evaluation is expected to start in 1994 and last through 1997.

Under the partnership agreement, the FHWA provides funding and technical assistance and IDOT provides funding, management, operating and technical assistance. The IUTRC combines the research capabilities of four major academic institutions in Illinois, two of which are directly involved in ADVANCE, Northwestern University and the University of Illinois at Chicago. These universities are responsible for the design and implementation of: the hardware and software of the TIC; procedures for monitoring and assessing system performance; the dynamic route guidance system; the procedures for recruiting and training private and commercial vehicle operators. Motorola offers private sector support in the form of technical expertise. Motorola is responsible for designing, manufacturing, installing, and maintaining in-vehicle navigation and route guidance systems.

In addition to the partners, ADVANCE has a number of other participants in the operational test. To encourage the involvement of a diverse set of institutions and organizations, the non-partner participants are categorized into one of four CategOrieS based on their levels of commitment to the project. The four categories are:

MEMBER: A "member" of ADVANCE is expected to undertake major responsibility for achievement of the broad objectives of the ADVANCE program.

Members are invited to participate on the Steering Committee and are included in all task force meetings. New members are expected to make a contribution of case, equipment, staff time, or services with a value to the program of at least $1 million.

ASSOCIATES: An "associate" of ADVANCE is invited to attend task force meetings. The rights and responsibilities of associates are dependent of their contribution and expertise. The minimum contribution expected from new associates is $100,000 in cash, equipment, or services that prove beneficial to the program.

SPONSOR: A "sponsor" is required to make a contribution of cash, equipment, or services with a value to the ADVANCE program of at least $25,000. Sponsors are recognized in ADVANCE collateral material including the annual report.

CONTRIBUTOR: A "contributor" of the ADVANCE program is required to make a contribution of at least $5,000 in the form of cash, equipment, or services. Contributors are listed in the annual report.

III. Risks and Benefits for Partners

A. FHWA

With its involvement in the ADVANCE program, FHWA risked its reputation and credibility should ADVANCE turn out to be a failure. If ADVANCE failed, the FHWA would be perceived as recklessly spending taxpayers money which would, in turn, cause negative publicity for the National IVHS Program. In contrast, the success of ADVANCE would be met with positive media exposure, public acceptance, potential for more private involvement, and further deployment of ATIS systems.

B. IDOT

IDOT, much like FHWA, would suffer from the failure of ADVANCE. As a co-funder of the project, IDOT risked accusation of squandering tax dollars and risked the wrath of local politicians whose careers would be jeopardized by the failure of ADVANCE. Oppositely, IDOT had the potential benefit of being associated with relieving congestion in Chicago, and as a result would receive positive press, public acceptance, and an enhanced transportation system.

C. IUTRC

The IUTRC risks its reputation, technological future with transportation projects, and ability to attract high quality researchers and gifted students. On the other hand, the IUTRC's reputation would benefit from the success of ADVANCE, which would draw more funding, more researchers, and more gifted students.

D. Motorola

Risks Motorola face include loss of investment, either by project failure, producing an

unsafe product, or by other companies capitalizing on their hard work and development of navigation technologies. In addition, Motorola risks partnering with the government, especially the potential of the government pulling-out of the project. However, the success of ADVANCE would prove beneficial to Motorola. It would be ahead of its competition in navigational projects and would receive positive publicity, both of which would contribute to an increase in sales.

IV. Burdensome issues associated with ADVANCE

There are a number of issues which, unattended, could impede the progress and success of ADVANCE.

A. Regulatory/Legal Issues

Unclear Government Accounting Requirements
Difficulty securing intellectual property/proprietary rights agreements
Burdensome administrative requirements

B. Organizational Issues

Cultural differences among the public and private sectors
Ambiguous terminology
Resistance to change
Fear of using unproven technology
Lack of leadership

C. Financial Issues

Differences in costing and accounting
Difficulties in identifying liabilities and obtaining insurance

D. Human Resource Issues

Insufficient resources
Part-time management
Lack of expertise

E. Other Issues

Threat to privacy

Case Study: Advantage I-75

I. What is Advantage I-75?

A. Description

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 spanning from Ontario, Canada to Florida. The project facilitates motor-carrier operations along the I-75 corridor by using the Mainline Automated Clearance System (MACS). Using MACS, trucks equipped with transponders and proper documentation are able to travel any segment along the Ontario-FIorida corridor at mainline speeds with no more than one stop at an enforcement station.

