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CALIFORNIA PATH PROGRAM  
INSTITUTE OF TRANSPORTATION STUDIES  
UNIVERSITY OF CALIFORNIA, BERKELEY

# **ATIS- Alternative Revenue Approaches**

**Y.B. Youngbin Yim**

**California PATH Research Report  
UCB-ITS-PRR-2001-4**

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The contents of this report reflect the views of the authors who are responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the State of California. This report does not constitute a standard, specification, or regulation.

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# **ATIS-ALTERNATIVE REVENUE APPROACHES**

**A Report**

**for**

**Dr. Y. B. Yim**  
California PATH  
Institute of Transportation Studies  
University of California at Berkeley

Prepared by



**The PMR Group, Inc.**

January 1999  
MOU364

## **PREFACE**

The California PATH program of the University of California contracted with The PMR Group, Inc. of Los Angeles, California, to undertake a study of plans for publicly supported Advanced Traveler Information Systems (ATIS). This study, drawing upon experience in ATIS metropolitan sites around the country, should be useful to PATH, Caltrans, and other ATIS projects in California.

The Principal Investigator, Dr. Y. B. Yim, worked closely with The PMR Group in refining the scope of the work. It is a dynamic subject and one of great interest to the ITS community.

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## **ABSTRACT**

As part of a continuing research on Advanced Traveler Information Systems (ATIS), this report presents an institutional analysis of alternative approaches to sustaining publicly supported ATIS. The fifteen largest metropolitan regions in the US and the private sector efforts were investigated through a literature review and in-person and telephone interviews. The study goals were to investigate alternative revenue approaches to achieve a self sustaining ATIS, identify institutional barriers to achieving self-sustainability, and develop a framework of assumptions. Two public sector approaches are; publicly centered with ATIS principally serving public transportation management goals and ATIS market growth with an emphasis on building a self-sustaining ATIS based on products that will sell, using existing, tested technology. The private sector initiatives are dependent on commercialization: investments to set up regional ATIS functions and investment on a national infrastructure. Institutional barriers impeding sustainability include: need for continuity of leadership, inter-jurisdictional disputes, retaining technical expertise, maintaining public-private partnerships, and deploying interoperability standards.

**Keywords:** Advanced Traveler Information Systems, institutional barriers, revenue models

## **EXECUTIVE SUMMARY**

### **INTRODUCTION**

This report, commissioned by PATH as part of its continuing research on ATIS, is an institutional analysis about alternative approaches to sustaining publicly supported ATIS. There are several reasons for considering this subject: 1) Many of the original federally supported Field Operational Tests (FOTs) and other deployment initiatives have completed their demonstration phases and there is uncertainty about the availability of continued federal support for deployment; 2) there is increasing interest in privatizing various ATIS functions and therefore relying more on private sector investment and revenue generation from the sale of products and devices; 3) ATIS want to recover costs of data collection, processing and dissemination through fees or barter arrangements; 4) there is varied experience (U.S. and abroad) to draw upon in defining these alternatives.

The focus of this report is on the 15 largest metropolitan regional efforts (referred to here as ATIS regional centers) in the U.S. which have integrated ATIS into their urban transportation management systems. A starting point for the report is the comprehensive information on these ATIS regional centers available through the proceedings of an ITS America Workshop in San Diego (October 6-8, 1997) and the subsequent ITS America publication *ATIS Business Model Framework* prepared by Washington State Transportation Center. The PMR Group updated and added to the information. (See Appendix A.) In addition we identified and interviewed private sector participants. Special attention was given to SmartRoute Systems, Inc. and Etak, Inc. in its partnership with Metro Networks, Inc. Both are information service providers (ISPs) with a big stake in the ATIS market.

### **PROJECT GOALS**

The principal goals of the Project are to:

1. Investigate alternative revenue approaches to achieve a self sustaining ATIS.

The emphasis is on revenue approaches that minimize public funding. It is clearly a mix of both public and private resources that will be needed. Sustainability refers here to the capacity of an ATIS to achieve self-sufficiency through reliance on private sector support. Since at this point all ATIS regional centers area are publicly funded and private firms investments are still not realizing returns that could led to revenue generation or revenue sharing we raised questions with ATIS and private firms that shed light on their experience and expectations.

2. Identify institutional barriers to achieving self-sustainability.

The intent is to identify those institutional and legal barriers that constrain the effectiveness of public-private partnerships, inhibit ATIS market growth, and preclude full participation of the public and private sectors.

3. Framework of assumptions.

The analysis takes place within the context of a set of assumptions about the role of the public and private sectors in transportation management and traveler information, with these implications: 1) the public sector is expected to pay for the cost of ATIS to the degree it contributes to public sector goals; 2) public support requires dissemination of “core information” on an equitable basis; 3) “core information” enhanced by ISPs can generate a revenue stream for profit; and 4) each partnership needs to determine the line between public and private interests. Verification of these points is dealt with the report’s Conclusions.

## **FINDINGS: ALTERNATIVE REVENUE APPROACHES**

There are two public sector approaches. For each approach we have provided profiles of ATIS that illustrate these characteristics:

- **Publicly centered** with ATIS principally serving public transportation management goals. Publicly centered ATIS treat traveler information entirely as an integral part of ATMS. Their overriding objective is to provide as much traveler information as possible so that the traveling public can make informed travel decisions. They do not think it is their responsibility to develop ATIS market. At the same time they are contracting out ATIS functions to the private sector and incrementally considering ways of expanding contacts with the private sector (NAVIGATOR, GMC.)
- **ATIS market growth** with an emphasis on building a self-sustaining ATIS based on products that will sell, using existing, tested technology. This approach depends currently on public funding for all ATIS functions and aims toward development of the ATIS market through outreach to private sector companies. ATIS with MDIs have a heightened interest in market development (AZTech, SmarTrek.) Other ATIS are structured to promote private sector participation and market growth (TravInfo, Partners in Motion and TravelTIP.)

Two private sector initiatives suggest approaches that are dependent on commercialization.

- **Investments to set up regional ATIS functions- SmartRoute Systems, Inc.** Under this approach the firm incurs all costs for start-up, system development and operations and the public agency receives services for a fee which is then partially offset by a revenue sharing agreement (SmarTraveler, Philadelphia; Orion, Minnesota.)

- **Investment in national infrastructure- Etak-Metro Networks.** This partnership has launched a system (MERIT) that will make real-time traveler information uniformly available through the U.S. in a wide variety of standard and special formats.

## **PRIVATIZATION TRENDS**

Two distinguishable trends can be detected in the activities of private firms in ATIS. These trends are interlinked and involve many corporate players. One is the increasing involvement of ISPs and other private firms in government supported ATIS. Opportunities in ATIS are attracting ISPs who benefit from access to fused data, contracting awards, opportunities to test services and products, marketing and forming advantageous private sector partnerships.

The second trend is the emergence of strategies for commercialization of advanced traveler information products in a form that is not dependent on, but can be cooperative with government sponsored ATIS. Private sector initiatives are commercializing ATIS functions: data collection, processing and distribution. Many products and distribution media are being developed and to a significant degree field tested in the deployments underway. The future - and revenue generating opportunities - is dependent on the development of the market.

To illustrate these trends, we provide corporate strategies of two ISPs with a big stake in the outcome of ATIS, SmartRoute Systems Inc., and Etak, Inc.

## **INSTITUTIONAL BARRIERS IMPEDING SUSTAINABILITY**

According to our respondents institutional issues do impede achieving a self-sustaining ATIS. Among the most important are:

1. Need for continuity of leadership
2. Inter-jurisdictional disputes
3. Retaining technical expertise
4. Maintaining public-private partnerships
5. Deploying interoperability standards

For most ATIS sustaining the ATIS beyond the planning and deployment stage requires high-level leadership in the form of a dedicated agency and individual authorized to pursue ATIS agenda. This includes preserving linkages with public sector agencies, working closely with private sector partners and developing education, and public relations strategies. Keeping enthusiasm for the ATIS high among the participating agencies is critical and costly.



## **CONCLUSIONS**

These are the conclusions reached:

1. Framework of assumptions is verified,
2. Privatization trends are influencing funding options for ATIS,
3. Public sector role continues to be strong,
4. Institutional issues are obstacles to sustainability,
5. Further study is needed.

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## 1 INTRODUCTION

This report, commissioned by PATH as part of its continuing research on advanced Transportation Information Systems (ATIS), is an institutional analysis about alternative approaches to sustaining publicly supported ATIS regional centers. There are several reasons for considering this subject: 1) many of the original federally supported Field Operational Tests (FOTs) and other deployment initiatives have completed their demonstration phases, and there is uncertainty about the availability of continued federal support for deployment; 2) there is increasing interest in privatizing various ATIS functions and therefore relying more on private sector investment and revenue generation from the sale of products and devices encouraged and support by federal policy; 3) ATIS want to recover costs of data collection, processing and dissemination through fees or barter arrangements; 4) there is varied experience (US and abroad) to draw upon in defining these alternatives.

ATIS consists of groups and systems of technologies that are used for the collection, processing and dissemination of traveler information before and during trips. The focus of this report is on the 15 largest metropolitan regional efforts (referred to here as ATIS regional centers) in the U.S. that have integrated ATIS into their urban transportation management systems. A starting point for the report is the comprehensive information on these ATIS regional centers available through the proceedings of an ITS America Workshop in San Diego (October 6-8, 1997) and the subsequent ITS America publication *ATIS Business Model Framework* prepared by Washington State Transportation Center. (See their chart "The ATIS Experience: 15 Metropolitan Areas" p. A-31). The PMR Group updated and added to the information through its own questionnaire, interviewing and analysis. (See Appendix A .) In addition, we identified and interviewed private sector participants. Special attention was given to SmartRoute Systems, Inc. and Etak, Inc. in its partnership with Metro Networks, Inc. Both are information service providers (ISPs) with a big stake in the ATIS market.

