FINAL REPORT

GUIDELINES FOR ENHANCING

ITS PUBLIC/PRIVATE PARTNERSHIPS IN WISCONSIN

Prepared for:

WISCONSIN DEPARTMENT OF TRANSPORTATION

Prepared by:

BOOZ·ALLEN & HAMILTON INC.

With

Miller & Van Eaton, P.L.L.C.

and

K.L. Engineering, Inc.

May 1, 2000

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Wisconsin has more transportation needs than limited public funds can address. One approach to help address Wisconsin's diverse transportation needs is to leverage limited funding and other public resources such as right-of-way and publicly-owned information in order to attract private capital.

Another approach is to apply advanced technology to achieve operational improvements in order to reduce congestion, accidents, vehicle operating costs, and pollution. The collection of technologies for doing this is generally known as Intelligent Transportation Systems (ITS).

An important way to both attract private capital for transportation and undertake operational improvements using advanced technology is to encourage the private sector to participate in ITS public/private partnerships.

However, the private sector will not participate unless there is a clear opportunity to earn a profit at an acceptable risk and the potential rewards exceed the net earnings that can be achieved in private sector's next best investment.

A public/private partnership involves the sharing of risks, costs, and rewards. For such partnerships to be successful there needs to be an institutional framework in place that is supportive of the public and private sectors working together to implement ITS.

BACKGROUND

The Wisconsin Department of Transportation (WisDOT) has completed a study entitled, "*Methods to Enhance Public/Private Partnerships for ITS Deployment in Wisconsin.*" The objective of the project was to identify institutional building blocks that must be put in place to reduce the risk of private participation in public/private partnerships to a low enough level in order to attract private investment in the deployment of ITS. This must be done in a way so as to preserve and protect the public interest and the health and welfare of the people of Wisconsin.

Another key objective of the project was to develop guidelines that WisDOT staff, the private sector, key stakeholders and other interested parties can use in building public/private partnerships for ITS.

This document presents the set of guidelines that have been prepared. WisDOT staff, the private sector, and others can expect to find in here practical advice and step-by-step guidance for implementing ITS public/private partnerships.

The guidelines were the result of an extensive research project that included numerous activities to reach out to the private sector (focus group, a survey, interviews, a

workshop) and the preparation of six task reports, which are available as separate documents:

Task 1 Report: Case Studies and Outreach
Task 2 Report: Legal and Procurement barriers to Public-Private Partnerships in Wisconsin
Task 3 Report: Attracting Resources to ITS Projects
Task 4 Report: Opportunities for Public/Private Partnerships
Task 5 Report: Assessment of Policies Regarding Accessibility and Fees for Public Information and Data
Task 6 Report: Options for Statutory Changes to Enhance Public/Private Partnerships for ITS in Wisconsin.

These guidelines are composed of four parts:

1. Guiding Principles
2. Recommended Institutional Framework
3. Alternative Approaches To Providing Statutory Authority
4. Lessons Learned.

GUIDING PRINCIPLES

It is recommended that the following principles be followed to lay a foundation for successful ITS public/private partnerships in Wisconsin over the next 20 years:

1. **Senior Management Leadership and Commitment.** Success in implementing public/private partnerships depends on top management strongly supporting such partnerships through the establishment of policy and an institutional framework, communicating the benefits of such partnerships to stakeholders, facilitating the interaction between WisDOT and public and private sector partners inside and outside Wisconsin, and making an appropriate and timely commitment of resources.

2. **Institutional Architecture.** WisDOT should implement an institutional framework that puts in place all the necessary institutional building blocks for an effective program of ITS public/private partnerships.

3. **Program Plan.** WisDOT should develop and periodically update a program plan for ITS public/private partnerships which includes a vision, mission, short and long run elements, program directions, specific opportunities and projects, relationships to other transportation plans and programs, anticipated public and private sector benefits, funding and staffing requirements (including consultant support), internal coordination between headquarters and districts, an implementation timetable, and critical path.

4. **Outreach, Buy-In And Community Support.** Establishing the institutional framework and a program plan for public/private partnerships requires extensive stakeholder outreach and buy-in. As specific projects are pursued, more focused buy-in and outreach will be required, including obtaining strong community support for a project. Preparing and regularly updating a communications plan in order to reach out to each key stakeholder is essential. Also, establishment of a Wisconsin ITS Forum would provide a focus for outreach and planning activities.

5. **Financial And Business Planning.** WisDOT should develop a systematic financial and business planning process for ITS public/private partnerships and a periodically updated finance plan. This should include options for innovative finance and the development of selected business plans with *pro-forma* financial statements prepared with the assistance of prospective business partners.

6. **Professional Capacity Building.** WisDOT needs to train and develop human resources to manage and execute a diverse program of ITS public/private partnerships.

7. **Proven And Novel Business Models.** WisDOT should pursue public/private partnerships based on business models (i.e. specific business approaches, concepts, formats or formulas) that have been demonstrated to be most economically viable in the ITS arena, other industries, and other countries. At the same time WisDOT needs to support novel business models appropriate to a rapidly changing technological and institutional environment and that are based on sound business plans.

8. **Procurement And Contracting**. WisDOT needs to develop procurement and contracting procedures that will support a broad range of business models for public/private partnerships, solicit creative ideas of the private sector, and attract private investment.

9. **Condition For Public Participation.** WisDOT should not form a public/private partnership unless the net public benefits will be greater than without the partnership.

10. **Conditions For Private Participation.** To attract private capital or other resources, the private sector must be convinced that the expected rate of return on investment is larger than the opportunity cost, is commensurate with the risks, and the project will earn a profit. The following are conditions necessary to attract private investment: (a) an economically

viable ITS public/private partnership requires a revenue stream for the private sector; (b) customers and taxpayers must be willing to pay enough to cover the costs including the opportunity costs of private capital; (c) the value of ITS products and services must exceed the value being offered by other existing or potential service providers.

11. **Risk Reduction**. WisDOT should pursue proven strategies for reducing the risks of public/private partnerships as well as explore new and creative strategies. However, because a public/private partnership involves sharing risks, risk reduction should not merely consist of shifting risks from the private to the public sector or vice versa.

12. **Strengthening Economic Viability.** WisDOT can increase the viability of public/private partnerships by creating conditions where (a) there are economies of scale in production (b) there are increasing returns to scale in terms of revenue, and (c) there is no competition from free or low cost publicly provided products and services.

13. **Public-Public Partnerships.** WisDOT should develop a series of standing public-public partnerships with states, other Wisconsin state agencies, cities, counties, MPOs, transportation authorities and other public entities as a foundation for future agreements with private partners.

14. **Value Chain, Market Research, And Benefit Analysis.** WisDOT should perform value chain analysis (tracing how each step in the production process adds value), market research, and public benefit analysis to understand how value accrues in delivering ITS products and services, what is the value of resources WisDOT and its private partners can contribute, where opportunities for public/private partnerships arise, whether customers are willing to pay for a user service, and what public and private benefits will result.

15. **Accessibility And Fees For Publicly Owned Data.** Wisconsin's open records law should govern access to information unless there are explicit statutory exceptions. WisDOT needs to implement policies backed with statutory authority that give it the flexibility to adjust fees and access to publicly owned data so as to make public/private partnerships as viable as possible.

16. **Using Principles of Competition Wherever Possible.** WisDOT needs to rely on competition wherever possible to achieve the best outcome. However, sometimes it will be necessary to protect its private partners from competition to ensure economic viability during the incubation and initial growth stages. In such cases competition must be present in the award and renewal of public/private partnership agreements, and phased

in as the business or industry matures in order to protect consumers from monopoly pricing and to ensure the public benefits from innovation.

17. **Privacy And Proprietary Information.** WisDOT must protect personal privacy and proprietary information when it engages in ITS public/private partnerships. WisDOT should adopt best practices for doing so.

18. **Tort Liability.** WisDOT should work with potential public and private sector partners to develop an approach to tort liability that enhances the prospects of successful public/private partnerships while protecting consumers and the public against wrongful or irresponsible actions that are harmful to the public safety, health and welfare.

19. **Boundaries Between Public And Private Sector Responsibility.** Clear boundaries between public and private sector roles need to be set. Where boundaries cannot be established on a prior basis, they need to be articulated in each specific agreement between WisDOT and its public and private partners.

A RECOMMENDED ITS INSTITUTIONAL FRAMEWORK

These guidelines recommend that WisDOT establish an institutional architecture composed of the building blocks illustrated below. These building blocks make it feasible to implement a wide range of technical solutions, including deployments involving ITS public/private partnerships. In addition, the institutional architecture is fully compatible with the National ITS Architecture, or most any regional or corridor technical architecture that is likely to emerge in the next 20 years.