B. How Advantage I-75 works

The Mainline Automated Clearance System (MACS) is the firstproject of Advantage I-75. The technology involved includes automatic vehicle identification (AVI), static and weigh-in-motion (WIM) scales, automatic vehicle classification (AVC), driver pre-clearance notification, computer and communications networking, database management, weigh station interfaces, and truck driver compliance verification. Thirty of the thirty-six weigh stations along the I-75 corridor will be equipped with MACS.

C. Goals

Initially, Advantage I-75 was designed to improve the efficiency of movement of trucks operating in the I-75 corridor. The original goal was to allow transponder-equipped and properly documented trucks to travel any segment along the entire length on I-75 at mainline speeds with no more than a single stop at a weigh/inspection station. The intention was to use technology which is already developed and readily available to facilitate immediate implementation. Ideally there would be no changes in state laws.

II. Who is involved in Advantage I-75?

A. The Partners

Government participants in the Advantage I-75 project include Florida, Georgia, Tennessee, Ohio, and Michigan. In addition, the Kentucky Transportation Cabinet, the province of Ontario, Canada, the Federal Highway Administration (FHWA) and Transport Canada are governmental participants.

Private sector participants in Advantage I-75 are typicalIy trucking associations. The trucking associations participating are: the American Trucking Associations, the

National Private Truck Council, the National Automobile Transporters Association, the Ontario Trucking Association, state trucking associations, and individual carriers who travel along the corridor. Currently, the National Private Truck Council and the United Parcel Service (UPS) are the private sector participants with the highest level of involvement.

The Kentucky Transportation Center at the University of Kentucky is the program's academic participant serving as its research and operational center.

B. Leadership/Management

Advantage I-75 is managed by a Policy Committee which is made up of 23 members from the partner organizations. Task forces are created within the committee to deal with specific issue. Staff support is provided by the Kentucky Transportation Center under the auspices of the lead agency, the Kentucky Transportation Cabinet. A specific task force, the Kentucky Task Group, was established to serve as the day-to-day manager of the project and its contractors.

III. Risks and Benefits for Partners

A. FHWA

The FHWA risks its reputation should Advantage I-75 prove unsuccessful. In this case, states might be discouraged from future participation and the motor carrier industry might be alienated by the project. On the other hand, the potential benefits are substantial, including the opportunity to demonstrate its ability to solve existing infrastructure problems with technology while, at the same time, achieving the national IVHS goals of increasing safety and mobility.

B. States

States participating in Advantage I-75 risk losing resources invested in the project. Perhaps the biggest risk is that one state could pull-out of the project and leave a gap. Benefits directly applied the states are a reduction in weigh station congestion, improved safety and productivity, lower enforcement and administrative costs, and experience with technology which will help with future transportation investment decision.

C. The Motor Carriers

Motor carriers risk more regulation, but have the potential to greatly increase productivity. Some trucking associations risk losing members who boycott the support of a project which may backfire and cause increased regulations. Again, the potential for increased productivity and decreased costs due to less lost man-hours and fuel associated with the stops is great.

D. The Kentucky Transportation Center

The Kentucky Transportation Center risks its reputation and risks being ridiculed for its involvement in a project outside its region. It also risks wasting the staff resources devoted to the project. On the other hand, it stands to benefit greatly by a successful project, adding to its credibility and reputation.