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<b>Metropolitan Region</b>	<b>ATIS</b>
Atlanta	Navigator
Boston	SmarTraveler
Gary/Chicago/Milwaukee	GCM Corridor
Cincinnati/Northern Kentucky	ARTIMIS
Detroit	MOTORCITI
Houston	TranStar
Minneapolis/St. Paul	Orion, Trilogy
New York/New Jersey/Connecticut	TRANSCOM, iTravel
Phoenix	AZTech
Philadelphia	SmarTraveler
San Antonio	TransGuide
San Francisco Bay Area	TravInfo
Seattle	SmarTrek
Southern California Priority Corridor	TravelTIP
Washington D.C.	Partners in Motion

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## 2 PROJECT GOALS

The principal goals of the project are:

### 2.1 INVESTIGATE ALTERNATIVE REVENUE APPROACHES TO ACHIEVE A SELF-SUSTAINING ATIS

The emphasis is on alternative revenue approaches that minimize public funding. Federal funding for ATIS deployments has been leveraged by state and local government, private sector investment and cost sharing. Achieving sustainability here refers to the capacity of an ATIS to become sufficient through reliance on private sector support. At this point all ATIS regional centers are publicly funded and private firms are still not realizing returns on their investments. We raised questions about: 1) integration of ATIS in the ATMS; 2) revenue generating and revenue sharing agreements; 3) ATIS incentives and outreach to private sector; 4) private sector participation in ATIS; 5) commercialization trends.

### 2.2 IDENTIFY INSTITUTIONAL BARRIERS IMPEDING SELF SUSTAINABILITY

Institutional and legal issues can impede sustainability of ATIS public-private partnerships. The intent is to identify those institutional and legal barriers that constrain the effectiveness of public-private partnerships, inhibit ATIS market growth and restrain full participation of public agencies and private firms.

### 2.3 FRAMEWORK OF ASSUMPTIONS

The analysis takes place within the context of these assumptions: 1) the public sector is committed to improved traveler safety, mobility and reduced emissions; 2) availability of traveler information and dissemination is vital to meeting public sector goals and; 3) private sector participants are more efficient in information management and dissemination. The implications from these assumptions are that: 1) the public is expected to pay for cost of ATIS to degree it contributes to public sector goals; 2) public sector requires dissemination of "minimal information" on an equitable basis; 3) "minimal information" enhanced by ISPs can generate a revenue stream for profit; 4) each partnership needs to determine the "line" between public and private interest.

### 3 Findings: Alternative Revenue Approaches to Sustaining ATIS

The investigation of the ATIS regional centers enables us to identify characteristics common to the ATISs we studied. Minimal core traveler information services are provided free. For other common trends regarding data collection, sources of data, user groups, and dissemination see **Appendix A-2**.

#### **Table A-1: Core ATIS Services**

##### **Core ATIS Services**

Real-Time Traffic Conditions

Congestion

Speed

Incidents

Travel Time

Construction

Road Closure

Transit Information

Bus and Transit Route

Schedule and Fare

\*Core Services are derived from information The PMR Group gathered from ATIS Information Request. The responses can be seen as defining services for an ATIS.

We identified public sector and private sector approaches.

#### **Public sector approaches:**

- Publicly centered

This approach treats traveler information as an integral part of ATMS responsibilities. They use traveler information to meet their management goals and do not anticipate private sector revenue generation to offset their costs.

- ATIS market growth

The emphasis is on building a self-sustaining ATIS based on products that will sell, using existing, tested technology. Public agencies support private sector development of products and markets with the expectation that there will be financial returns to the ATIS or that costs will be reduced.

#### **Private sector approaches:**

- Investments to set up regional ATIS functions - SmartRoute Systems, Inc.(SRS) economic partnership agreements

Under this approach SRS pays for the costs of start-up, system development and operations of the ATIS and the government agency pays

a monthly fee that is partially offset by a revenue sharing agreement. Agreements are in effect in 5 cities: Boston, Cincinnati, Philadelphia and Washington DC with plans to commission two new traveler systems in Detroit and Minneapolis.

- Investment in a national infrastructure - Etak-Metro Networks MERIT national traveler information network system

Etak, Inc., partnering with Metro Networks, has launched a system (MERIT) that will make real-time traveler information uniformly available through the US in a wide variety of standard and special formats. They expect to be operating in the top 50 markets by the end of 1999.

What follows is an elaboration of each of these approaches. The ATIS profiles are based on the information from the survey (See Attachment A) and other documentation. They illustrate the approach, while at the same time revealing the complexities of each region.

### 3.1 PUBLICLY CENTERED ATIS

Publicly centered ATIS treat traveler information as essential for carrying out transportation management and therefore as an integral part of ATMS. Their overriding objective is to provide as much traveler information as possible so that the traveling public can make informed travel decisions. They do not think it is their responsibility to develop ATIS market. Information is communicated to the public through their own websites, CMS, and cable TV. At the same time they do contract out ATIS functions to private sector experts and are, incrementally, considering ways of expanding contacts with the private sector. Publicly centered ATIS have this in common.

The public-centered ATIS has the following characteristics:

- ATIS is closely aligned to broader transportation management policy.
- ATIS services are regarded as "public good."
- ATIS is managed and operated by the Department of Transportation.
- There are existing public resources dedicated to ATIS.
- Public sector has control over the process of data collection, fusion and dissemination.
- Inter-agency, multi-jurisdictional coordination is central to ATIS operation.
- Revenue generation is limited.

Navigator and GCM ATIS have a publicly centered ATIS approach. Both are led by DOTs that treat ATIS as part of the transportation management goals. Public funds are used to foster ATIS operations and DOTs are contracting with private firms to manage specialized services.



### **NAVIGATOR, ATLANTA, GEORGIA**

Georgia DOT operates and maintains NAVIGATOR. The TMC, centrally located in Atlanta, is the heart of the NAVIGATOR system. It serves as a center for transportation emergencies that occur anywhere in the state and is linked to central transportation centers in other cities. NAVIGATOR is designed to gather information from a variety of sources- a video monitor and detection system, Highways Emergency Response Operators (HEROS) and the public; process the information using GIS software; and formulate an appropriate response plan. The plan is communicated to the public via the system's website, cable TV broadcast and its changeable message signs. Their transportation management and traveler information goals are combined and consist of:

- integrating the management of freeway and surface roads;
- allowing state and local engineers to interact and participate in real-time transportation decisions;
- providing a high speed/high capacity communications network;
- serving as a clearinghouse for transportation information and providing that info to the traveling public;
- encouraging the use of alternative modes of travel.

This is done with some private sector involvement. Georgia Department of Transportation (GDOT) is negotiating with a private firm to operate dissemination to cable TV. Any improvements on the cable TV, the cable dissemination will be owned by GDOT at the end of the contract. GDOT sees benefits from private sector involvement in helping to get traffic information out to the public and supplementing GDOT staff.

Public support for NAVIGATOR and increased usage of services are major indicators of the success of the investment. GDOT's public awareness campaign responds to this concern. The purpose is to educate the public and generate awareness about NAVIGATOR through a joint venture between the Georgia DOT, the Metropolitan Area Rapid Transit Authority (MARTA), the Atlanta Regional Commission (ARC) and the FHWA. Ads are up – "NAVIGATOR- the Smart Way to Travel," "Un-Clog Arteries," and "Punch Your Way Out of Traffic" on metro-area billboards. MARTA bus signs point to NAVIGATOR's contribution to improving incident management and traveler information. Georgia DOT is coordinating TMCs in the state and with other states.

### **GCM CORRIDOR, GARY, CHICAGO AND MILWAUKEE**

GMC Corridor is made up of public and private sector participants working together informally. The lead agency, Illinois Department of Transportation (IDOT), sees ATIS as part of their traffic management effort. Their goal is to link traffic management centers together and to encourage information sharing among public agencies. Under the federally funded Priority Corridors program, GCM developed the Corridor Transportation Information Center (C-TIC) and is currently operated by IDOT. C-TIC serves as an information clearinghouse and provides multi-modal traveler information to public agencies in three states involved in the Priority Corridor Project. In order to improve communication capability among public agencies, C-TIC will be replaced by the Gateway System. Currently, traveler information is disseminated from the C-TIC via GCM Corridor Internet Home Page. Information includes real-time congestion on expressways and maintenance and construction schedules. This information is available to individual travelers and radio and TV broadcast stations. IDOT also disseminates traveler information through a telephone system, variable message signs, and fax. While private sector participation is presently limited to technical support and dissemination, GCM expects to see an increase in private sector participation when national standards are established. Private sector provides information through cellular phone, radio and TV

broadcasts, Internet, and pagers. The \*999 cellular system for instance was started as a public sector project and after 1 year, it was contracted out to a private sector firm. In the future, IDOT may contract operating traffic center to a private sector firm.

### 3.2 ATIS MARKET GROWTH

This approach continues to depend on public funding but aims toward development of the ATIS market through outreach to private sector companies. Some of these ATIS see the private sector as supplementing their own transportation efforts while others seek dependence on private sector success for sustaining the ATIS. For ATIS with federally funded Model Deployment Initiatives (MDIs) incentives exist for opening up opportunities for private sector participation and demonstrating the benefits of ITS products and services through "showcase" projects. At the same time they are encouraged to integrate transportation management systems with strong traveler information systems. There is a heightened interest in ATIS market development among MDI projects. We provide profiles here for two MDIs: AZTech (Phoenix, Arizona) and SmarTrek (Seattle, Washington). In addition, we include profiles of three other ATIS who fit this category of support for ATIS market growth: TravInfo (San Francisco Bay Area,) Partners in Motion (Washington DC, Maryland and Virginia), and TravelTIP (Orange County.) Each agency has somewhat different business plans and expectations regarding resource generation and sharing.

#### **AZTECH, PHOENIX, ARIZONA**

AZTech is a Federally funded MDI led by the Arizona Department of Transportation (AZDOT.) The goal is to provide traveler information to the public in many formats as possible and use the same information to achieve ATMS goals. Currently, Arizona DOT operates the fusion process. Data is collected by various local agencies and shared. Public sector dissemination includes variable message signs, phone-in-system, Internet and broadcast media. Etak will provide traveler information via cable TV, a Web page, a personalized pager system, the digital ATT phone, and email service. Federal and state funds are used to operate the ATIS. AZDOT currently does not require private partners to share revenue but hopes to have revenue sharing arrangements in the future.