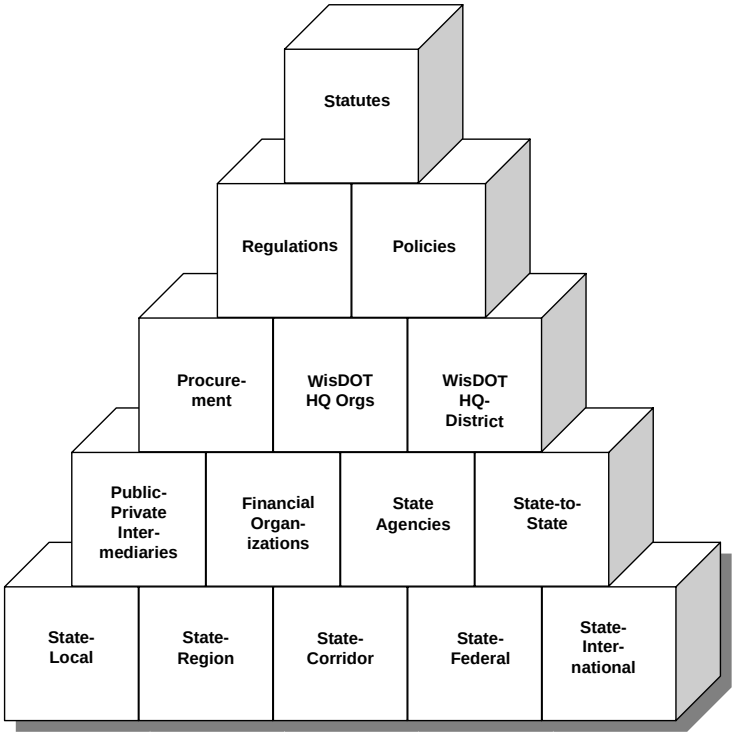


FIGURE E-1: BUILDING BLOCKS OF WISCONSIN INSTITUTIONAL ARCHITECTURE

These building blocks, illustrated in Figure E-1, consist of the following:

- Statutory authority to enter into ITS public/private partnerships
- Regulations consistent with statutory authority
- Policies consistent with statutes and regulations
- Procurement procedures for ITS public/private partnerships including open solicitations and specific Requests for Proposals
- A group to coordinate organizational units located in WisDOT headquarters
- An ITS Action Team to allow districts to work together in implementing public/private partnerships and to work effectively with headquarters
- A set of intermediary organizations serving the interests and objectives of both the public and private sectors
- A set of financial institutions which ITS public/private partnerships can tap for funding
- A public-public partnership among Wisconsin State Agencies that could potentially enter into ITS public/private partnerships
- A public-public partnership among WisDOT and DOT's of neighboring or nearby states that could potentially enter into ITS public/private partnerships
- A public-public partnership among WisDOT and localities in Wisconsin that could potentially enter into an ITS public/private partnerships

- A public-public partnership among WisDOT and regional entities that could potentially enter into an ITS public/private partnerships
- A public-public partnership among Wisconsin and corridor entities that could potentially enter into an ITS public/private partnerships
- A mechanism for achieving coordination between Wisconsin and federal agencies
- A mechanism for achieving coordination with other countries.

Establishment of a Wisconsin ITS Public/Private Partnership Forum as an intermediary organization and focal point for many of these institutional building blocks would help greatly streamline communication among organizations.

ALTERNATIVE APPROACHES TO ESTABLISHING STATUTORY AUTHORITY

*The most important institutional building block that needs to be established is statutory authority for WisDOT to enter ITS public/private partnerships***.** State officials and agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. Therefore, in order for the Department to enter into partnerships or other arrangements with private entities, the Department must have clear authority.

There a number of other legal barriers that new or revised statutes would help overcome. For example, absent a statute which designates the revenue derived from a public/private partnership as belonging to a specific fund, any funds received by the Department will be deposited in the general fund rather than be available for reinvestment in the public/private partnership or in another ITS project.

These guidelines identify four options for establishing statutory authority. The State could choose one of the four, adopt a variation on any one, or combine the options in some way. Each approach has strengths and weaknesses and a combination of elements of each may be the best approach.

1. **General legislation creating authority for WisDOT to engage in innovative technology projects and business arrangements.** This approach involves enacting legislation similar to the statutory authority the Minnesota state legislature granted the Minnesota Department of Transportation to enter into agreements with the private sector or public sector agencies. This option is attractive because Mn/DOT has been able to enter into a large number of successful ITS public/private partnerships over the last decade under this authority. The approach would probably be transferable to Wisconsin and is likely to be accepted by Wisconsin legislators.

2. **General legislation creating authority for WisDOT to engage in economic development projects.** This option would provide broad

authority for WisDOT to enter into ITS public/private partnerships when pursuing the objective of economic development. The authority might be too broad for WisDOT given that other Wisconsin agencies have greater responsibility for economic development.

3. **Detailed legislation addressing each known statutory limitation on ITS public/private partnerships.** This approach would involve establishing authority for WisDOT to enter into public/private partnerships and rewriting each section of the Wisconsin statutes containing barriers to such arrangements. This option would probably require changing too many sections of code to be a practical approach to legislation. In addition it might prove difficult to maintain consistency in different parts of the code, thus risking legal challenges.

4. **Detailed legislation creating specific authority for WisDOT to engage in ITS public/private partnerships.** The fourth method of revising the existing statutory structure would be to adopt legislation containing a separate provision of Code which expressly authorizes and enumerates all the things WisDOT would be permitted to do regarding ITS public/private partnerships. A detailed enumeration of provisions regarding ITS public/private partnerships might better be treated as administrative law established under broader authority such as a statute similar to Minnesota's.

LESSONS LEARNED

The concluding portion of these guidelines provides a series of lessons learned from the deployment of ITS public/private partnerships in the US and in selected countries overseas where ITS has been most successful. Additional lessons from the history of deployment of other technologies are included.

Among the most important lessons learned is that the most successful business models for deploying ITS and other technology have involved the granting of franchises and licenses, establishment of intermediary organizations, and/or recovering costs and earning a profit through transaction fees.

CHAPTER 1
INTRODUCTION

The Wisconsin Department of Transportation (WisDOT) is committed to meet the needs of the State's citizens and visitors for efficient, pleasing and environmentally sensitive transportation. These needs stem partly from growing demands for mobility and commerce. WisDOT builds new highways, transit and other facilities to the extent permitted by the availability of public funds. However, it is not possible to meet all the needs.

Intelligent transportation systems can improve operations…

One approach, among WisDOT's multimodal, multifaceted strategy to meet these needs is applying advanced technology to achieve operational improvements to reduce congestion, accidents, vehicle operating costs, and pollution. The collection of technologies for doing this is generally known as Intelligent Transportation Systems (ITS).

Can do more with private investment…

WisDOT can do even more with ITS if it can attract private investment, but to encourage private investment in ITS, there need to be clear opportunities for the private sector to earn meaningful revenues and a profit.

Public/private partnerships create opportunities for business…

Many business opportunities in ITS cannot occur without public involvement of some type, such as granting access to public data or public rights-of-way, or coordinating with public safety officials. This set of business opportunities is ripe for public/private partnerships.

Customer or taxpayer willingness-to-pay is essential…

Usually the private sector will participate only if it can make a profit. Either customers of ITS user services or taxpayers must be willing to pay. The value to customers or taxpayers must be at least as great as the amount they are willing to expend.

A true partnership involves sharing benefits, costs and risk…

ITS can generate both public and private benefits. The public and private sectors can share these benefits. To the extent that benefits consist partly of revenues, the private sector can receive a contribution to its bottom line. If both the private and public sectors expect to share the benefits, they need to share in the costs and risks. Risks are the uncertain costs or an unexpected reduction in revenues.

Reducing private sector risk is the key issue…

Private sector risk – and for that matter public sector risk-- is greater in the absence of clear laws, regulations, and procedures that are supportive of ITS public/private partnerships. Private sector risk is often unacceptable without clear boundaries between public and private sector roles. Risk also increases with time, complexity, competition and financial and political uncertainty.

WisDOT can play an important role in reducing private sector risk to an acceptable level by implementing an institutional framework that increases the economic viability of public/private partnerships.

Guidelines for implementing its public/private partnerships have been prepared…

The Wisconsin Department of Transportation (WisDOT) has completed a study entitled, "*Methods to Enhance Public/Private Partnerships for ITS Deployment in Wisconsin.*" The objective of the project was to identify institutional building blocks that must be put in place to reduce risks to private participants in public/private partnerships to a low enough level in order to attract private investment in the deployment of ITS. This must be done in a way so as to preserve and protect public interest and the health and welfare of the people of Wisconsin.