Case Study: HELP

I. What and where is HELP?

A. Description

HELP (Heavy Vehicle Electronic License Plate Program) is a project to assess the feasibility of applying advanced technologies to commercial vehicle operations (CVO). It is a multi-state, multi-national effort to design and test an integrated heavy vehicle monitoring system that uses Automatic Vehicle-Identification (AVI), Automatic Vehicle Classification (AVC), and Weigh-In-Motion (WIM) technology. The operational field test phase of HELP is known as the Crescent Project. The Crescent Project includes approximately 40 equipped sites ranging from British Columbia southward along I-5 to California and then eastward along I-10 to Texas, branching onto I-20. Data gathered from the WIM, AVI and AVC technologies is processed by a central computer and then used by the state governments for credential checking, weight enforcement, and planning information, and by the motor carrier industry for fleet management purposes.

B. Goals

HELP's ultimate goal is to have a system in which a legal truck can drive through the entire network without having to stop at weigh stations or ports-of-entry. HELP originated as a project to test the feasibility of combining WIM and AVI technologies. The goals of the feasibility study were to improve institutional arrangements, asses the viability of technology on highways, measure the efficiency of any productivity changes, and to identify potential future applications.

II. How did HELP originate? Who is involved?

A. The History of HELP

HELP formally began in 1983 with a two year feasibility study. Testing and development took place from 1985-1988, followed by the Crescent demonstration from 1988 to 1993. HELP has had support from the Federal Government, state governments, trucking companies, manufacturers of equipment, and system integrators.

B. The Partners

The four primary partners of HELP/Crescent are: the Federal Highway Administration (FHWA), the Arizona Department of Transportation, other State governments, and representatives of Motor Carriers. FHWA provides funding, technical assistance, and coordination HELP with the national IVHS program. Arizona serves as the lead state, with its Department of Transportation coordinating and recruiting involvement from other states. The other states whose departments of transportation are involved are: California, New Mexico, Oregon, Texas, and Washington. Sponsoring states include Nevada, Utah, Minnesota, Iowa, Pennsylvania, Alaska, Virginia, Idaho, and the Port Authorities of New York and

New Jersey **A** partnership exists between the FHWA and the Arizona Department of Transportation in which Arizona, as the lead state, is responsible for the expenditure of the federal funds. Each participating state is responsible for funding HELP within their state. The states also implement, operate, and maintain HELP technologies. The motor carrier industry uses the technology and is responsible for ensuring that the technology meets user needs.

C. Leadership/Management

Originally, HELP was managed by a Policy Committee and an Executive Committee, with a number of subcommittees created to deal with specific issues. The Policy Committee was responsible for developing the budget, program, and appointing the Executive Committee. The Executive Committee approved proposals, contracts, contractors, and consultants.

In 1989, the Crescent Implementation Group (CIG) was formed to manage the Crescent operational field test phase of HELP. Although Arizona was the lead state for KELP, California became the lead state for the Crescent phase of the project. The Arizona Department of Transportation was solely responsible for administrative, contractual, and budget issues.

In October 1993, HELP, Inc. was formed to oversee the accomplishment of the Crescent goals and is funded primarily by the participating states. HELP, Inc. is controlled by a Board of Directors, in which each participating state and motor carrier is represented. Day-today control of HELP, Inc. is the responsibility of a full-time Executive Director supported by a full-time technical program manager and part-time administrative, legal, and financial support. Maintenance and operation of the Crescent network is the responsibility of a single, prime contractor, working under contract to HELP, Inc.

III. Risks and Benefits for Partners

A. FHWA

The risks to the **FHWA** were minimal, with the most obvious being negative publicity and association with a failed project. On the other hand, the FXWA stood to benefit from accurate and timely commercial vehicle data.

B. Participating States

The reduction of administrative burden is the primary benefit to the participating states. In addition, streamlining and standardizing the inspection and enforcement process had the potential to more efficiently collect fees and taxes, reduce congestion at weigh stations, and increase safety. The risks stem from the benefits, as law enforcement agencies are leery of trusting automated inspections and truckers abhor the potential for more regulation and taxation.

C. Motor Carriers

Aside from the risk of more regulation, the trucking industry would see an increase in productivity and efficiency. Lost time and fuel associated with long waits at weigh/inspection stations would be minimized, if not eliminated.