Private sector contributes to information consolidation and dissemination. Etak takes the information from AZDOT and enhances it in the format ISPs will purchase. Phase II of the project creates more competition by bringing in different private partners. AZTech will move toward privatization so that the public sector does not have to subsidize the system. The opportunities for revenue generation are limited because the information is provided free to everyone by the public sector.

SmarTrek grew out of ATMS efforts that included traffic data collection and dissemination. WADOT cooperates with every ISP as long as the net benefit to the public is greater than it costs WADOT to participate.

**SMARTREK, SEATTLE, WASHINGTON**

Seattle's SmarTrek is another MDI project. Washington Department of Transportation (WADOT) is committed to ATIS for the benefit of traffic management. Projects are prioritized based on the net benefit versus the cost to cooperate. (MDI Minutes, March 11-12, 1998.)

Currently, Etak and Metro Networks are supplementing the WADOT data, and they have free access to fused data from the WADOT. They enhance the data and sell it to private firms and ISPs. Although there have been a lot of private sector activities, the public sector is not relying on revenue sharing to sustain their ATIS, instead WADOT is expecting that State funds will be used to continue ATIS services. The fusion process is managed by the Dept. of Engineering at the University of Washington. The traveler information is disseminated in various formats and locations so that it is used by many different groups of travelers. For instance, Seattle visitors can use the SeaTac traffic information, the Metro transit EZ Rider kiosks, the Travel Aid and the Mayday system. Transit commuters can use the Rider Link Web Site, the Seiko Message Watch, and the BusView. Traffic manager can use the mobile video links to incident locations and the expanded links to Emergency Management Centers.

TravInfo is the San Francisco Bay Area's ATIS, the only deployed ATIS in California. It is a public-private partnership that provides real-time traffic information and current transit and ride-share information to Bay Area travelers. After completing its field operation test (September 1998,) the Metropolitan Transportation Commission (MTC) which serves as the Project Manager and speaks for the Executive Board issued a TravInfo Deployment Plan covering a nine month period ending June 30, 1999.

**TRAVINFO, SAN FRANCISCO BAY AREA, CALIFORNIA**

TravInfo's objective is to provide traveler information as a public service so travelers can make better and informed travel decisions. Their public sector goal is to make efficient use of transportation assets. TravInfo is targeting a system that will provide accurate and reliable traveler information service, which means maintaining data quality and timeliness. Currently, travelers in the Bay area can call a 800 number and get information about traffic conditions and incidents. From early on in the Field Operation Test, TravInfo has been active in outreach to private sector. TravInfo provides free information to registered private sector participants. As a result, Etak, Maxwell and Contra Costa Times provided real-time traffic information on their Internet Web sites. Other ISPs such as Etak, Daimler Benz, Fastline, Digital DJ are developing other traveler information products. Continued development of traveler information services by private sector participants will depend on accessibility and quality of data. By October 1999, after the field operation test period, TravInfo will have one contractor responsible for TravInfo functions. They will also conduct an assessment study to determine the type of data travelers want. They are implementing a marketing plan based on lessons learned from the initial marketing effort.

The Partners in Motion financing arrangement is built on the concept of "shared risk and shared revenue." ITIS is a transportation partnership of 26 public agencies and 13 private firms that has a financing goal that requires achieving sustainability over a three year period.

**PARTNERS IN MOTION (PIM), WASHINGTON D.C.**

PIM was launched in July 1997, as part the ATIS for Washington, D.C. metropolitan area. PIM brings together public and private resources through joint funding, combining public and private data collection, fusion and dissemination and collaboration in operations.

The financing of PIM is based on partners agreeing to share risks and benefits. (See Marston & Zimmerman, 1998.) The \$12.2 million 3-year budget is 2/3 publicly funded and 1/3 private match including cash and in-kind contributions such as commercial value of licenses from software and database inputs. Battelle Memorial Institute (Battelle) leads a team committed to a self-supporting system that at the end of 3 years will operate in a totally privatized mode. By month 36, agencies are expected to recoup their investment through a revenue-sharing component of the projects. 10 percent of gross revenues generated though sale of information to ISPs are to be returned to participating agencies by means of an escrow account.

Battelle's contract is with Virginia DOT, contracting agent for PIM. Battelle manages and coordinates relationships with private sector partners and has let a three-year subcontract with SmartRoute Systems. SRS's SmarTraveler Information System provides a free telephone and internet service giving users (residents, tourists and commercial vehicle operators) access to on-demand, real-time, route-specific information regarding traffic and transit conditions. SmarTraveler also provides construction, weather and special event information. SRS has principal responsibility for commercializing the PIM database.

Other products and services under development include a regional Agency Data Server – a tool for interagency coordination and cooperation. Etak, another PIM team member, is preparing a number of information delivery approaches using the PIM database including: web pages offering routing and yellow-page listings, an automated cable TV program, wireless communications of traveler information to portable PCs, and additional services including in-vehicle devices and automated personalized paging services. Both SmartRoute and Etak are recruiting a number of ISPS to help disseminate information from the database to the public. These ISPs will become clients to PIM by negotiating commercial arrangements for using the database.

The other private sector partners offer varying expertise. Navigation Technologies Corporation provides the NavTech database used in the PIM Agency Data Server; TRW provides the software engineering expertise to develop the PIM data server that each public agency uses to send and receive data; Parsons Transportation Group helps to define participating agency needs and system requirements. There are firms providing: marketing and public relations advice, specific definitions of CVO traveler information needs, marketing to electronic toll patrons (in Virginia), assistance with data collection, system definition, initial deployment and agency interface.

TravelTIP expects to be operational by mid-1999. They are part of the Southern California Priority Corridor. Within the Corridor, ATISs are under development for LA/Ventura County and San Diego. A Corridor-Wide ATIS is also under discussion. TravelTIP will be deploying the Southern California Partnership ATIS business model which calls for establishing an asset business manager to facilitate the exchange of traveler information between data generators and markets. Participating firms are

expected to pay a fee for access to the asset management services (Southern California Economic Partnership, 1998.) TravelTIP is part of a Travel Advisory News Network (TANN) with private sector affiliates demonstrating and marketing technologies and devices that it hopes to deliver in the near future.

**TRAVELTIP, ORANGE COUNTY, CALIFORNIA**

From early on in the planning phase, TravelTIP has been looking for private partners to participate in marketing and development of their business plan. There have been efforts to establish relationships with private sector ISPs, such as Seiko, Etak, and Cable TV providers. As a Orange County Showcase MDI, TravelTIP will deploy a "broker" or "business manager" who will facilitate selling of traveler information to private sector firms. TravelTIP has two major sets of goals. In regards to services, the goals are to improve urban and inter-urban travel among different traveler groups and to improve accessibility of alternative modes of transportation. Their system goals include developing an automated and self-sustaining system; supporting regional transportation management needs; and promoting private sector participation in development, operation, maintenance and enhancement of the system. The fusion process will be automated and operated by the Orange County Transportation Authority (OCTA). It will be compatible with the Priority Corridor Kernel system. TravelTIP is intended as a clearing-house and services will be disseminated through the Internet, kiosks, and call-in telephone system. Freeway, events and public transit information are given priority for dissemination. Of the \$4.2 million budget, 80 percent comes from Federal contribution, 10 percent from the state, and 10 percent from OCTA. Private sector is expected to take the minimum data provided by the automated system and repackage it. Revenue generation is highly encouraged. They believe customer demand for services will be critical in encouraging private sector investment.

**3.3 PRIVATE SECTOR INITIATIVES: SMARTROUTE SYSTEMS ECONOMIC PARTNERSHIP AGREEMENTS**

Under this approach, the firm, SmartRoute Systems Inc., incurs all costs for start-up, system development and operations and the public sector receives services for a fee that is then partially offset by a revenue sharing agreement. This system is in place in Boston, Cincinnati, Philadelphia, Washington DC. Agreements are in process in Detroit and Minneapolis. Their goal is to develop economic partnership agreements with 15 more cities by 1999 and 30 cities 2-3 years later.

Each contract has somewhat different terms and revenue sharing is dependent on SRS generating a profit. The major components of the contract have SmartRoutes doing the following:

- Build, staff and maintain systems at their expense.  
On the average they invest between \$1.5-3 million in deployment of a fully operational data collection and management system in each market they enter. This includes a fully staffed Traffic Operations Center and numerous stationary and rotating video cameras providing real-time information processed through SmartRoutes' proprietary traffic management software.
- Public sector pays monthly fee of about \$150,000-\$300,000 for specific services.

These include the delivery of SmarTraveler to all touch-tone phones free of charge to consumers and delivery of all private data feeds to public sector operations. Data sharing with other public agencies benefits incident management. HAR and VMC are serviced. SRS also builds and manages a website and undertakes R&D for ITS. They sell their advanced traveler information database to other delivery systems. Key potential customers include cable TV companies, internet companies, and cellular phone service providers.

- Participating public agencies entitled to percentage of proceeds from SmartRoute sale of data to private companies.

Revenue sharing agreements vary. They involve, for the most part, providing 50% of net incremental income (gross revenues less marketing and operating costs amounting usually to 40 % of gross costs) to agency. This is the arrangement for Philadelphia, Cincinnati and Boston. In Boston the options for the Massachusetts Highway Department were: 1) cash payment; 2) reduce reimbursement obligation; and 3) direct use towards SmarTraveler. In Washington, D.C. (PIM) starting in month 37, agency gets 10 percent of gross revenue. Under SmartRoute Systems contracts, the fuse data may not be transmitted without the company's approval.

- Marketing information available to the public free of charge involves multiple formats including its SmarTraveler telephone service.

Two profiles are provided: SmarTraveler in Philadelphia and the Orion project in Minnesota.