Another key objective of the project was to develop guidelines that WisDOT staff, the private sector, key stakeholders and other interested parties can use in building public/private partnerships for ITS.

This document is the set of guidelines that have been prepared. WisDOT staff, the private sector, and others can expect to find in this document practical advice, and step-by-step guidance for implementing public/private partnerships.

Extensive private and public sector outreach provided key input into preparing the guidelines…

The guidelines were developed with considerable input from the private sector to ensure the suggested methods to enhance public/private partnerships really attract private investment. The types of outreach with the private sector that occurred include:

- Private sector focus group
- Survey of private sector firms
- Interviews with private sector attorneys in ITS and related firms
- Selected interviews with private firms in industry undergoing rapid deregulation

- One-day workshop, with private sector participation, to review the draft guidelines.

WisDOT also made a concerted effort to reach out to public sector agencies both in and outside Wisconsin:

- The Wisconsin Department of Commerce
- The Wisconsin Department of Tourism
- The Wisconsin Department of Work Force Development
- Wisconsin Public Service Commission
- State of Illinois
- State of Minnesota
- State of Indiana

Finally WisDOT engaged key staff in headquarters and the districts to obtain input into developing these guidelines through a series of workshops on the following topics:

- Options regarding statutory changes to support ITS public/private partnerships
- Opportunities for public/private partnerships
- Methods to leverage public resources and attract private investment
- Policies regarding accessibility and fees for publicly owned data and information.

ORGANIZATION OF GUIDELINES

Five chapters make up these guidelines. Chapter 1 is this introduction.

Key principles should guide implementation of ITS public/private partnerships…

Part of the framework for implementing ITS public/private partnerships consists of a set of guiding principles. These are described in Chapter 2.

An institutional architecture is important…

The study recommends a set of building blocks that form an institutional framework for ITS, particularly for public/private partnerships. Chapter 3 presents the Institutional Architecture needed for ITS public/private partnerships.

Statutory and regulatory change is needed…

One of the most important parts of the study was to identify legal and regulatory changes required to establish statutory authority, foster public/private partnerships, eliminate barriers to such partnerships, and safeguard the public interest. Chapter 4

describes the needed statutory and regulatory changes and the options for making statutory changes.

Lessons learned from around the world…

Wisconsin can profit from lessons learned regarding ITS public/private partnerships that have occurred in other states and countries. Chapter 5 presents lessons useful to WisDOT and its private and public partners.

CHAPTER 2
GUIDING PRINCIPLES

There are a large number of different ways the public and private sector can work together to apply advanced technology to solving transportation problems. Each of these different ways of partnering may be thought of as a business model -- a particular way of doing business. A business model has different dimensions, for example, the nature of the partnership, whether it is a goods or service producing business, the types of customers the business targets (e.g. other businesses or consumers), and the business format, formula, or concept.

In pursuing ITS public/private partnerships, WisDOT hopes to engage the capital and creativity of the private sector. Some business models for future public/private partnerships can be anticipated but many cannot. Although one cannot anticipate every way the public and private sector might work together to deploy ITS, these partnerships are more likely to succeed if the partners adhere to sound principles. This chapter sets out guiding principles intended to help ensure the success of ITS public/private partnerships.

PRINCIPLES

The principles below should greatly enhance ITS public/private partnerships in Wisconsin. While all these principles are important, the highest priority concern establishment of an institutional framework (especially the statutory authority), the development of program plan for ITS public/private partnerships, and the establishment of a process for financial and business planning.

#1. SENIOR MANAGEMENT LEADERSHIP AND COMMITMENT. Success in implementing public/private partnerships depends on top management strongly supporting such partnerships through the establishment of policy and an institutional framework, communicating the benefits of such partnerships to stakeholders, facilitating the interaction between WisDOT and public and private sector partners inside and outside Wisconsin, and making an appropriate and timely commitment of resources.

Public/private partnerships are most likely to form, attract private capital, and realize significant public and private benefits if the Secretary, Deputy Secretary, Administrators, District Directors and relevant program managers within the department exhibit strong leadership and commitment. They need to communicate the Department's vision regarding joint public and private sector action, articulate the benefits of such partnerships, set the tone for future action through the establishment of policies and principles, and play an active role in establishing an institutional framework for ITS including needed statutory changes.

An important role of top management is to facilitate the formation of public/private partnerships for specific projects, especially when other governmental agencies inside and outside Wisconsin are involved or success of a partnership depends on successfully negotiating with a private firm or consortium.

Finally, top management is ultimately responsible for committing sufficient resources to make public/private partnerships a success. These resources include human resources and sufficient funding for a program of ITS public/private partnerships in order to attract meaningful levels of private funding.

#2. INSTITUTIONAL ARCHITECTURE. WisDOT should implement an institutional framework that puts in place all the necessary institutional building blocks for an effective program of ITS public/private partnerships.

Over and over it is said the greatest impediment to implementing ITS is not technical but institutional. Because technology can be seductive and institutional challenges are daunting, the enthusiasm and resources to implement ITS are often aimed at the technology. At the national level, the ITS field operational tests were focused on the technology. The federal government working with ITS America developed a National ITS Architecture, a technical framework, to ensure interoperability and foster systems integration. But a corresponding national institutional architecture was not developed. The absence of a national institutional architecture has inhibited the deployment of certain ITS user services, for example, in-vehicle navigation with real-time traveler information.

What is an institutional architecture? It is a set of institutional building blocks that that can support a wide variety of technical solutions, indeed all the technical solutions that the National ITS Architecture can potentially accommodate.

WisDOT has approached ITS public/private partnerships as if it were beginning with a clean slate, and desires to implement an institutional framework that will be supportive of public/private partnerships for the next 20 years.

WisDOT therefore first needs to clearly set out what institutional building blocks need to be put in place for economically viable public/private partnerships.

#3. PROGRAM PLAN. WisDOT should develop and periodically update a program plan for ITS public/private partnerships which includes a vision, mission, short and long run elements, program directions, specific opportunities and projects, relationships to other transportation plans and programs, anticipated public and private sector benefits, funding and staffing requirements (including consultant support),

internal coordination between headquarters and districts, an implementation timetable, and critical path.

WisDOT needs a roadmap for implementing ITS public/private partnerships. Preparation of a comprehensive program plan would provide that roadmap. The virtue of a program plan is that it sets forth a clear agenda, both in broad terms and specific actions, regarding how to proceed. A program plan crystallizes the relationship between resources – public and private funding, staff, ROW, data, in-kind contributions-- and the projects that comprise the plan. A program plan also is a timetable that lays out the order projects will be implemented and their relationship to one another.

A program plan should not be a static document but should be updated periodically or continually as new ideas for ITS public/private partnerships emerge and new resources become available.

Program planning for ITS public/private partnerships needs to be fully coordinated and, as appropriate, integrated with related plans and programs. These plans and programs should include updates to the Gary-Chicago-Milwaukee Corridor Program Plan, the Wisconsin ITS CVO Plan, the Wisconsin ITS Strategic Plan, the Wisconsin long range transportation plan, the Wisconsin and metropolitan Transportation Improvement Programs (TIPs), and the Wisconsin State Implementation Plan (SIP) for conformity with national ambient air quality standards.

#4. OUTREACH, BUY-IN AND COMMUNITY SUPPORT. Establishing the institutional framework and a program plan for public/private partnerships requires extensive stakeholder outreach and buy-in. As specific projects are pursued, more focused buy-in and outreach will be required, including obtaining strong community support for a project. Preparing and regularly updating a communications plan in order to reach out to each stakeholder community is essential. Also, establishment of a Wisconsin ITS Forum would provide a focus for outreach and planning activities.

Establishing all the building blocks of the ITS institutional architecture will take time, effort, and above all, support from key stakeholders both inside and outside WisDOT. Outreach and buy-in needs to include legislators, public interest groups, representatives from potential private and public partners, top managers of WisDOT, and ITS program managers in headquarters and the districts. It is also important to reach out to the research community in the University of Wisconsin.

Establishment of a Wisconsin ITS Forum that meets annually would allow various private and public sector interests to focus on ITS public/private partnerships involving Wisconsin and create a "big tent" for all key stakeholders.

WisDOT also needs to look to existing institutions as a part of its outreach activities and to build support. Examples of existing institutions include various industry and government associations such as ITS Midwest, the Council of Great Lakes Governors, and the University Transportation Center.

Outreach and buy-will be required as the Department develops and implements a program plan for ITS public/private partnerships.