Case Study: TRANSCOM/TRANSMlT

I. What is TRANSCOM?

TRANSCOM (Transportation Operations Coordinating Committee) is a consortium of 15 transportation and public safety agencies in the New York, New Jersey, and Connecticut metropolitan areas whose goal is to establish regional cooperative support for transportation management and to improve inter-agency response to traffic incidents. TRANSCOM has initiated region-wide coordination of deployment and operation of variable message signs (VMS), highway advisory radio (HAR), and enhanced traffic monitoring including closed circuit television (CCTV) to enhance transportation management. In addition to TRANSCOM's transportation management, a sub-program for managing incidents, TRANSMIT, was developed.

A. TRANSCOM's Goals

TRANSCOM 's goals are twofold. First, TRANSCOM facilitates regional information coordination, and second it develops, implements, and tests new technology. TRANSCOM was designed to provide a means for establishing a regional cooperative approach to transportation management and improve inter-agency response to transportation incidents.

B. TRANSCOM's Organizational Structure

Overall direction and policy decisions for TRANSCOM are provided by an Executive Committee which has 15 members who are the CEO's of major transforation and transit agencies and the state police from New York and New Jersey. A Technology and Operations Committee makes recommendations to the Executive Committee on budget, technology, and operating issues. The Technology and Operations Committee consists of top management personnel from the 15 member agencies. Subcommittees are created, as needed, to deal with specific issues. Day-to-daymanagement is the responsibility of the General Manager.

C. TRANSCOM's 15 Member Agencies

TRANSCOM has 15 member agencies which provide staffing and funding:

- Connecticut D.O.T.
- New Jersey D.O.T.
- New Jersey State Police
- New Jersey Turnpike Authority
- New York State D.O.T.
- New York State Police
- Metropolitan Transportation Authority
- New Jersey Highway Authority
- New Jersey Transit Corporation
- New York City D.O.T.
- New York State Thruway Authority
- Palisades Interstate Park Commission
- Port Authority of New York and New Jersey (PA)
- Port Authority Trans-Hudson Corporation
- Triborough Bridge and Tunnel Authority

II. What is TRANSMIT?

TRANSMIT (TRANSCOM's System for Managing Incidents and Traffic) is a FEWA sponsored operational field test to evaluate the use of Electronic Toll and Traffic Management (ETTM) technologies, such as automatic vehicle identification (AVI), for incident management. The electronic toll collection (ETC) system used is E-ZPass. With E-ZPass, AVI badge readers allow vehicles equipped with transponders to serve as traffic probes and enable the collection of real-time traffic information, such as speed, travel time, and incident detection. Comparison of actual to predicted txavel time helps to identify potential incidents, as well as provides real-time traffic information.

A. TRANSMITs Goals

The TRANSMIT projects was designed to develop, implement, and evaluate an Advanced Traffic Management System (ATMS) for the New Jersey-Staten Island corridor, based on AVI, more specifically E-Zpass. The ultimate goal of TRANSMIT is consistent with the national IVHS goals: to improve safety, to reduce congestion, and to improve environmental impact.

B. TRANSMIT' s Organizational Structure

TRANSMlT's steering committee, consisting of representatives from FHWA, TRANSCOM, and eight agencies who operate bridges and roads in the area, oversees the project. FHWA sponsored the operational test, spending $4.2 million since FFY 1990. TRANSCOM provides a 20 percent local match of federal funding through FFY 1992, which amounted to $750 thousand. The New York/New Jersey Port Authority acts as the host agency for TRANSCOM, providing contract administration support.

C. TRANSMIT' s Steering Committee

TRANSMIT's Steering Committee's members are:

- FHWA
- New Jersey D.O.T.
- New Jersey Highway Authority
- New Jersey Turnpike Authority
- New York City D.O.T.
- New York State D.O.T.
- TRANSCOM Project Manager
- New York State Thruway Authority
- Triborough Bridge and Tunnel Authority

III. Risks and Benefits

A. FHWA

The FHWA risks its reputation and the loss of resources committed to EXAM technology which might not be the most appropriate or effective technology to apply to incident management. Therefore, taxpayers might view FHWA as unwisely investing their money. A successful project would benefit the reputation, credibility, and public acceptance of FHWA and the projects it invests in.