#### **SMARTTRAVELER, PHILADELPHIA, PENNSYLVANIA**

Pennsylvania Department of Transportation (PennDOT) is letting the private sector contractor lead the ATIS coordination and marketing efforts in the region. The public sector goal is incident management. SmartRoute Systems provides support through data sharing and dissemination. It receives a monthly fee from PennDOT. In addition to SmartRoute's TOC, there is another TOC operated by PennDOT District 6. The District 6 TOC covers routes not covered by SmartRoute. District 6 TOC provides information to the public through media outlets. PennDOT is also part of the Information Exchange Network. SmartRoute disseminates information through a telephone system, the cellular phone, and the Internet. The contract with SmartRoute is financed by State funds. SmartRoute will share 50 percent of their profit once they have recovered their initial construction and operation cost. SmartRoute is expected to establish relationships with other public sector agencies such as SEPT, airport, New Jersey DOT and Pennsylvania Turnpike Commission. SmartRoute will also provide data to other ISPs in the area. Currently they are negotiating with a Cable TV station, gas stations, large employers and the Delaware Port Authority. PennDOT supports SmartRoute's marketing initiative to expand the ATIS market. There are opportunities for revenue generation through selling of data and providing traveler information to local businesses.

#### **ORION, MINNESOTA**

Orion is the MDI project under Guidestar. Like SmarTrek and GCM, Orion is an outgrowth of ATMS functions since the same data used in traffic management is used to generate ATIS services. The public sector's goal in the ATIS is to provide as much traveler information as possible so travelers can make informed travel decisions. Unlike SmarTrek and GCM, however, Minnesota Department of Transportation (MnDOT) has a 30-month contract with SmartRoute Systems who operate the TIC. MnDOT also has a TIC but its services and coverage do not overlap with those provided by SmartRoute Systems.

As an MDI project, MnDOT has launched several trial operations including Trilogy (in-vehicle navigation), pager, kiosks, message signs, and MicroSoft Sidewalk. So far, public sector investment, which includes infrastructure improvements and dissemination of traveler information, is \$3.2 million per year. SmartRoute has also invested in the traffic management center and data collection systems. SmartRoute is anticipating a profit after 5 years. Revenue is expected through advertising and selling of data to other private sector information providers.

### **3.4 PRIVATE SECTOR INITIATIVES: INVESTMENT IN NATIONAL INFRASTRUCTURE**

The National Traveler Information Infrastructure, an initiative of Etak and Metro Networks (MERIT,) provides an infrastructure that in two years is expected to make real-time traveler information uniformly available throughout the US in a wide variety of standard and special formats. Information, from all 75 Metro offices, will be sent to central servers at Etak in Menlo Park and Metro Networks headquarters in Houston. Also Etak Traffic Workstation (TWS) will be adapted and installed in Road Watch America operations centered in Houston. Metro Networks operates Road Watch America covering road and traffic conditions nationwide. National services such as national truck dispatchers, national roadside-service providers and internet services (including web pages) can be supported by accessing these central servers, greatly simplifying communications requirements for those customers. This is how it works:

- Metro gathers information from all available sources,
- Information is entered manually or by automatic feeds into Etak Traffic Workstations (TWS) at all Metro operations,
- Information is consolidated within the TWS and incident information is adjusted to conform to a standard database,
- Information is all entered into a comprehensive traffic database,
- Selected information is retrieved from the database and translated to standard and customized transmission formats,
- Wide variety of information is available: what is affecting traffic; when an incident occurs; where traffic is affected, how drive time will be affected,
- Optionally, service can incorporate and transmit news, weather, sports, personal alerts.

This private sector initiative is expected to facilitate development of local, regional and national products; integrate government and private sector traveler information statewide and lead to an integrated national ATIS infrastructure.

MERIT is a pilot demonstration program taking place in AZTech and SmarTrek (see pages 7-9.)



## 4 PRIVATIZATION TRENDS

Two distinguishable trends can be detected in the activities of private firms in ATIS in the US. First is the increasing involvement of ISPs and other private sector firms in government supported ATIS. The second trend is the emergence of strategies for commercialization of advanced traveler information products in a form that is not dependent upon but can be cooperative with government sponsored ATIS. These trends are not by any means independent of each other; rather they are inter linked and involve many of the same corporate players.

### 4.1 OPPORTUNITIES FOR ISPs IN ATIS

Opportunities in publicly sponsored ATIS are attracting ISPs who benefit from access to fused data, contracting awards, opportunities for testing services and marketing and forming advantageous private sector partnerships. Such opportunities are consistent with federal policy to increase private participation. Increasing numbers of private firms are teaming up with ISPs in ATIS. Rollouts of ATIS systems assure maximum publicity to partners. Firms responding to ATIS RFPs put together teams of experts; these teams compete against each other. Participating firms, even if their role is minor and not particularly remunerative, see these ATIS as advantageous. ATIS makes possible revenue generation from advertising (yellow pages), commissions, subscriptions (wireless), sponsorships (webTV), and transactions (customer information.)

The public sector recognizes the importance of opening up opportunities for ISPs and other private firms in non-core services and distribution. They also expect some return from ISPs for supplying them with free fused data. The participants in ATIS, particularly MDI projects, are motivated by gaining name recognition, brand development, improved public relations, market testing, and customer feedback. ATIS offers firms a number of opportunities to earn income and to improve their market position.

#### 4.1.1 *Business Planning*

Public sector agencies have very limited experience in business planning and consequently public agencies seek assistance from private sector companies specializing in business plans and system management.

#### 4.1.2 *System Design and Integration*

The system architecture is the essence of any ATIS. Private companies such as TRW help build systems that are viable and relevant for the region. Universities also offer important technical knowledge and staff. System design and integration involves hardware, network, and software design and development.

#### 4.1.3 *TIC Operation*

Private firms operate the TIC under contract with the local department of transportation. ISPs gain experience, recognition and income from these contracts. Private firms have

expertise and experience in managing TIC. The private TIC may exist with the public TIC in a complementary relationship.

#### *4.1.4 Attraction of Centralized Regional Traveler Information Database*

Many ISPs join ATIS because of the availability of a centralized fused data source. The advantages have been that a TIC service saves firms money, prevents duplication, expedites data exchange between a large number of public agencies and offers opportunities for commercial development of products and services.

#### *4.1.5 Value Added Products/Services Enhanced*

ISPs take raw or fused data from the TIC, add value to it, and sell it to their customers. They enhance data in qualitative ways such as converting raw traffic volume data into travel time and providing route specific information for customized traveler services. The market for repackaged and customized services is maturing.

#### *4.1.6 Testing Services, Products, and Marketing*

Many companies are exploring market potential in various aspects of ATIS. ATIS are seen as good product and market test locations. Major marketing takes place – publicizing national rollouts, building consumer awareness and joint marketing with other MDIs. Seattle ATIS invited private firms to participate in test programs for dissemination devices such as Seiko message watch, hand-held PCs and information kiosks. AZTech sent out an RFP to solicit private partners in their next phase. ATIS are often looking for messages to sell. For example in Seattle, Fastline real-time bus schedule and traffic information meet characteristics of that market -- they are cutting edge, trend setting, and fast.

#### *4.1.7 Private Sector Linkages*

Private firms are looking for opportunities to start businesses in ATIS. So far only a few ISPs have invested substantially in ATIS; these lead contractors are teaming up with other firms who have complementary expertise. The diversified teams they put together for operating and deploying the ATIS include companies with expertise in interagency networks, engineering, incident management, transit applications, public relations, marketing. Depending on the ATIS business plan, they recruit firms with a national or regional orientation and those with promising devices and services.

## 4.2 PRIVATE SECTOR INITIATIVES

Private sector initiatives in effect are commercializing major ATIS functions: data collection, processing and distribution. There are many products and distribution media being developed and to a significant degree field tested in the deployments underway.

The future of such initiatives is dependent on development of the market for products. The current ATIS market is immature at best. Immaturity translates into a situation where firms invested in ATIS products and services are not realizing a profit.

Consensus is that at least for the next 3-4 years public funding will be needed to support ATIS. There is some consensus on reasons for immaturity: One pervading

view is that the availability of free traveler information conditions travelers against charges and it is not clear whether and what the public would pay for customized services.

A 1998 Harris Research Group Survey in the NY Metropolitan area indicates that 78 percent of those surveyed said they would be willing to pay something to access an improved traveler information system (in U.S. DOT, 1998.) For such to develop into a market, several elements of the present situation need to be changed.

- A reasonably clear line around core information to be provided free to consumers is needed.
- Real time information needs to be comprehensive and reliable.
- Products need to be targeted to needs of defined user groups.
- Price needs to be right.

#### *4.2.1 Corporate Strategies*

We provide here two scenarios of ISPs with a big stake in the outcome of ATIS. SmartRoute Systems, with headquarters in Boston, is active in six U.S. cities. Etak, Inc. is a wholly-owned subsidiary of Sony Corporation. Both companies are lead partners in different ATIS, regional centers, and work together in others. The corporate strategies of both may well be important revenue generation indicators. Both companies have developed partnerships to strengthen their market positions.

#### *4.2.2 SmartRoute Systems*

SmartRoute Systems, Inc., founded ten years ago, provides advanced traveler information services to the home, office and vehicle. They are a leading high-tech information provider of continuous traffic and related traveler information. Currently they provide a range of traveler information services under the brand name SmarTraveler in Boston, Cincinnati, Philadelphia and Washington DC. They are currently commissioning two new traveler systems in Detroit and Minneapolis. They plan to have proprietary SmartRoute servers set up in the top 15 US metropolitan areas by the end of 1999 and to cover 30 US cities within the next 3 years depending on the market. The top 15 cities in the US reach 80 million households.

SmartRoute defines itself as being in the programming content business. "Comparable to a Bloomberg, a weather channel, Dow Jones, CNN . . ." (Steve Crosby, President and CEO). Traffic information is the core of the business. They are creating a database of content covering all types of traveler information: traffic, parking, transit, flights and weather. They build their own database, process it on their proprietary software architecture and prepare for their customers. (See Traffic Technology International Aug/Sept '98).

Based on interviews, written materials and consultation with staff we identified the elements of SmartRoute's corporate strategy:

1. Ownership of database belongs to the company.

Software and operating systems are proprietary. Traveler information from these databases is shared with partner agencies but may not be transmitted without the company's approval.

2. Build their own database and when appropriate incorporate DOT traffic data but never rely on public sector data; they working on developing fully-automated traffic data collection systems.