In addition, many specific public/private partnerships will require their own outreach and buy-in, particularly if a number of different governmental jurisdictions are involved, or if a project is controversial in any regard.

Some specific projects involving public/private partnerships will require public meetings or hearings, or a clear indication of community support from resolutions of governing bodies or local referenda.

A systematic approach to achieving buy-in, outreach, and community support, such as a communication plan, will help assure the success of ITS public/private partnerships in Wisconsin.

#5. FINANCIAL AND BUSINESS PLANNING. WisDOT should develop a systematic financial and business planning process for ITS public/private partnerships and a periodically updated finance plan. This should include options for innovative finance and the development of selected business plans with *pro-forma* financial statements prepared with the assistance of prospective business partners. [1]

Workable financial mechanisms for public/private partnerships are a radical departure from traditional highway and other types of finance which relies primarily on trust funds, fees and grants.

WisDOT therefore needs a distinct financial and business planning process appropriate to ITS public/private partnerships. This process should address all principal methods to finance the public sector's share of costs and leverage public sector resources to attract private sector investment. Among the main methods are:

- Cash and in-kind transactions
- Methods used under the federal innovative finance program
- Federal credit program for nationally significant transportation projects
- Utilization of the state infrastructure bank and other revolving funds
- Tax exempt bond financing including establishment of 63-20 Corporations

[1] A business plan is demanding to prepare. It should be required when the proposed business concept involves significant revenues from consumers or other businesses and there are substantial costs and risk.

- Venture capital
- Cooperative research and development agreements.

#6. PROFESSIONAL CAPACITY BUILDING. WisDOT needs to train and develop human resources to manage and execute a diverse program of ITS public/private partnerships.

Even with the financial and other resources, WisDOT will be unable to manage and participate in public/private partnerships unless it can educate, train and develop its human resources in this area.

WisDOT needs to take advantage of any aspects of the federal ITS Professional Capacity Building program that pertains to public/private partnerships.

However, WisDOT will need to tailor its human resources training and development program to meet its own needs.

WisDOT will also need to rely on consultant assistance to help in the management and delivery of its program, and therefore will need to ensure consultants are fully acquainted and trained regarding the ITS public/private partnership program in Wisconsin.

#7. PROVEN AND NOVEL BUSINESS MODELS. WisDOT should pursue public/private partnerships based on business models that have been demonstrated to be most economically viable in the ITS arena, other industries, and other countries. At the same time WisDOT needs to support novel business models appropriate to a rapidly changing technological and institutional environment and that are based on sound business plans.

Case studies of ITS reveal that there are a number of proven business models that have repeatedly been shown to result in economically viable public/private partnerships. Many of these business models have catalyzed entire industries. Indeed, lessons learned from the deployment of ITS in other industries and countries indicate the following business models are among the most effective in allowing the private sector to recover their investment:

- Private investment with cost recovery from transaction fees
- Franchises, licenses and concessions
- Intermediaries such as Help Inc. and 63-20 Corporations

WisDOT will also need to be willing to enter public/private partnerships involving new or innovative business models, which are likely to be proposed by highly entrepreneurial firms in the future.

#8. PROCUREMENT AND CONTRACTING. WisDOT needs to develop procurement and contracting procedures that will support a broad range of business models for public/private partnerships, solicit creative ideas of the private sector, and attract private investment.

Under Chapters 16 and 84 of the Wisconsin Statutes, WisDOT does not currently have the flexibility it needs to undertake a broad range of procurements for ITS public/private partnerships. Once WisDOT obtains the authority it requires, it then needs to establish suitable procurement procedures. At the minimum, WisDOT should have procurement procedures that can support the following types of solicitations and business models:

- An open solicitation process
- Request to use Wisconsin facilities, data, ROW for ITS test beds
- Request for Partnership Proposals for specific projects or programs
- Build-Operate-Lease or Transfer
- Franchises, licenses and concessions
- Competitive joint ventures
- Auctions.

Request for Proposals for Partnerships should include a requirement that the private entity proposing to partner with WisDOT submit a business plan whenever the private entity expects to depend upon a revenue stream to cover a significant part of costs. Typical components of a business plan include:

- Description of the product or service
- Market and competitive analysis
- Marketing plan
- Financing plan
- *Pro forma* financial statements (income statement, cash flow statement, balance sheet)
- Description of the partnership, organizations, and management team

The procurement process needs to allow awards to be made on the basis of greatest value to Wisconsin net of any subsidy required. Frequently a subsidy will be needed to make a public/private partnership viable.

#9. CONDITION FOR PUBLIC PARTICIPATION. WisDOT should not form a public/private partnership unless the net public benefits will be greater than without the partnership.

The main rationale for public/private partnerships is to attract private capital that would permit the delivery of ITS user services that could not be achieved with

public funds alone. Unless this is an expected outcome, there is no justification for a public/private partnership.

There should also be an expectation that the net public benefits would be greater with the partnership than without. If this is not the case, then private participation is not warranted.

Suppose over the next five years WisDOT could afford to provide traffic surveillance on only the freeways and a small percent of principal arterials. Alternatively, suppose that with private capital, WisDOT could afford to provide traffic surveillance on all freeways, primary arterials and selected minor arterials and collectors.

Traveler information systems that build on the more extensive traffic surveillance system would have more impact on reducing congestion delay, accidents, and pollution than the less comprehensive system. This is the type of outcome that warrants a public/private partnership. If for some reason, the reverse were the expected outcome – congestion, accidents, and pollution would remain the same or increase – then private participation and the partnership is not justified.

#10. CONDITIONS FOR PRIVATE PARTICIPATION. To attract private capital or other resources, the private sector must be convinced that the expected rate of return on investment is larger than the opportunity cost, is commensurate with the risks, and that the project will earn a profit. The following are conditions necessary to attract private investment:

- An economically viable ITS public/private partnership requires a revenue stream for the private sector
- Customers and taxpayers must be willing to pay enough to cover the costs including the opportunity costs of private capital.
- The value of ITS products and services must exceed the value being offered by other existing or planned service providers.

A private firm is constantly examining where it can earn the best rate of return on its capital. Whether it proceeds systematically or intuitively, it attempts to assess if the return on the investment, given the risks involved, warrants the capital outlays. The people who own and run a firm will not invest in ITS unless the net earnings exceed the opportunity cost – the net earnings from the next best investment.

There need to be customers for the ITS services. If the customer does not receive enough value from the service relative to the value the customer can obtain from some alternative, the customer will turn elsewhere.

The customer may be willing to pay enough in the market place to cover all the costs of a ITS user service. If not, the taxpayer must be willing to make up the gap.

Otherwise, no private investment will occur, or if it does, the public/private partnership will eventually lose money and go out of business.

#11. RISK REDUCTION. WisDOT should pursue proven strategies for reducing the risks of public/private partnerships as well as explore new and creative strategies. However, because a public/private partnership involves sharing risks, risk reduction should not merely consist of shifting risks from the private to the public sector or vice versa.

There are many well established approaches to reducing risks of businesses in general and ITS public/private partnerships in particular. Public/private partnerships are most susceptible to failure in the early stages and there are a number of things WisDOT can do to reduce risks that are known to work. Among these are the following:

- Assuming responsibility for the environmental review process
- Assuming along with its public partners a larger portion of startup costs while requiring the private sector to assume a larger portion of subsequent costs
- Providing or helping to obtain flexible payment loans where payments are timed to coincide with revenues
- Providing or helping to obtain various forms credit enhancements such as loan guarantees and lines of credit.

When WisDOT is working with its private partners to reduce risk, there need to be give and take best achieved through negotiations. Negotiations may begin when partners first discuss a concept for a public/private partnership, may occur during the formal procurement process, and may continue throughout a project in a manner allowed by the partnership agreement.

WisDOT should avoid an overall approach to risk reduction that favors either the private or the public sector over the other. If risk reduction means eliminating private or public sector risk, the project ceases to be a public/private partnership.

#12. STRENGTHENING ECONOMIC VIABILITY. WisDOT can increase the viability of public/private partnerships by creating conditions where:

- **There are economies of scale in production**
- **There are increasing returns to scale in terms of revenue**
- **There is no competition from free or low cost publicly provided products and services.**

A business which has economies of scale experiences declining costs as production increases. Small scale operations can be a major barrier to ITS, because manufacturers or service providers must operate in a range where production costs are high, and perhaps exceed revenues. This is a money-losing proposition and there will be no private investment.

If WisDOT wishes its public/private partnerships to succeed, it should structure its partnerships to try to achieve economies of scale and to operate where costs are far enough below revenues that the partnership is likely to earn a earn a profit.