B. TRANSCOM Agencies

Toll agencies' risks are related to the issues of privacy and the expense of a regional ETTM surveillance system. The cost of construction, operation, and maintenance of the surveillance system would be high. If the costs are recouped by tolls and outweigh the benefits the public receives, public acceptance of participating agencies would suffer. Some TRANSCOM members fear that TRANSCOM's traffic management function would reduce, or replace, their operating authority.

C. Region

TRANSMIT, if successful, will benefit the entire region in which it operational. TRANSMIT has the potential to provide traffic management and traveler information. Future funding for the project could be provided by user fees for the traveler information. The region assumes virtually no risks.

Case Study: TravTek

I. What and Where is TravTek?

A. Description of TravTek

TravTek (Travel Technology) was a joint public/private sector project to develop, test, and evaluate an advanced traveler information system (ATIS). TravTek consisted of a TravTek Information Service Center (DISC), the TravTek equipped vehicle, and a Traffic Management Center (TMC). The TMC gathered information about traffic and road conditions and transmitted to TravTek vehicles and the TISC. TravTek provided traffic congestion information, motorist services ("yellow pages") information, tourist information, and route guidance to operators of 100 test vehicles that were equipped with in-vehicle TravTek devices, 25 of which were used by local residents and 75 of which were rented through AVIS. Route guidance reflected real time traffic conditions in the TravTek traffic network. The TravTek operational test covered a 1,200 square mile area and lasted for one year, March 1992 through March 1993, in Orlando, Florida. The original budget for TravTek was $8 million, shared equally between the public and private sectors. However, as TravTek evolved its cost escalated to more than $12 million.

B. TravTek Goals

TravTek's primary goal was to develop, test, and evaluate a state-of-the-art ATIS. More specifically, TravTek was created to develop a tool which enables travelers to avoid congestion, to ease environmental problems, and to enhance safety. The operational test was designed to assess the real-world benefits of an in-vehicle ATIS, with user feedback providing suggestions for improvement.

II. How did TravTek originate? Who was involved?

A. The History of TravTek

General Motors (GM) and the American Automobile Association (AAA) presented the concept of TravTek to the Federal Highway Administration (FHWA) and solicited FHWA for funding. The three formed a partnership and had the first TravTek meeting in March 1989, at which time GM was appointed the project manager and systems engineer. Orlando, Florida was chosen as a test site due to it's large rental car market and because AAA was relocating its National headquarters there. GM contacted both the Florida Department of Transportation (FDOT) and the City of Orlando to discuss the project and the prospect of their participation. A Steering Committee was formed to define the project and develop a partnership agreement. In May 1990 the partnership agreement was signed and the Technical and Evaluation Working Group began work on the in-vehicle engineering and supporting systems.

B. The Partners

The partners were: GM, AAA, and FHWA, FDOT, and the City of Orlando. GM and AAA had a long-established private sector market interest in developing and testing the in-vehicle information systems, whereas FHWA wanted to explore and evaluate IVHS technology. GM, AAA, and FHWA provided most of the funds, unfortunately GM and AAA spent more on TravTek than they originally anticipated. FDOT and the City of Orlando provided staff time and expertise.

C. Project Management

TravTek was directed by a Steering Committee which was made up of a representative of each of the five partners. The Steering Committee provided project policies, guidelines, and direction. GM chaired a Technical Working Group which managed the project, and was responsible for systems design, the operational test, and the evaluation plan. The TechnicaI Working Group created a sub-group, the Evaluation Working Group, to design the evaluation plan.

D. The Partnership Agreement

TravTek has a 10 page Partnership Agreement which defines the goals of the project and partially describes partner responsibilities. Costs and projects funding are not defined in the document, but it does address and protect intellectual property. The agreement allows each partner to withdraw from the project with 30 days written notice.

III. Risks and Benefits

A. FHWA

FHWA risked its reputation and credibility with its involvement in TravTek. Additionally, should TravTek fail or be poorly received, FHWA would be viewed as carelessly spending taxpayers money. On the other hand, TravTek offered the opportunity for FHWA to identify the benefits of ATIS systems. The success of TravTek would provide FHWA with positive media exposure.