Their proprietary system - SmarTraveler - provides telephonically delivered, route specific, real-time information to travelers. These data are combined with information from electronic sensors, two-way radios and cellular phone probes; electronic scanners; fixed wing aircraft, communication links with public transportation agencies, and emerging vehicle tracking technologies. They count on traffic probes (spotters), trained drivers, who call in when they encounter traffic disruptions. The database delivers traveler information to consumers through a variety of communication channels and multimedia formats.

3. Develop economic/partnership agreements with metropolitan areas and expand to over 30 cities within 3 years.

SmartRoute terms this an economic partnership model. (See pages 11-12 above.) Currently, Departments of Transportation (DOTs) are major clients. Out of SmartRoute revenues of about \$8 million (1996), the largest portion (3/4) were generated from DOT subsidies. Each contract has somewhat different terms and revenue sharing is dependent on SRS generating a profit.

4. Continuous product improvement, innovations, product testing, measuring consumer usage.

This is occurring with new "SmarTraveler" brand name products. In addition to the TATS, there is the SmarTravel operations center, TV (cable TV programs for rush hour commuters,) website, and Alert (designed for wired and wireless communication.)

5. Open up new markets and revenue channels through acquisitions, agreements, and service arrangements with private sector firms and induce participation of new dissemination partners in ATIS.

SmartRoute's recent acquisition of Maxwell Technologies ITS Division extends its nationwide coverage to the West Coast. "The acquisition of Maxwell Technologies' traffic collection technology and operating sites is a natural fit for SmartRoute's national roll-out of our traffic information services. With Maxwell we're now in 12 major metropolitan markets and the Maxwell assets substantially deepen our strategic skills in automated data collection and internet applications." (Steve Crosby, President 11/3/98.)

The firm is counting on principal revenue coming from tie-ins with in-vehicle navigation service suppliers, wireless messaging and cable TV deals. Currently they are signing agreements with a number of cellular

phone service providers to launch a new wireless product- SmarTraveler Alert- by end of 1998. Wireless companies like Sprint PCS and AT&T Wireless are delivering Alert to customers. Other recent agreements substantiate this direction: NavTech (dynamic route guidance applications); PageNet (customized traffic reports to wireless customers); Cablevision Systems (live, continuous rush-hour traveler information on cable TV). The alliance with NavTech (supplier of route guidance map databases) permits merging of SRS traffic data bases with NavTech database in larger metropolitan markets to create dynamic route guidance applications available also on the internet and wireless messaging services. They are marketing these services to automobile companies, electronics equipment manufacturers, emergency service operators and wireless communications providers.

They expect to be in a strong positive cash position around August 2000. Revenues from owners of in-vehicle navigation units are projected as part of their monthly service fee. They are talking to all major US automotive manufacturers in effort to fit SmartRoute compatible systems as standard equipment in selected metropolitan areas. They are considering seeking IPO in the near future.

#### *4.2.3 Etak, Inc.*

Etak Inc., a unit of the Sony Group, headquartered in Menlo Park, California, has been a source for high-quality digital map databases, software development tools, personal navigation and real-time travel information. They produce digital road maps and technologically advanced supporting software. Etak map databases cover the continental US and mainland Great Britain. Application of Etak maps and technology range from fleet management and utility facility management systems to a variety of consumer products in vehicles, homes, offices and hand-held products. Recently Etak introduced a portable personal navigation system for traveling professionals which features real-time GPS tracking, a contact management/ address book, turn-by turn navigation and voice guidance. It is available for license.

The firm's corporate strategy can be summed up as follows:

1. Generate revenues from multiple sources - government contracts, advertising, commissions, subscriptions, sponsorships - with decreasing reliance on public funds.
2. Participate, frequently as a lead partner, in public ATIS projects.

Etak is a principal player in ATIS metropolitan centers. They have been involved with 4 Field Operation Tests: Atlanta TIS, TravInfo, TransCal (Lake Tahoe traveler information) and SWIFT (Seattle wide information for travelers), two MDIs (AZTech and SmarTrek) and over 25 private companies. FOTS and MDIs are beneficial as pilots, testbeds and test markets. Etak is active in publicizing ATIS national rollouts, building commercial, government and consumer awareness of ATIS, leveraging joint marketing efforts and recruiting ISPs to the partnerships especially

those with national coverage and those who support ISP product development.

3. Engage in private sector initiatives such as the national traveler information infrastructure (with Metro Networks) – MERIT (Metro-Etak Real-time Info for Travelers.)

The lack of a nationwide ATIS is regarded as a major barrier to market growth. The partnership with Metro Networks brings together Metro's quality traveler information and an Etak technology, Etak Traffic Workstation (TWS) interface between infrastructure and user products and services. Metro, headquartered in Houston Texas, is a leading supplier of local, regional and global customized news, sports, weather and traffic reporting services in the world. They operate in over 75 markets nationally and service more than 1500 radio station affiliates and 135 TV station affiliates.

The national rollout of this private sector ATIS information infrastructure is underway in cooperation with a large number of local agencies and a wide variety of ATIS product and service providers. AZTech and SmarTrek MDIs are serving as pilots. Manufacturers and service providers can now develop and introduce products and services. Users can buy such products in the US knowing that those products and services will be part of an expanding marketing. They will operate in the top 25 markets by the end of 1998, in the top 50 markets by the end of 1999, and in the top 75 markets (or virtually everywhere) in the year 2000." (ITS 1998 Annual Meeting, May 4-7, 1998)

4. Develop new products and expand markets through linkages with other ISPs.

Etak partners with firms that have complementary strengths to create new markets, overcome barriers and stay competitive. Note for example, the linkages formed through the deployment of MERIT products and services:

- Traffic Check (traffic information service for cable TV subscribers,)
- Traffic Angel (real time traffic update service for cellular phone services including: AT&T PocketNet phone, paging through Seiko, Cue and others, cell phones, e-mail,)
- Internet ([www.etaktraffic.com](http://www.etaktraffic.com), that displays traffic information 24 hours a day for major sites,)
- In-vehicle devices (traffic info to AutoPC through Cue and others in pipeline),
- Handheld PCs (Fastline for AZTech, PalmPilot.)

There are some positive market trends. Convergence, according to some, seems to be taking place. Content is available, as are digital map databases, defacto standards, communication devices and websites. There continues to be volatility in the market but some segments appear to be taking off, internet travel information, wireless, and in-vehicle navigation information systems.

The President of Cue Corporation says this about the market: "We are in a unique situation today...this industry has been something of a classic case study over the past 10 years. Millions of dollars have invested in navigation systems and yet no one has made a dime. Lots of companies have committed a significant investment and the US Government has spent more the \$1 billion to date. At some point there has to be a breakthrough." According to him, Microsoft's AutoPC is driving the breakthrough. The use of Windows CE in handheld as well as in in-car computers is helping him build markets for his traveler information services. (ITS International, December 1998.)

## **5 INSTITUTIONAL BARRIERS IMPEDING SUSTAINABILITY**

According to our respondents institutional barriers impeding a self-sustaining ATIS can be formidable though manageable. (See Appendix A-2, Table 8.)

### **5.1 NEED FOR CONTINUITY OF LEADERSHIP**

Leadership is essential for sustaining the ATIS operation beyond the planning and deployment stages. Some reasons cited: 1) many ATIS centers are new and lack visibility and clout in transportation arenas; 2) all regional ATIS regional centers are dependent on working with multiple public sector and private partners who have divergent missions and who need to be coordinated; 3) for states relying on state and local funding, it is critical to have leaders capable of effectively arguing the ATIS case at all levels of state, regional, and local government; 4) dynamic character of ATIS developments means that leaders must be flexible and responsive to market directions; 5) uncertainty about DOT direction after testing and trial periods. Most ITS officials, responsible for ATIS projects, are professional engineers who have taken leadership roles.

### **5.2 INTER-JURISDICTIONAL ISSUES**

Think about the numbers of and types of agencies from different jurisdictions (federal, state, county, special jurisdictions, regional, cities, non-profits) involved in a metropolitan, regional ATIS and it is clear that there will be problems in reaching agreement on an ATIS plan, procurement policy, keeping agencies involved, committed, and willing to expend resources. In many cases, agencies are able to work well together because each recognizes the benefits from ATIS operation. This is especially true during the enthusiasm of the ATIS launch. The main benefit to local agencies is access to fused traffic information from the TIC that meets their needs. Other benefits include system upgrade and technical support. For inter-jurisdictional arrangements to improve support will be needed for improved system management, better coordination and more focused institutional relations. This will be needed to sustain enthusiasm among the public sector partners, continue to define functional requirements and manage expectations.

### **5.3 RETAINING TECHNICAL EXPERTISE**

Staff retention is a problem in the public sector. There is a shortage of transportation professionals with ITS experience. Cuts in agency budget and personnel also exacerbate the problem. Skilled professionals also are drawn to the private sector in response to higher salaries. Public agencies are therefore relying on private consultants. On the other hand, private firms have a comparative advantage over public agencies because they are able to attract and retain skilled staff. They, too, suffer from shortages of appropriately trained and experienced engineers.



#### 5.4 MAINTAINING PUBLIC-PRIVATE PARTNERSHIPS

For these public private partnerships to be effective there must be clear-cut delineation of the roles and expectations of the public and private sector parties. Legal and financial issues require solutions. Legal issues refer to intellectual property, contract administration and interpretation of the legality of the terms of public-private partnership. These partnerships require a clear and reasonable determination of what information will be disseminated to the public without charge so that private company products can be adapted to that situation. Otherwise uncertainty about "competition" from the public sector will discourage private participation. These partnerships depend too on the maturing of the traveler information market so that revenues can be reliably estimated and an equitable basis for revenue sharing can be agreed upon.

#### 5.5 NEED FOR INTEROPERABILITY STANDARDS

Interoperability has a number of meanings. We are referring here to the interfaces between regional and national systems. Some ATIS participants have stated that without interoperability, the potential for market development is limited. This makes sense especially in regards to in-vehicle devices. A traveler is more willing to pay for services if s/he can receive traffic information in any city in the US. Most ATIS managers are willing to work toward establishing a national standard to achieve interoperability. Private firms such as Etak have taken this as their corporate marketing strategy. They are trying to establish an ATIS that can deliver traffic information nation-wide.