For example WisDOT could help a partner that is an ITS equipment manufacturer achieve economies of scale if the partnership included states throughout the Midwest. It is likely the cost of manufacturing each unit of the ITS equipment would be much lower if the firm could sell not just in Wisconsin but all the states in the region.

Many businesses that have strong economies of scale can keep competition at bay by expanding output. They will lower costs and make it more and more difficult for competitors to compete. WisDOT should adopt a policy of allowing partners gain a competitive advantage in this manner.

However, firms with strong economies of scale, such as electric utilities and traditional telephone companies, are considered natural monopolies. It will be important to enter into partnership agreements through a competitive procurement process, to renew partnership agreements through a competitive process, to limit the rates a natural monopoly can charge consumers, and to limit the return on investment so it is in line with other investments of comparable risk.

A business which has increasing returns to scale, finds that its net earnings increase at an increasing rate for each constant increment in output. Businesses that create networks – telecommunications, transportation, and communities with common interests that use and depend on the Internet – often have increasing returns to scale.

If WisDOT can help create conditions of increasing returns to scale for its public/private partnerships, it would be a boon to their financial viability.

WisDOT can also help increase the economic viability of its public/private partnerships by not fostering competition from free or low cost services. There is a tendency to treat all publicly owned and generated data as public goods – a product or service that is free to everyone once it is made available to one person. When WisDOT simultaneously enters into a public/private partnership that depends on the sale of a certain type of information for a profit and makes the information available for free or at low cost to all comers – consumers and competitors, it sometimes severely handicaps, if not fully undermines, the economic viability of the public/private partnership. In other circumstances, WisDOT can offer free data or information and vendors can reformat it or bundle it with other information, products, and services and successfully earn a profit. WisDOT should carefully assess the impact of free or low cost services on the viability of public/private partnerships in which it is planning to participate. If the

effect of free or low cost service is likely to severely hinder the success of the partnership, then WisDOT should either bow out or take appropriate mitigating action.

#13. PUBLIC-PUBLIC PARTNERSHIPS. WisDOT should develop a series of standing public-public partnerships with states, other Wisconsin state agencies, cities, counties, MPOs, transportation authorities and other public entities as a foundation for future agreements with private partners.

WisDOT has already entered into a number of public-public partnerships whose benefits are evident in terms of creating market opportunities. For example the states of Indiana, Illinois and Wisconsin are signatories to an agreement establishing the Gary-Chicago-Milwaukee Corridor. This has proven to be an extremely productive public-public partnership that has served as the starting point for a number of public/private partnerships.

WisDOT needs to establish other public-public/private partnerships on a deliberate and proactive rather than opportunistic or reactive basis. This will have two major benefits:

- WisDOT will be able to proactively position itself to compete effectively for federal grants and contracts involving public/private partnerships. Without the public sector partners already lined up, WisDOT risks being at a competitive disadvantage and having to respond belatedly or not at all to such funding opportunities.

- WisDOT will be able to forge public-public partnerships that have the geographic coverage to create the economies of scale essential for the viability of many public/private partnerships.

#14. VALUE CHAIN, MARKET RESEARCH, AND BENEFIT ANALYSIS. WisDOT should perform value chain analysis (tracing how each step in the production process adds value), market research, and public benefit analysis to understand how value accrues in delivering ITS products and services, what is the value of resources WisDOT and its private partners can contribute, where opportunities for public/private partnerships arise, whether customers are willing to pay for a user service, and what public and private benefits will result.

Sources of value and how to build value along the production and supply chain for ITS user services are little understood in the public sector and frequently not well understood in the private sector.

Sources of value that can lead to revenues from marketable services include public rights of way, information and data in publicly owned data bases,

electromagnetic spectrum, intellectual property rights, the public commons which receives pollution and waste, and privileges that grant and limit access of various sorts.

WisDOT needs to carefully investigate what each of these sources of value can earn in the market place both in existing and re-engineered business processes. For example, WisDOT needs to evaluate what it can charge for access to public rights of way and the value of what it can earn by exchanging public rights of way for telecommunications bandwidth (e.g. optical fiber). The value of various assets is continually in flux as technology evolves, substitute products and services emerge, and the relative scarcity of something of value changes.

WisDOT needs to fully understand, through formal business process diagramming, how original sources of value are transformed through public and private actions, into increasing amounts of value that users of the transport system and others might be willing to pay. An examination of a re-engineered business process, reflecting different approaches to public/private partnerships, should reveal points in the value chain where such a partnership can capture revenues.

WisDOT also needs to periodically evaluate market research others have performed regarding ITS and to conduct its own market research to evaluate potential ideas for public/private partnerships as well as specific proposals.

WisDOT can prevail upon private entities to perform market research in support of business plans being prepared as a part of public/private partnership proposals. However, due diligence in the proposal evaluation suggests that WisDOT have its own view of the ability of the market to support a business concept of the private sector.

#15. ACCESSIBILITY AND FEES FOR PUBLICLY OWNED DATA. Wisconsin's open records law should govern access to information unless there are explicit statutory exceptions. WisDOT needs to implement policies backed with statutory authority that gives it the flexibility to adjust fees and access to publicly owned data so as to make public/private partnerships as viable as possible.

Current statutes and policy require making publicly owned or generated data available to any one who requests it. WisDOT currently must make the information available for free or at a cost not to exceed the "actual, necessary and direct" cost of reproduction:

1. There is a strong presumption that the public has already paid for information or data generated with public funds, and therefore the public should not have to pay for it a second time.
2. It is more equitable if everyone has access to information for free or as close to free as possible. Not just those with the ability to pay should have access.

3. Wisconsin has an open records law predicated upon the idea that business conducted by the public sector is the public's business and the public is entitled to any information that is not proprietary or competition-sensitive.

Ideally WisDOT should have statutory authority to charge fees for public data and information that enables the state to maximize public and private benefits flowing from ITS public/private partnerships. This means that WisDOT needs the flexibility to support a wide variety of business models and pricing strategies when publicly owned or generated data and information is involved.

The range of business models that needs to be supported include the following:

- Market competition involving value added resellers, free information with advertising revenues, bundling ITS information with other information, bundling ITS information with equipment or services, and transaction or subscription fees.
- Monopoly provision or some degree of market exclusivity involving franchises, concessions, or licenses coupled with limits on the fees that can be charged for data and the return on investment.
- Hybrid of a monopoly and competitive environment through awarding (and renewing) monopoly rights via a competitive bidding process or through a competitive joint venture in which private firms jointly own the database but compete against one another in providing information services.

In the Internet era involving highly creative approaches to e-commerce, it is important that a public/private partnership be able to adopt any of the following pricing strategies depending upon its stage of evolution, the competitive environment, and its business model:

- Provide information for free
- Offer information for the cost of reproduction
- Apply marginal cost pricing
- Apply average cost pricing
- Establish prices by auction
- Capture all consumer surplus through product differentiation and pricing.

#16. USING PRINCIPLES OF COMPETITION WHEREVER POSSIBLE. Wisconsin needs to rely on competition wherever possible to achieve the best possible outcome. However, sometimes WisDOT needs to protect its private partners from competition to ensure economic viability during the incubation and initial growth stages. In such cases competition must be present in the award and renewal of public/private

partnership agreements, and phased in as the business or industry matures in order to protect consumers from monopoly pricing and to ensure the public benefits from innovation.

It is clear from an examination of the history of the deployment of advanced technology, both in transportation and in other industries, that the rapid growth and dissemination of new technology and the corresponding benefits to consumers often would not have occurred without the government providing some protection from competition at the outset. In many cases there was no alternative but to provide protection from competition because many of these technologies were deployed in industries that had natural monopoly characteristics from the start, for example cable television, telephone service, and electricity generation and distribution. To eliminate the potential abuses of monopoly power, government established complex regulations to prevent monopolists from charging consumers excessive rates and earning excessive returns on investment.

Since the deregulation of the airline industry in the late 1960's, policy makers have increasingly turned to competition in nearly every area that historically has involved monopoly regulation in order to increase the efficiency of the economy in producing benefits to consumers.

Every effort should be made to promote competition at every stage in the evolution of an industry or technology, including ITS. However, there may be circumstances when WisDOT needs to avoid creating conditions of excessive competition for an ITS public/private partnership in the start-up phase. In such cases, there should be a strong burden of proof that without some relief of competition in the early years the partnership will not form or not survive in the short run.

Regardless of what relief might be offered, there needs to be competition in the award and renewal of a public/private partnership contract and competition should be phased in as soon as the business becomes viable in order to ensure consumers benefit from innovation that inevitably results.

#17. PRIVACY AND PROPRIETARY INFORMATION. WisDOT must protect personal privacy and proprietary information when it engages in ITS public/private partnerships. WisDOT should adopt best practices for doing so.