B. GM

GM risked investing time and resources on a project which competitors would learn from and copy. Additionally GM's participation in TravTek was perceived as risky to some shareholders, which had the potential of scaring away shareholders and investors. Liability of an unsafe product was another risk. Despite all the risks, GM would be in a position to gain practical experience and knowledge. TravTek's success would give GM significant positive publicity.

C. AAA

AAA risked TravTek would be perceived as solely an AAA project. Thus the failure of TravTek would be disastrous to the conservative customer-oriented organization's reputation.

On the other hand, AAA had a corporate strategy to develop new technologies to better serve its members. The success of TravTek would fit AAA' s strategy and provide positive publicity.

D. FDOT

The risk to FDOT was minimal, and perhaps the expense of maintaining the system was the most significant negative factor. FDOT would benefit frem TravTek's demonstration of alternative methods of alleviating congestion.

E. City of Orlando

The potential benefits to Orlando far outweighed the minor risks associated with TravTek. Orlando benefitted from the installation of a permanent Traffic Management Center and training for their employees in traffic management. Orlando also had the potential for favorable national attention, which could draw businesses to Orlando.

Case Study: Westchester Commuter Central

I. What is Westchester Commuter Central?

A. Description of Westchester Commuter Central

The Westchester Commuter Central (WCC) project is an Advanced Traveler Information System (ATIS) deployed independently in the 450 square mile suburb of New York City, Westchester County, NY. It was initiated by the county's Department of Public Works with FHWA encouragement, but without federal financial assistance. In 1992, Westchester County and a contractor entered into a five-year contract, at no cost to the county, to establish and operate a facility for the collection and dissemination of highway traffic and transit data. The principal sources of traffic data include CB radio, cellular phone, police and fire radio frequencies, construction information supplied by the county, and reports received from TRANSCOM. The facility is called the Westchester County Commuter Central (WCC). The five year contract is designed so the private sector contractor absorbs the construction and maintenance costs of the facility. The contractor must supply traffic information free of charge to the county. However, the contractor charges other individuals and agencies, such as radio stations, a subscriber fee. Profits from the operation of WCC are shared, the amount varying based upon the amount generated.

B. Westchester Commuter Central Goals

The WCC communications center serves to collect and disseminate real-time traffic and transit information, while at the same time coordinating incident management and response via automatic activation of variable message signs. Additionally, WCC aims to provide mass transit information on buses and trains.

II. Participants

A. Partners

Westchester County and a private sector contractor are the only involved parties in the Westchester Commuter Central Case.

B. Management/Leadership

The Westchester County Department of Public Works is responsible for management of the WCC project. There is a manager responsible for day-to-day operations and a manager responsible for policy matters. The private sector has an Operations Director responsible for all operational aspects of WCC, including gathering and distributing transportation information, staff management, and coordination of day-to-day activities which are managed by a senior engineer technician. The Director of Traffic Engineering and Safety oversees the Operations Director.

HI. Risks and Benefits

A. Westchester County

Westchester County would get the necessary information for its traffic management program, which would provide commuters with accurate and timely information. In the best case, the county would profit. In the worst case, the county's reputation would suffer Even if the project failed, the county would get a Traffic Management Center free.

B. Private Contractor

The contractor could lose money invested in constructing the WCC. As far as beneficial attributes of WCC, it would be an opportunity to test the market and methods for gathering and distributing traffic and transit information beyond the conventional methods of radio and television. Although the WCC project is a win-win situation, the private contractor has more to lose than the county.

IV. Problems unique to this case

A. The county has little or no authority or power over the project

Because this project contracted at no-cost to the county, the county had little power over the actual development and progress of the project. The county's lack of power placed it in an all-or-nothing situation.

B. Lack of Federal funding

Initially Westchester County shied away from federal funds to avoid being subject to federal regulations, oversight, delays, and paperwork which could limit the project. Conversely, the county realized later that obtaining federal funds would have enabled the center to explore innovative options.