## 6 CONCLUSIONS

Our investigation of alternative revenue approaches to achieving a self-sustained ATIS leads to these conclusions:

### THE FRAMEWORK UNDERLYING THIS REPORT IS VERIFIED

- Public sector does pay for the cost of ATIS to the degree it contributes to public sector goals. All profiles reflect this rationale.
- Public sector requires dissemination of "core information" on an equitable free basis. Core traffic and transit services are common to all ATIS we investigated, are delivered as widely as possible without charge either by the public or private sector.
- Data enhanced by ISPs should be available free to public sector providers but private firms should be permitted to charge for distribution of value added data. ATIS partnership agreements address this issue often limiting the distribution of fused data by public agencies
- Each partnership needs to determine "line" between public and private interest. ATIS are struggling with this issue. It extends to all ATIS functions: data collection (mostly public but increasingly mixed with private activities); fusion (mostly public but new private sector initiatives are demonstrating ways of privatizing), most noticeably in distribution (increasingly private sector).

### PRIVATIZATION TRENDS ARE INFLUENCING FUNDING OPTIONS FOR ATIS

- ATIS are encouraging private sector to participate in their partnerships and firms are taking advantage of these opportunities.
- Companies are investing and are using the ATIS to market, test and deploy their products and services. Nobody is making a profit but some are cautiously optimistic.
- Lead private sector partners have a significant influence on ATIS partnerships- SmartRoute Systems in Boston, Philadelphia, Cincinnati, Washington DC metropolitan area, Detroit, Minneapolis and Etak-Metro-Networks in Phoenix and Seattle.
- ISPs are positioning themselves for growth by partnering and acquisitions to expand their geographic coverage, technological diversity and market share. They are establishing proprietary systems for data collection, processing and distribution that are decreasingly dependent on public sector data collection and fusing.

## PUBLIC SECTOR ROLE CONTINUES TO BE VITAL

- Publicly funded ATIS provide core ATIS traffic and transit services
- Transportation management objectives are central; ATIS serves these ends.
- Public-private partnerships require public sector leadership.
- Public sector is responsible for assuring social equity, monitoring of data systems, open markets.
- Public sector needs to be flexible, market aware and oriented to traveler behavior.

## INSTITUTIONAL ISSUES ARE OBSTACLES TO SUSTAINABILITY

Of particular importance are:

- Defining the "line" between public and private sector interests and responsibilities,
- Assuring continuity and responsiveness of the public-private partnership to institutional, technical, financial, management and consumer needs,
- Compensation issues: public agency policy on receiving compensation for information, and
- Willingness of customers to pay for customized information.

## WHAT NEEDS STUDYING

- Similar analysis for California ATIS developments.
- Expand to cover other private sector players.
- Extend analysis to assess ATIS success.

## Glossary

Definitions are taken from ITS America document (1998) "Choosing Route to Traveler Information Systems Deployment," U.S. Department of Transportation document (1998) "Developing Traveler Information Systems Using the National ITS Architecture." Some have been defined or modified based on our own research findings.

**Advanced Traffic Management Systems (ATMS)** – An array of institutional elements and hardware and software components designed to monitor, control, and manage traffic on streets and highways.

**Advanced Traveler Information Systems (ATIS)** – Groups and systems of technologies that aid in the collection, collation and dissemination of traveler information before and during trips. Includes vehicle navigation, route guidance, in-vehicle signage, intermodal travel information, trip planning, and mayday communication.

**Auto-PC** – An in-vehicle device that, factory installed or portable, is equipped with Internet access, navigational maps, route guidance and communication capabilities. Auto-PCs are now available on the market and represents an area for traveler information content market.

**Automated Vehicle Identification (AVI)** – System that has three functional elements: a vehicle-mounted transponder (also known as a vehicle tag); roadside reader unit (also known as a tag reader); and a processing control unit.

**Automated Vehicle Location (AVL)** – A computerized system that tracks the current location of vehicles, buses, etc., enabling fleets to function more efficiently.

**Business Plan** – A summary document that outlines the basic goals, relationships, and financial underpinnings of a given business venture. It is a document that defines the market, describes how revenue will be generated, estimates the cost of doing business, lists who will be involved in the effort, and describes the risks and rewards inherent in the market.

**Closed Circuit Television (CCTV)** – Cameras that give traffic management personnel real-time views of traffic conditions around the region.

**Congestion** – A freeway condition where traffic demand exceeds roadway capacity. Normally occurs during peak travel periods or when a traffic incident reduces capacity by creating a bottleneck.

**Core Traveler Information Services** – A set of traffic and transit information usually provided by an ATIS that satisfies public sector policy priorities.

**Detector** – A device that indicates the presence or passage of vehicles or pedestrians. The general term is usually supplemented with a modifier; loop detector, magnetic detectors, etc. indicating type.

**Emergency Management** – The bundle of ITS user services that includes; emergency notification and personal security; and emergency vehicle management.

**En-Route Traveler Information** – Traffic and route information delivered to user en-route via variable message signs, highway advisory radio, in-vehicle systems, broadcast radio, cellular phone, PDAs, and pagers.

**Field Operational Test (FOT)** – Demonstration projects funded by FHWA. The purpose was to test a regions multimodal advanced traveler information system, implement system for data collection, and stimulate and support deployment of ATIS products.

**Highway Advisory Radio (HAR)** – Also know as Traveler' s Information Stations (TIS), or Traveler' s Advisory Radio (TAR). These systems provide travel or roadway information to motorists via their AM radio sets. The FCC regulates the use of HAR.

**Incident** – An occurrence in the traffic stream which causes a reduction in capacity or abnormal increase in demand. Common incidents include accidents, stalled vehicles, spilled loads, and special events.

**Information Service Provider (ISP)** – These are private firms that take data from public agencies and/or the TIC operator, add value to the data and resell it to other ISPs and/or directly to consumers. Typically, contractual arrangements with ISPs vary among regions. Sometimes, ISPs are refer to as value-added retailers.

**Intelligent Transportation Systems (ITS)** – The collection of transportation services and infrastructure that will implement the goals of ISTEA. ITS uses advanced technologies to provide the range of traffic-based user services.

**Intermodal** – Means the efficient use of all necessary and available modes through a trip's duration.

**Kiosk** – In the transportation context, an interactive computer center for traffic or travel related information. Usually located in shopping malls, hotels, airports, businesses, and transit terminals, kiosks provide pre-recorded and real-time information using text, sound, graphics, and video clips.

**Model Deployment Initiative (MDI)** – In 1996 US Department of Transportation initiated Model Deployment Initiative. Whose goal is to integrate traffic signal control, transit, freeway and incident management, emergency services management, multimodal traveler information services, electronic toll collection and fare payment. The Deployment programs demonstrate to public policy makers the benefits of ITS products and services through "showcase" projects.

**Personal Digital Assistant (PDA)** – A compact processor, typically smaller than a personal laptop computer. Its size makes it convenient to carry when traveling. Many PDAs can be connected to a portable wireless modem or can be accessorized with pager modules. This allows the PDA to receive transportation information broadcast over wireless communications channels.

**Pre-Trip Information** – Traffic and transit information provided to users prior to making trip via telephone, cellular phone, Internet, kiosks, email and fax.

**Priority Corridor Projects** – The federally funded Corridor Project has several goals: 1) to provide an operational test bed for intermodal projects to improve regional traffic; 2) to maintain public awareness and support of intermodal projects through “showcase” and to demonstrate real benefits from IVHS deployment; 3) to create institutional relationships that will support regional cooperation; and 4) to provide opportunities for testing new transportation technologies.

**Public-Private Partnership** – Institutional and legal arrangement between public and private parties. Partnership can be informal and formal and the terms define common goals, functional roles, interests, and division of benefits.

**Ramp Metering** – The most widely used form of freeway traffic control. It regulates the number of vehicles entering the freeway over a given time interval so that demand does not exceed capacity.

**Traveler Information Center (TIC)** – A physical plan with a computer system and operators that capture both automated and manual traffic and transit data from different ATIS sources is fused into a common database format using specialized computer software program. Fused data is shared or sold to different user groups.

**Traffic Operations System (TOS)** – Area-wide networks of freeway sensors and CCTV cameras (Caltrans.)

**Traffic Management Center (TMC)** – Consists of computer systems and video monitors. TMC monitors traffic congestion, incidents and emergency. It manipulates automated signal systems, regulates ramp metering, and collects traffic data.

**Value-Added** – Additional services or changes made to a set of services and its value becomes embedded in the value of the end product sold to users. The profits are so far the difference between value of end product and the cost of materials that went into making of that product.

**Variable Message Sign** – Also referred to as Changeable Message Signs (CMS) or Dynamic Message Signs (DMS). Signs that electronically or mechanically vary the visual word, number or symbolic display as traffic conditions warrant. Also referred to as changeable message signs or as dynamic message signs.

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## **APPENDIX A: ATIS INFORMATION REQUESTS – PMR GROUP ANALYSES**

### **1. ATIS INTERVIEW QUESTIONNAIRE AND INFORMATION REQUEST**

As a way of corroborating existing information and filling in gaps a questionnaire for public operators was developed. This was used in telephone interviews (11) and one-on-one interviews, several of which took place in Detroit at the 1998 Annual ITS America Conference. An ATIS information request was sent to all interviewees, designed to collect basic information such as services, users, and data too detailed to cover in phone interviews. We received 6 responses and these are contained in the following tables.

Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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**ATIS Basic Information**

Name of ATIS: \_\_\_\_\_

Interviewee: \_\_\_\_\_

Interviewer: \_\_\_\_\_

Date \_\_\_\_\_

**1. Brief History and Organization**

A. Please tell us briefly how your ATIS got started?

B. Who are the public sector and private sector players and how do they work together?

**2. Goals and Functions**

A. What are ATMS goals and objectives?

- Reduce Congestion
- Improve Air Quality
- Improve Safety on Roads
- Public Transit Management

B. What are ATIS goals and objectives?

- Provide Maximum Public Access to ATIS Information
- Assist in Traffic Management
- Automated System
- Revenue Generation

Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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C. What are core functions of the ATIS? What role do you see for the private sector?