The public is extremely sensitive to breaches of personal privacy, and the private sector will not tolerate the release of proprietary information. Failure to protect personal privacy and proprietary information can undermine ITS public/private partnerships -- not just specific projects but the entire program.

Since the start of the national effort to promote ITS, privacy has been a critical concern. ITS America developed privacy guidelines that WisDOT can adopt or refine.

Over the last 10 years a great deal of experience has been gained regarding how to protect personal privacy in testing and deploying ITS, including public/private partnerships. WisDOT needs to carefully review this experience, identify best practices, and adopt them.

WisDOT also needs to review the lessons learned over the last decade regarding protection of proprietary information and adopt best practices.

#18. TORT LIABILITY. WisDOT should work with potential public and private sector partners to develop an approach to tort liability that enhances the prospects of successful public/private partnerships, while protecting consumers and the public against wrongful or irresponsible actions that are harmful to the public safety, health and welfare.

Potential liability is one of the major barriers to public/private partnerships. Many ITS projects are intended to enhance safety or have safety ramifications. The private sector will not contribute its resources to a public/private partnership if future tort liability risks are too high.

WisDOT needs to investigate alternative approaches to minimizing tort liability risks for its private partners while at the same time protecting the public safety, health and welfare. Then WisDOT needs to adopt an approach to tort liability that provides the best balance between enhancing the economic feasibility of public/private partnerships while protecting the public interest.

The approach to tort liability should also strive to achieve a proper balance between public and private sector responsibility for negligent activities.

#19. BOUNDARIES BETWEEN PUBLIC AND PRIVATE SECTOR RESPONSIBILITY. Clear boundaries between public and private sector roles need to be set. Where boundaries cannot be established on a prior basis, they need to be articulated in each specific agreement between WisDOT and its public and private partners.

The failure to establish clear boundaries between public and private partners is often the undoing of a partnership. When establishing a public/private partnership, WisDOT needs to work with its partners to carefully define what the private and public sector roles will be. These roles can be defined in accordance with functional responsibility, ownership rights, the skills or resources brought to the partnership, stage in the lifecycle of the partnership, and in many other ways.

More than anything else the private sector needs strong assurances that the roles throughout the project will be in accordance with the agreement reached with the public sector at the beginning the of the project. Agreements can provide for changing

roles and responsibilities, but the private sector must fully understand at the start the changes expected to occur.

CHAPTER 3
INSTITUTIONAL ARCHITECTURE

This chapter describes the building blocks that comprise an institutional architecture that will enable WisDOT to engage in a wide variety of ITS public/private partnerships. The institutional architecture is very robust and flexible:

- It will support all the candidate ideas and opportunities that were identified in the Task 4 Report, *Opportunities for Public/Private Partnerships.*

- It is fully compatible with National ITS Architecture, or most any regional or corridor technical architecture that is likely to emerge in the next 20 years.

Metaphorically another way to speak of the institutional architecture is as follows:

> *It is the glue that binds together different public and private entities and their organizational units in a way that will support the delivery of any set of ITS user services or market packages composed of a given set of integrated systems and components that function in a framework of technical standards.*

The institutional architecture is intended to accomplish the following when WisDOT engages in a public/private partners:

- Substantially enhance the ability of WisDOT to attract private capital and other resources to deploy ITS by creating economically viable investment and therefore profitable opportunities for the private sector.
- Greatly increase the public and private benefits of ITS.

Without the institutional architecture, the application of advanced technology to meet transportation needs is likely to yield much smaller private investment and public benefits.

BUILDING BLOCKS

Figure 1 presents the building blocks of the Institutional Architecture. Each of these building blocks is described below. They need to be put in place to provide strong assurance that when WisDOT pursues a public/private partnership, institutional barriers are non-existent, or nearly so. This will help ensure that the full potential of ITS technology can be realized in Wisconsin.

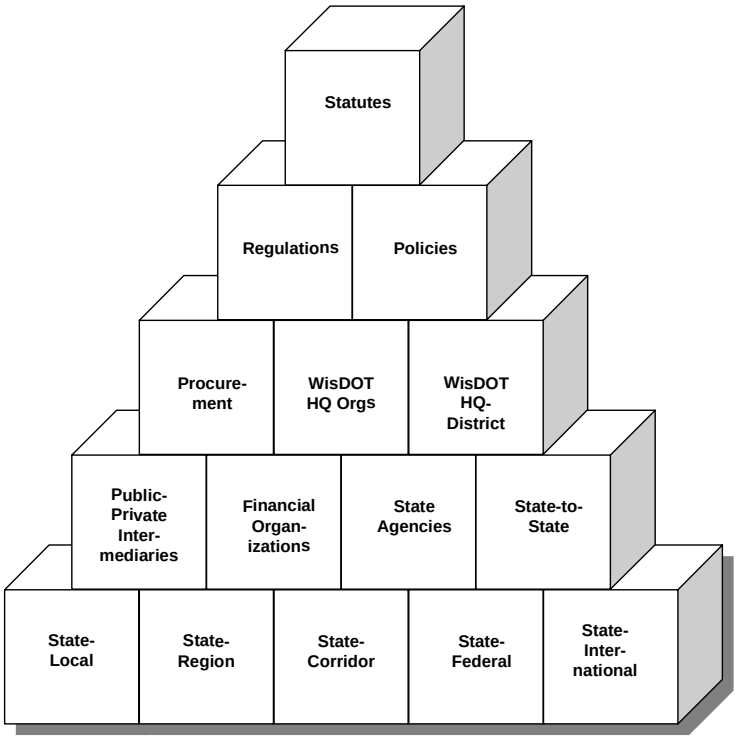


FIGURE 1. BUILDING BLOCKS OF WISCONSIN INSTITUTIONAL ARCHITECTURE

ELEMENTS OF THE INSTITUTIONAL ARCHITECTURE

STATUTES

Statutory authority is the single most important component of the institutional architecture and needs to be present for WisDOT to pursue a broad range of public/private partnerships. Without the statutory authority, WisDOT cannot pursue many opportunities for ITS public/private partnerships it has already identified. Often it cannot augment its own funds with private resources, and often it cannot implement ITS products and services with enough value that people might be willing to pay for them. In addition WisDOT will be precluded from pursuing many future ideas that have not been conceived yet and are best implemented in partnership with the private sector.

Chapter 4 describes the current statutory barriers that hinder WisDOT from pursuing certain types of public/private partnerships, inhibit its ability to attract private capital, and stand in the way of maximizing public benefits. Chapter 4 also describes the changes that are needed to support public/private partnerships, and alternative strategies for achieving the statutory changes.

REGULATIONS

A set of regulations conducive to ITS public/private partnerships must also be in place. Regulations are also known as administrative rules or administrative law and have the force of law.

WisDOT needs to review and revise its rules in the Wisconsin Administrative Code and bring them in alignment with the set of statutes that will provide the statutory framework for ITS public/private partnerships. This means various rules need to be added, deleted, or changed.

Similarly, other state agencies, such as the Wisconsin Department of Commerce, the Wisconsin Department of Tourism, and the Department of Workforce Development may need to review and change any administrative rules that have a direct relationship to cooperative, interagency efforts to develop ITS public/private partnerships in Wisconsin.

It is anticipated that new statutory authority for ITS public/private partnerships is likely to be general and flexible, rather than detailed and specific. Two of the approaches to making statutory change described in Chapter 4 would, on the one hand, involve detailed changes to various sections of Wisconsin Statutes, and on the other hand, provide a detailed list the different type of authority the Wisconsin Legislature might grant. A detailed list, such as the one presented in the Task 6 Report, *Options for Statutory Changes to Enhance Public/Private Partnerships for ITS in Wisconsin*, might serve as a basis for revisions to Wisconsin Administrative Code.

Further elaboration of administrative rules are likely to be required in such areas as:

- Accessibility and policies regarding publicly owned data and information
- Protection of privacy and proprietary data
- Compensation for use of public rights of way and other Wisconsin property and facilities.
- Tort liability.

POLICIES

Important policies for public/private partnerships not explicitly addressed in statutes and administrative rules need be set out. Appropriate places to elucidate policy include manuals, policy documents, policy plans, and the policy elements of the Wisconsin long range plan, the State Transportation Improvement Program, and the State Implementation Plan. Examples of policies might be:

- Incident management teams will address issues of public safety first and congestion delay second.

- When working with private sector Mayday service providers, counties will serve as 911 dispatchers for emergency response vehicles and equipment owned and/or operated by the public sector.