C. Lack of a definitive marketable product

In the planning and development stages of the WCC project, it was not clear what product the private contractor would have to market. As a result, the contract between the public and private sector participants neither identifies, nor addresses the issues associated with marketing a product.

Toll Road Case Study #7 San Jose Lagoon Bridge in Puerto Rico

In the face of rapid population growth in many areas of the San Juan region of Puerto Rico, transportation infrastructure has come under considerabIe strain resulting in increasing traffic congestion. Improvements in transportation have not been able to keep up with demand as budget pressures have decreased available public funds. The San Jose Lagoon Bridge project, connecting San Juan with the airport, is one example of a planned project which has suffered continual postponement due to the government's budgetary constraints. In response to the traffic problems and the governments inability to build the project after 17 years on various state plans, the Puerto Rico Highway and Transportation Authority agreed that other alternatives needed to be considered.

The four-lane bridge is planned to span 2.1 miles over the San Jose Lagoon. Currently, there is no bridge that traverses the lagoon; the only routes to the airport are those which circumnavigate the lagoon. Despite its desire to build the bridge for over a decade, the Puerto Rico Highway and Transportation Authority recently decided that improving the alternate routes took precedence for the use of public funds. Thus, with little prospect of building the bridge in the near future, it agreed to solicit bids for a build-transfer-operate arrangement with a private consortia.

The concession was won by Autopistas de Puerto Rico, a joint venture between Dragados y Construcciones S.A. of Spain (approximately three-quarters ownership) and Rexach Construction, a San Juan development company (approximateiy one-quarter ownership). The authority claims this consortium was chosen largely because it proposed to inject the most equity into the project.

The concession agreement was initially negotiated having Autopistas de Puerto Rico inject 10 percent of the required project capital as equity, with the rest a mixture of different kinds of debt. The project's return on equity was to be capped at 18 percent. Any returns over 18 percent were to be split 60-40 between the public and private participants.

The final concession agreement was reached in December 1991 with only two changes. The first change increased the potential return from 18 percent to 19 percent. The second change altered the profit-sharing equation to 85-15, for profits above a 22 percent return on equity. These two changes have been criticized because they may reduce the concessionaire's incentive for maximum efficiency; if the return is over 22 percent, a 15 percent marginal return on investment may not be enough for the company to actively seek additional cost saving measures.

The company received financing for the project in early 1992. The significant government guarantees mitigated many of the problems and delays in obtaining financing faced by other private toll road projects. The project is currently under construction.

The agreement has been criticized for the significant government guarantees it contains. First, the agreement contains a termination clause which allows the concessionaire to sell the project back to the government if a minimum percentage of the traffic projections is not attained: 80 percent of the projected traffic for the first three years rising to 100 percent of the projected traffic after the ninth operating year. This clause shifted almost all of the traffic risk to the public sector.

Second, the agreement specifically stipulated that in the event the termination clause is exercised, the government would pay the concessionaire the costs incurred plus a thirteen percent return on equity. Through this clause, the government almost completely guaranteed a minimum return of thirteen percent. Thus, the risk to which the concessionaire's capital is exposed is severely limited.

Third, land and environmental permitting required for the project was to be obtained by the government. Because of this agreement, the govemment is exposed to most of the construction risk.

Fourth, the government assumed all liability for hazardous waste contamination at the construction site.

The two major risks that the government would not specifically guarantee were political risk and tort liability risk. The concessionaire wanted to be able to invoke the termination clause if the government passed a law or regulation that reduced the value of the concession. In addition, the concessionaire wanted the government to assume tort liability for accidents on the bridge. Under the agreement, the concessionaire assumed these risks.

The San Jose Lagoon Toll Bridge project is among the first public-private toll projects in the U.S. to obtain financing and begin construction. Numerous hurdles were overcome in the effort to successfully implement the project. The project has been criticized, however, for the significant guarantees provided to the private sector, particularly in the operation phase. The guarantees may substantially reduce the private sector's incentives to operate the bridge efficiently, and have exposed the authority to most of the project's risks.