- Data Collection
- Data Fusion
- Data Dissemination

D. What data do you collect?

- Traffic Information
  - Traffic Speeds
  - Travel Times
  - Congestion Indicators along Segments of Roadway
  - Incident Locations
  - Traffic Volumes

- Transit Information
  - Transit Routes
  - Transit Schedules and Deviations
  - Fare Information

E. What is your process for data fusion and who manages it?

- Combining Data
- Performing Quality Control
- Adding Value to Available Data

F. How do you disseminate ATIS information? What is the role of the private sector?

- Variable Message Signs
- Highway Advisory Radio
- Telephone
- Radio/TV Broadcasts
- Web Site
- Electronic Devices

Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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**3. Services and Users**

A. What services do you provide? (Refer to list of services)

B. Who are your users?

Commuters	Tourist and Visitors
Commercial Vehicle Operators	Private Sector Firms
Taxi and Bus Drivers	Fleet Managers
Transportation Agencies	

C. Do you provide ATIS services free of charge to all user groups?

**4. Finance and Revenue Generation**

A. What is the total budget for the ATIS? Where did the initial funding come from?

B. How is your ATIS financed?

Federal Grants and Aid	Percent of Total_____
State and City Contribution	Percent of Total_____
Private Sector contributions	Percent of Total_____
Other	Percent of Total_____



Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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C. What do private sector firms contribute to financing?

Cash	Dollar amount_____
In-kind	Specify_____

D. What actions have been taken to secure future financing?

### 5. ISP Participation

A. Describe the ISPs involved in the ATIS.

B. In what areas do ISPs participate in the ATIS?

- Management
- Operation and Technical Assistance
- Data Dissemination
- Revenue Generation
- New Services Development

C. What type of contractual arrangement do you have with the ISPs?

- Contracting
- Public-private partnership
- Cost sharing
- Revenue sharing
- Franchise

D. What is the objective of the contract relationship (e.g. control over data, revenue related)?

Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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**6. Market**

- A. What do you see as the future direction for the ATIS market?
  
  
  
  
  
  
  
  
  
  
- B. What new ATIS services have been conceived? What kind of data is required?
  
  
  
  
  
  
  
  
  
  
- C. What is the role of technology in ATIS services development?
  
  
  
  
  
  
  
  
  
  
- D. Is ATIS services development concerned with revenue generation?

**7. Obstacles and Future Directions**

- A. What some of obstacles that concern your ATIS?

- Financing and Long-Term Viability
- Data Availability and Quality
- Compatibility with Technological Devices
- Technical Expertise
- Inter-Agency Coordination
- Leadership
- Legal Issues
- Private Sector Contribution
- ATIS Market Development

B. How do you see ATIS in the future?

Interview Questionnaire  
ATIS  
PMR Group ATIS Project 1998

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C. In what ways can the public sector participate in the future development of ATIS market?

D. Tell us about what you mean by “self-sustainability” in terms of division of responsibility between public and private sector participants.

E. How will the general public benefit from the growth of ATIS market?



## **APPENDIX A: ATIS INFORMATION REQUESTS – PMR GROUP ANALYSES**

### **2. ATIS INFORMATION REQUEST RESULTS**

## ATIS Information Request Result

### I A. ATIS Services: Traffic Conditions

	Navigator		Minn. SmarTraveler		Seattle SmarTrek		GCM		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned
Real-Time Traffic	x		x		x		x		x		x	
Congestion	x		x		x		x		x		x	
Freeway Speed	x				x				x			x
Travel Time	x		x		x		x		x		x	
Regionwide Traffic View	x				x		x		x		x	
Incidents	x		x		x		x		x		x	
Hazardous Material Incident	x		x						x		na	
Signal Alerts		x			x				x		na	
Road Closures	x		x		x		x		x		x	
Maintenance	x		x		x		x		x		na	
Construction	x		x		x		x		x		x	

### I B. ATIS Services: Traffic Management Information

	Navigator		Minn. SmarTraveler		Seattle SmarTrek		GCM		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned
Demand Management and Operations		x			x		x				na	
Emergency Vehicle Management		x			x		x				na	
Commercial Fleet Management		x								x	na	
Emissions		x							x (ozone alerts)		na	

## ATIS Information Request Result

### I C. ATIS Services: Route Information

	Navigator		Minn. SmarTraveler		Seattle SmarTrek		GCM		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned
En-Route Driver Information	x		x		x		x		x			x
Alternative Route Information		x	x		x		x		x		x	
Freeway and Road Maps				x	x		x		x		na	

### I D. ATIS Services: Public Transit Information

	Navigator		Minn. SmarTraveler		Seattle SmarTrek		GCM		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned
Transit Options	x		x		x				x		na	
Transit Routes	x		x		x			x	x		na	
Transit Schedule	x		x		x			x	x		na	
Bus Maps	x		x		x						na	
Bus Fares	x		x		x			x	x		na	
Multimodal Transportation		x	x		x			x	x		na	

*I E. ATIS Services: Other Traveler Related Information*

	Navigator		Minn. SmarTraveler		Seattle SmarTrek		GCM		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned	Currently Provided	Planned
Events Information		x	x		x			x	x			x
Airport Parking		x	x			x		x		x	na	
Transit Parking		x		x				x	x		na	
Ridesharing	x		x		x			x	x		na	
Weather and Temperature		x	x		x				x			x
Time of Day	x								x		x	



## ATIS Information Request Result

### II. User Demand for Services

#### Traffic

	1	2	3	4	5	6
Commuters	x	x	x	x	x	x
Visitors	x	x	x	x	x	x
Commercial vehicle operators	x	x	x	x		x
Private firms	x	x	x	x	x	x
Taxi & bus	x	x	x	x		x
Fleet managers	x	x	x	x		x
Transportation agencies	x	x	x	x	x	x

#### Route

	1	2	3	4	5	6
Commuters		x			x	x
Visitors	x	x	x	x	x	x
Commercial vehicle operators			x			x
Private firms		x	x		x	x
Taxi & bus	x	x	x			x
Fleet managers	x	x	x			x
Transportation agencies	x					x

#### Transit

	1	2	3	4	5	6
Commuters	x	x	x	x	x	x
Visitors	x	x	x	x	x	x
Commercial vehicle operators						
Private firms			x	x	x	x
Taxi & bus			x			x
Fleet managers						
Transportation agencies	x		x		x	x

#### Events

	1	2	3	4	5	6
Commuters		x	x		x	x
Visitors	x	x	x	x	x	x
Commercial vehicle operators	x		x			x
Private firms			x		x	x
Taxi & bus	x		x			x
Fleet managers	x		x			x
Transportation agencies	x		x		x	x

1=Navigator

2=Minnesota SmarTraveler

3=Seattle SmarTrek

4=GMC Corridor

5=Partners in Motion

6=SmarTraveler, Philadelphia

## ATIS Information Request Result

### III. Delivery Systems

	GMC Corridor				Partners in Motion				Seattle SmarTrek				SmarTraveler, Philadelphia			
	Currently Used		Planned		Currently Used		Planned		Currently Used		Planned		Currently Used		Planned	
	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private	Public	Private
800 telephone	x				x	x			x				na			
Cellular phone		x				x				x				x		
Radio broadcasts	x	x				x				x			x	x		
Television broadcasts		x			x	x		x	x	x				x	x	
Changeable message signs (CMS)	x				x				x				x		x	
Highway advisory radios	x				x				x				x		x	
Information kiosks			x	x	x				x						x	
Internet Web pages	x	x			x	x			x	x				x	x	
In-vehicle devices				x				x		x					x	
Pagers		x		x				x		x			x			
Fax	x				x				x				x			

## ATIS Information Request Results

### IV. Type of Data Used

	Navigator		Min SmarTraveler		Seattle SmarTrek		GMC		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned
Point Speeds	x		x		x							x
Travel Times	x		x		x		x		x		x	
Incident Location	x		x		x			x	x		x	
Incident Duration	x		x		x			x	x		x	
Traffic Volume	x		x		x			x				x
Traffic Advisories	x		x		x	x			x		x	
Weather	x		x		x			x	x			x
Video Images	x		x		x	x			x	x		x

## ATIS Information Request Results

### V. Data Quality

	Navigator		Min. SmarTraveler		Seattle SmarTrek	
	Improvement Required	No Improvement Required	Improvement Required	No Improvement Required	Improvement Required	No Improvement Required
Accuracy	x			x	x	
Reliability	x			x	x	
Frequency of Updates		x		x	x	
Precision	x			x	x	
Timeliness of Data Delivery	x			x	x	
Geographic Coverage	x		x		x	
Modes of Coverage		x	x		x	
Time of day and week		x	x		x	

## ATIS Information Request Results

### V. Data Quality Cont.

	GMC		Partners in Motion		SmarTraveler, Philadelpha	
	Improvement Required	No Improvement Required	Improvement Required	No Improvement Required	Improvement Required	No Improvement Required
Accuracy	x		x		x	
Reliability	x		x		x	
Frequency of Updates		x	x		x	
Precision	x				x	
Timeliness of Data Delivery		x		x	x	
Geographic Coverage	x		x		x	
Modes of Coverage	x		x		x	
Time of day and week		x	x		x	

## ATIS Information Request Results

### VI. Sources of Data

	Navigator		Min. SmarTraveler		Seattle SmarTrek	
	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned
Department of Transportation	x		x		x	
Highway Patrol		x	x		x	
Police Department	x		x			
Transit Authority	x		x		x	
Tourism and Events Agencies	x		x		x	
Airport	x		x			x
National Weather Service	x		x		x	
Private Firms		x	x		x	
Radio Stations	x		x			
Commuters	x		x		x	

## ATIS Information Request Results

### VI. Sources of Data Cont.

	GMC		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned
Department of Transportation	x		x		x	
Highway Patrol	x					x
Police Department	x		x		x	x
Transit Authority		x	x		x	
Tourism and Events Agencies		x	x			x
Airport		x		x		x
National Weather Service		x	x		x	
Private Firms			x			x
Radio Stations					x	
Commuters			x		x	