- WisDOT will not seek equity shares in businesses originating from public/private partnerships that might potentially result in an Initial Public Offering (IPO). However, WisDOT will periodically reevaluate this policy to assess the possibility of substantial return on public investment to the state and the possibility of incentivizing WisDOT staff.

PROCUREMENT AND CONTRACTING

A key part of the institutional architecture is an appropriate procurement and contracting process to solicit ideas for public/private partnerships, to attract private capital, to manage competition for rights to become a partner with WisDOT, and to enter into partnership agreements and contracts.

As stated under Principle #8 in Chapter 2, procurement and contracting procedures need to be highly adaptable to the full range of business models for public/private partnerships that the department might engage in such as shared resource projects, franchises, licenses, transaction based businesses, build-operate-lease or transfer, build-operate-maintain-turnover, intermediaries, and competitive joint ventures

Procurement procedures already exist that address acquisition of professional services, products, and business services, and these may need revision.

Procurement procedures need to allow for solicitation of not only private but also public partners.

Once the statutory authority and administrative rules are in place, including those applicable to procurement and contracting, the appropriate organizational units in WisDOT need to implement smoothly working procurement and contracting procedures for public/private partnerships.

For example, to implement a process for periodic open solicitations of public/private partnerships, WisDOT will need to do the following in a manner consistent with statutes and administrative rules:

- Develop a program of public outreach to create awareness of the open solicitation program. The outreach program needs to extend to both potential private and public partners.
- Possibly revise existing procedures -- including steps and timetable -- for soliciting, reviewing, evaluating, selecting proposals, negotiating, and entering into agreements or contracts.
- Prepare and issue, as appropriate, Invitation to Information Meeting, Requests for Expressions of Interest, Request for Preliminary Proposals and Business Plans, and Request for Final Proposals.

WisDOT HEADQUARTERS ORGANIZATIONAL UNITS

Another important part of the institutional architecture that needs to be established is a WisDOT headquarters coordinating body that ensures each division of the department participates fully in the development of the ITS Public/Private Partnership Program, financial planning, establishment of the institutional architecture, and other activities necessary to foster public/private partnerships.

This coordinating group should have the following representation:

- A representative of the Office of Federal Programs
- A representative of the Office of Public Affairs
- A representative of the Office of Policy and Budget
- A representative from the Office of General Counsel
- A representative of each division appointed by the respective administrator
- Chief ITS Engineer
- Functional experts in the application advanced technology to each mode of transportation who are located in headquarters
- Several institutional or organizational experts located in headquarters.

HEADQUARTERS/DISTRICT ITS ACTION TEAM

As a part of the ITS Institutional Architecture, the Districts need to form an ITS Institutional Action Team under the stewardship of the WisDOT headquarters. The Action Team would assist in implementation of ITS public/private partnerships within specific districts and across districts. This team would be highly decentralized. While members would be affiliated with a particular District they would travel as needed to other districts to help overcome institutional barriers regarding specific ITS projects. Responsibilities of the Action Team could be expanded to deal with technical issues.

The Action Team would serve a number of purposes:

- Make available a pool of ITS staff resources to each district that is larger than each District's own ITS staff
- Enhance the ability to rapidly address institutional issues, and possibly technical issues in addition.
- Create a forum for brainstorming and developing new and improved ways of implementing ITS
- Provide a means for more senior and experienced ITS staff to train and develop other staff.

The ITS Action Team could augment other similar team efforts such as the MONITOR incident management team in Southeastern Wisconsin.

PUBLIC/PRIVATE SECTOR INTERMEDIARIES

WisDOT needs to participate in, and as necessary, establish additional intermediary organizations where the public and private sector can pursue common interests including specific public/private partnerships.

WisDOT already participates in these intermediary organizations, among others:

- Metropolitan Planning Organizations – MPOs bring local government and various private sector interests together for purposes of developing long range plans, developing the metropolitan Transportation Improvement Programs (TIPs), and pursuing various types of economic development. MPO's are often a logical forum to build support for a concept for an ITS public/private partnership. If such a project involves federal funding or affects air quality in a non-attainment region, it cannot proceed without first being incorporated into the MPOs TIP.
- ITS Midwest – Like other chapters of ITS America, ITS Midwest is a forum where representatives of the public and private sectors can network and explore concepts for public/private partnerships. In the case of ITS Midwest, it has already undertaken an open solicitation for a public/private partnership and made a contract award. WisDOT acted as the lead contract agency.
- G-C-M Corridor – Public and private sectors work together in this organization to deploy ITS . The G-C-M Corridor has a program plan, including projects involving public/private partnership projects.
- National associations composed of public and private sector representatives such as ITS America.

WisDOT should review the adequacy of these organizations as intermediaries for the public and private sectors. It may be desirable to join or establish other

intermediaries both to foster public/private partnerships in general and for specific partnership projects. Some types of intermediary organizations that WisDOT might wish to join or establish are as follows:

- Help Inc., a public/private partnership whose Board of Directors is composed of half state agencies and half representatives of the commercial vehicle operators. Help Inc. has granted a franchise to a private entity that installs and operates systems for electronic clearance throughout the United States.
- Operation Respond Inc., a non-profit educational institute through which public and private sector organizations address emergency hazardous material spills and accidents.
- A "63-20 Organization" composed of public and private sector representatives in an economic sector or region that can issue tax-exempt general obligation or revenue bonds for transportation finance and/or economic development, provided there is community support.
- Wisconsin ITS Public/Private Partnership Forum – This would be an organization in which private and public sector firms would focus on opportunities to develop ITS public/private partnerships in Wisconsin. The organization could be established as a non-profit corporation that could grant franchises, licenses, competitive joint ventures and other business arrangements involving WisDOT and other organizations in the public and private sector.

FINANCIAL ORGANIZATIONS

Since no public/private partnership can occur without funding, part of the institutional architecture must include financial organizations, particularly those expressly designed for public/private partnerships. Many well-established financial organizations, such as bond rating firms and banks, are part of this building block of the institutional architecture.

In addition a State Infrastructure Bank (SIB) has been established in Wisconsin that can provide loans and a variety of credit enhancement.

WisDOT needs to review the adequacy of the financial organizations in terms of their ability to support public/private partnerships. Some possibilities for additional financial organizations might be the following:

- An entity that would foster ITS private sector finance through universities in Wisconsin regarding cooperative research and development.
- A forum for alerting venture capitalists to ITS public/private partnership investment opportunities.

- A public/private partnership for ITS projects involving Federal Empowerment or municipal enterprise zones.

WISCONSIN INTERAGENCY PUBLIC-PUBLIC PARTNERSHIP

There are a wide variety of potential ITS projects, where Wisconsin state agencies are important stakeholders as well as potential partners in public/private partnerships. These ITS projects include the following:

- Traveler and commercial vehicle information systems that serve particular sectors of the economy such as tourism, manufacturing, agriculture, and forestry.
- Traveler information systems that provide travel times and accident rates for mode and routing options.
- ITS user services aimed at Welfare-to-Work, Job Placement, and Employment Classified Advertising
- International Trade Data System to facilitate customs processing of imports and exports to and from Wisconsin
- A program for trading pollution emission credits for telecommuting.

These types of projects suggest the following state agencies ought to be engaged in a program of WisDOT ITS public/private partnerships:

- Wisconsin Department of Tourism
- Wisconsin Department of Agriculture
- Wisconsin Department of Commerce
- Wisconsin Department of Workforce Development
- Wisconsin Department of Natural Resources
- Wisconsin Insurance Commissioner
- Wisconsin Department of Public Safety

In addition there is a university-based ITS alliance, and therefore it is important to engage the University of Wisconsin.

WisDOT needs to establish a standing public/public partnership among selected Wisconsin state agencies that might potentially become part of a ITS public/private partnership or wish to influence the outcome of such a partnership.

This Wisconsin Interagency ITS public/public partnership should establish a formal cooperative agreement that sets the stage for enlistment of private partners to implement such projects as listed above.

Consideration should be given to including the University of Wisconsin in the Wisconsin Interagency public/public partnership. Otherwise some other mechanism for involving the various university campuses should be pursued.

STATE-TO-STATE PUBLIC-PUBLIC PARTNERSHIPS

Truckers and motorists know no state boundaries and neither does weather and much pollution. Consequently part of the institutional architecture needs to support cooperation among states to address cross border issues.

A truly effective Roadway Weather Information System (RWIS) in Wisconsin, for example, needs input regarding weather coming Wisconsin's way. Also, drivers want to know winter road conditions ahead if they are entering or leaving Wisconsin. WisDOT is a participant in the Fortel Consortium, a multistate public/private partnership to develop and deploy improved Advanced Rural Transportation/Roadway Weather Information Systems in participating states.