**ATIS Information Request Results**

*VII. Data Collection Methods*

	Seattle SmarTrek		GMC		Partners in Motion		SmarTraveler, Philadelphia	
	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned	Currently Used	Planned
Loop sensors	x		x			x		x
Video cameras	x		x		x		x	
Probes		x			x		x	
Aircraft surveillance	x		x		x		x	
AVL on buses	x		x					x
Phone forcers							x	
In-vehicle transponders		x		x		x		x
911	x		x				x	



## ATIS Information Request

### VIII. Obstacles

	<b>Navigator</b>	<b>Min. SmarTraveler</b>	<b>Seattle SmarTrek</b>	<b>GMC</b>	<b>SmarTraveler, Philadelphia</b>
<b>Financing and long-term viability</b>	Funding on -going issue but supported well by current management	Need to develop private revenue sources. Marketing effectiveness.	Obtaining state funding for operation and maintenance of our ITS backbone.	Short-term (5 years) covered. Long-term generally positive but open for ideas.	Currently funded via contract with PADOT, with the intent of self-sufficiency in time. This remains to be determined.
<b>Data availability and quality</b>	Arterial data lacking due to maintenance constraints and lack of infrastructure	Planned inter-agency regional data network. Ability to recruit mobile probes.	Obtaining funding for personnel to maintain ITS.	Generally excellent although there is always room for improvement and experience.	Data collected and analyzed by SRS and the distributed to users. Quality is acceptable.
<b>Standards</b>			No issues.	We welcome them. We have developed regional standards that are done to national draft standards.	None at this time.
<b>Nation-wide operability</b>			No issues - trying to work with other states and federal agencies as much as possible.	Will come with standards.	SRS is in other markets in the United States.
<b>Compatibility with technological devices</b>	On-going issue but postured well to address these items	Supports wide variety of platforms for dissemination and automated inputs	Awaiting standards development.	If we have standards, this is a private sector concern (will send data, they build a product).	n/a
<b>Technical expertise</b>	Always problem with staff retention in public sector, not competitive.	Retaining skilled/knowledgeable operations staff. Engineering resources.	not enough transportation professionals with ITS experience in the region.	Government staff are being cut severely, but we can rely on good consultants.	SRS technical expertise is excellent with the systems they operate.
<b>Inter-agency coordination</b>	Working well in most cases, always major effort to maintain.	Agency must dedicate personnel/systems for data sharing.	Improving interest in ITS in the region.	In GCM, excellent at state level and good below.	SRS coordinates/ participates with other agencies as necessary

## ATIS Information Request

### VIII. Obstacles cont.

	<b>Navigator</b>	<b>Min. SmarTraveler</b>	<b>Seattle SmarTrek</b>	<b>GMC</b>	<b>SmarTraveler, Philadelphia</b>
<b>Leadership</b>	GDOT is lead. No problem. MPO very good help.	Post-implementation / future institutional structures / relationship with public agencies.	More needed in local agencies.	Generally lacking at the highest level. We have support, but not leadership.	n/a
<b>Legal issues</b>	More perceived than real. R/w issues must be solved. Will require negotiation.	Contract administration / interpretation.	On going issues with intellectual property rights and patent issues.	Illinois laws have recently taken 10 steps back. We usually are able to find a way to work within the legal constraints.	n/a
<b>Private sector contribution</b>	Can't take money. Contribution off service seem to be working.	Must recoup investment in timely manner.	Mostly in-kind services - current levels are token contributions.	Generally lacking. Is good when they have a specific product in their sites.	No contributions towards funding at this time.
<b>ATiS market development</b>	Currently working on 2 contracts in cable TV and radio.	National technology trends (in-vehicle). Competition from government/private. Development of national wireless networks.	Needs nation-wide operability before private sector can make profit and generate consumer interest.	private sector can sell glitz if they get it.	Use of ATIS service has grown in the region since inception.

## **APPENDIX B: LIST OF INTERVIEWEES**

## List of Interviewees

ATIS	Name	Address
Atlanta Navigator	Joe Stapleton Public Relations	Goergia DOT 2 Capital Square Atlanta, GA 30334 404-656-5423 404-656-3507 (fax)
Boston SmarTraveler	Jeff Larson, General Manager David Stein, Exec. Vice President	SmartRoute Systems 141 Portland Street Cambridge, MA 02139 617-494-8100 617-494-5271 (fax)
Gary, Chicago, Milwaukee GCM Corridor	Jeff Hockmuth Project Manager	Illinois DOT 120 West Center Court Schaumburg, IL 60196-0195 847-705-4800 847-705-4803 (fax)
Cincinnati/Northern Kentucky ARTIMIS	R. Leon Walden Transportation Engineer Specialist	Kentucky Transportation Cabinet 125 Homes St. A5 Frankfort, KY 40622 502-564-7433 502-564-4422 (fax) <a href="mailto:lwalden@mail.kytc.state.ky.us">lwalden@mail.kytc.state.ky.us</a>
	Bob Bross General Manager	SmartRoute Systems 508 West Third Street Cincinnati, OH 45202-3410 513-333-3300 513-333-3303 (fax)
	R. Scott Evans Program Manager	TRW Integrated Engineering Division Transportation Systems <a href="mailto:Scott.evans@trw.com">Scott.evans@trw.com</a>
Minneapolis/St. Paul Orion	James Wright Assist. Division Engineer	Minnesota DOT 1500 County Road B2 West Roseville, MN 55113 612-582-1349 612-582-1302 (fax) <a href="mailto:jim.wright@state.dot.mn">jim.wright@state.dot.mn</a>

New York, New Jersey and Connecticut iTravel	Jackie Erlanger Manager, Finance & Policy Tom Batz Shelly Prettyman	TRANSCOM 111 Pavonia Avenue 6th floor Newport Financial Center Jersey City, NJ 07310 201-963-4033 201-963-7488 (fax)
Philadelphia, SmarTraveler	Elizabeth Voras	Pennsylvania DOT Transportation & Safety Building, Room 1200 Harrisburg, PA 17101 717-783-2026
Phoenix AZTech	Dan Powell Chief Admin.	Arizona DOT 2302 W. Durango St. PM02 Phoenix, AZ 85009 602-255-7598 602-495-9013 (fax) <a href="mailto:dpowell@dot.state.az.us">dpowell@dot.state.az.us</a>
San Francisco Bay Area TravInfo	Melanie Crotty Travinfo Project Director  Michael Berman Assistant Project Manager	Metropolitan Transportation Commission 101 Eighth Street Oakland, CA 94607 510-464-7708 510-464-7848 (fax) <a href="mailto:mcrott@mtc.dst.ca.us">mcrott@mtc.dst.ca.us</a>
San Antonio Transguide	Patrick Irwin, P.E. Director	Texas DOT 3600 N.W. Loop 410 San Antonio, TX 78229 210-731-5249 210-731-5310 <a href="mailto:pirwin@mailgw.dot.state.tx.us">pirwin@mailgw.dot.state.tx.us</a>
Seattle SmarTrek	Peter Briglia Project Manager	Washington DOT 15700 Dayton Avenue N. Seattle, WA 98133 206-440-4485 206-440-4804 (fax)
So. California Priority Corridor	Ali Zaghari	Corridor-wide Showcase projects 714-724-2949 714-270-6991
Orange County TravelTip	Dean Delgado Principal Transportation Analyst	Orange County Transportation Authority 550 South Main Street Orange, CA 92863-1584 714-560-5744

Washinton D.C. Partners in Motion	Kevin Barron Policy Analyst	Virginia DOT ITS Office 1401 East Broad Street Richmond, VA 23219 804-786-1278 804-225-4978 (fax)
	Pamela Marston Transportation Management Engineer	FHWA 10 S. Howard Street Suite 4000 Baltimore, MD 21201 410-962-0077 410-962-4586 (fax) <a href="mailto:pamela.marston@fhwa.dot.gov">pamela.marston@fhwa.dot.gov</a>
	Carol Zimmerman	Battelle Institute 901 D Street, SW Suite 900 Washington D.C. 20024 202-646-7808 202-646-5271 (fax)
Other Private and Non-Profit Organizations	Jane Lappin ITS Program Manager	Volpe National Transportation Systems Center EG&GDynatrend Inc. 55 Broadway, DTS-930 Cambridge, MA 02142 617-494-3692 617-494-2787 (fax) <a href="mailto:lappin@volpe3.dot.gov">lappin@volpe3.dot.gov</a>
	Mark Hallenbeck Director	TRAC 1107 NE 45th St. Suite 535 Seattle, WA 98105 206-543-6261 206-685-0767 (fax) <a href="mailto:tracmark@u.washington.edu">tracmark@u.washington.edu</a>
	Beth Bower	SmartRoute Systems, Inc. 141 Portland Street Suite 700 Cambridge, MA 02139 617-494-8100 617-494-5205 (fax)
	Joan Ravier VP & General Mgr. Info Services	Metro Networks 111 Grand Avenue 6th floor TMC/TIC Oakland, CA 94612 510-286-6302 510-286-5238 (fax) <a href="mailto:jravier@travinfo.org">jravier@travinfo.org</a>

	Lawrence Sweeney Vice President and General Manager	Etak, Inc. Advanced Development Center 1430 O'Brien Drive Menlo Park, CA 94025 415-617-0128 415-617-0142 (fax) <a href="mailto:larry.sweeney@etak.com">larry.sweeney@etak.com</a>
	Steve Wollenberg President	Fastline P.O. Box 472560 San Francisco, CA 94147 415-777-2100 415-563-4651 (fax)
	Joseph Masso Vice President and Manager	Systems Applications Maxwell Technologies Systems Division 8888 Balboa Avenue San Diego, CA 92123 619-587-7800 619-576-7670 (fax) <a href="mailto:masso@maxwell.com">masso@maxwell.com</a>
	Yves Durand-Raucher	Inter-County Direction for Traffic Operations in Llede France. French Department of Transportation 33-140-618704
	Jean-Luc Ygnace	Inrets, Lyon, France