WisDOT is also a participant in a another multistate partnership, the Gary-Chicago-Milwaukee Corridor, one of four priority corridors established under the Intermodal Surface Transportation Efficiency Act.

These are a just of few instances of bi-lateral or multistate cooperation, coordination, agreements and partnerships in which WisDOT is involved.

Current state-to-state cooperation is not sufficient for public/private partnerships that require both scale economies to achieve unit cost reductions and a large base of customers that present attractive business opportunities to private firms that might participate in a public/private partnership and make investments in ITS.

WisDOT should work with neighboring states at the minimum, and better yet, with all states throughout the Midwest region and along major corridors that pass through Wisconsin, to establish a standing or "permanent" public-public partnership with which private firms can propose to engage in a public/private partnership. This standing state-level public/public partnership should create an agreement to accept proposals for public/private partnerships for a wide variety of different types of partnerships and business models. This multistate public/public partnership should be willing to grant franchises and licenses to private partners that would operate in states throughout the region and/or key corridors.

This standing or permanent public/public partnership would need to establish policies and procedures for engaging in public/private partnerships including methods

of soliciting, evaluating, selecting, and entering into agreements or contracts for public/private partnerships.

STATE-LOCAL PUBLIC/PUBLIC PARTNERSHIPS

The value of traveler information and many other types of ITS user services is severely limited when the coverage does not include the transportation networks of local governments. The inability of private firms to engage not only state and but also local governments in public/private partnerships has deterred much private investment in ITS.

It is essential for a Wisconsin ITS institutional architecture to include a formal framework that makes it easy to include local governments in public/private partnerships. The goal of this framework should be 100 percent coverage of key portions of all local roads and other transport networks and systems so that travelers can obtain useful information regarding congestion, travel time, travel options for origins and destinations for all types of trips. This local government institutional building block would also facilitate the delivery of other types of ITS user services that involve local participation.

Therefore WisDOT needs to establish one or more standing public/public partnerships of local governments in which WisDOT would be a member and that could enter into public/private partnerships. These public/public partnerships should include all counties, all cities in the urbanized areas of the state, and all cities over some threshold population such as 25,000 and all significant tourist areas. For example there could be a standing public/public partnership of counties; another for the major urbanized areas of the state, and a third and involving cities over 25,000 in rural areas and local governments with tourist destinations in rural areas.

Complete coverage of all cities and counties in the state could be phased in gradually, but should be achieved as quickly as practical.

Existing joint powers of local governments are a sufficient legal foundation to enter into agreements establishing public/public partnerships that could in turn enter into public/private partnerships. Counties could work through the Wisconsin Counties Association to establish their public/public partnership. Cities in Metropolitan areas could work through their respective Metropolitan Planning Organizations (MPOs) to establish public/public partnerships.

Figure 2. Real time In-vehicle navigation is a potential outcome of an ITS public/private partnership with extensive state and local coverage.

WISDOT – REGIONAL PUBLIC/PUBLIC PARTNERSHIPS

Part of the institutional architecture should include standing public / public agreements between WisDOT and important regions. These regions can be within the state, span state borders, or involve multiple states. The institutional building blocks described above would address most such regional partnerships.

However, one additional type of agreement deserve to be singled out:

- Agreements between WisDOT and key Wisconsin Planning Commissions, including their constituent local organizations, that are situated outside metropolitan areas.

Again, such public / public partnerships would serve as a platform to engage private partners.

WISDOT –CORRIDOR PUBLIC-PUBLIC PARTNERSHIPS

WisDOT already has many working groups and formal public/public partnerships focused on particular corridors such as the Gary-Chicago-Milwaukee Corridor, and the I-90/94 corridors. WisDOT needs to determine which other corridors warrant similar attention and establish a formal public/public partnership, including WisDOT, that could enter into agreements with private partners.

STATE-FEDERAL PUBLIC/PUBLIC PARTNERSHIPS

Another part of the institutional architecture should include a standing public/public partnership between WisDOT and federal agencies, especially those federal agencies that have important transportation interests:

- U.S. Department of Interior, which manages a huge road system on federally owned lands. The Department of Interior includes the National Park Service, which runs national parks throughout Wisconsin and in neighboring states and is responsible for roads on park lands.
- U.S. Department of Agriculture Forest Service which builds, owns, and maintains forest roads.
- Modal administrations of the U.S. Department of Transportation.

The nature of this relationship between Wisconsin and these agencies will need to be carefully determined. Each of these federal agencies is a funding agency and Wisconsin competes against other states for federal funds.

It would be desirable if some type of prior formal partnership agreement could be established between WisDOT and federal agencies likely to enter into future ITS public/private partnerships. However, involvement with each of these agencies might have to be limited to coordination and cemented on a case-by-case basis as opportunities for a particular public/private partnership arise.

WisDOT – INTERNATIONAL PARTNERSHIPS

Wisconsin as much as any other state functions within a global economy. Wisconsin trade and travel is affected by many international developments including the North American Free Trade Agreement.

WisDOT should consult with the ITS Joint Program office of the U.S. Department of Transportation to identify suitable ways to coordinate with other countries and

international organizations, which in turn could engage in ITS public/private partnerships:

- Canada or selected Canadian provinces that are part of the truck shed that spills commercial vehicle traffic into Wisconsin
- Mexico which is at the other end of the I-35 Corridor
- North American Super Highway Coalition.

WisDOT should also consider cultivating sister countries with which it would establish close professional relationships regarding ITS much like Minnesota DOT has done with regards to Scandinavian countries.

SUMMARY

An institutional architecture composed of each of the building blocks discussed above would provide a strong foundation for moving forward with ITS public/private partnerships in Wisconsin. All these building blocks cannot be implemented at once, but by beginning with the statutory authority, administrative law, and a program and financial plan, a large amount of progress can be achieved in putting the institutional framework in place.

The standing "public/public partnerships" would be very desirable to put in place. Then various entities in the private sector could approach the appropriate ones with proposals in the expectation that the geographic coverage of governmental jurisdictions involved would yield economies of scale and a large market base of customers.

The institutional architecture needs to be rounded out with intermediaries focused on ITS public/private partnerships and financial organizations that can help the public and private sectors leverage their respective resources.

Establishment of an Wisconsin ITS Public/Private Partnership Forum as an intermediary and focal point for many of these institutional building blocks would simplify the interaction required among organizations and reduce the burden on WisDOT staff. The Wisconsin ITS Public/Private Partnerships Forum could have a committee structure that mirrors various building blocks and would allow participants to communicate and build partnerships in a highly efficient manner. The Wisconsin ITS Public/Private Partnerships Forum should hold a meeting at least annually and the meeting location should move from place to place throughout the state in order to build awareness and support for ITS among all the citizens and businesses of Wisconsin.

CHAPTER 4
STATUTES AND REGULATIONS

STATUTORY BARRIERS

The term "public/private partnership" does not necessarily refer to a separate legal entity that is created by complying with state law requirements for the formation of a business or simply arises by operation of law. Instead, a public/private partnership may take a wide variety of forms, from a partnership or joint venture in the strictest legal sense, to projects in which the parties simply agree to pool specific resources and to share the profits and benefits arising from a particular project. In most general terms, a public/private partnership is an activity in which the public and private sectors share the risks, costs, and rewards of an undertaking.

Under the statutory and legal framework as it exists in Wisconsin today, the major issues with which both private and public parties attempting to form public/private partnerships to deploy ITS must contend are:

- Authority of the Department to enter into certain types of arrangements. State officials and agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. Therefore, in order for the Department to enter into partnerships or other arrangements with private entities, the Department must have clear authority.

- Constitutional and common law restrictions on the use of public property. Specifically, property acquired by the state must be used for a public purpose.

- Constitutional restrictions on the expenditure of public funds. The Wisconsin Constitution prohibits the contracting of public debt or expenditure of public funds for private purposes.

- Statutory restrictions on the use of public property. For example, a prohibition on the conducting of commercial enterprises on controlled-access highways which, depending upon the particular ITS project, could prohibit the placement of facilities on or in controlled access highways.

- Disposition of project revenues. The Wisconsin Code provides that "[a]ll moneys in the state treasury not specifically designated in any statute as belonging to any other funds constitute the general fund." Absent a statute which designates the revenue derived from a public/private partnership as belonging to a specific fund, any funds received by the

Department will be deposited in the general fund rather than be available for reinvestment in the public/private partnership or in another ITS project.

Even those agreements that meet the public purpose requirements for use of public property and public funds and that are within the statutory authority of the Department will be subject to other limitations under federal and state law. These requirements could make such an agreement less attractive to private entities, could restrict or prevent certain projects entirely, or could affect the manner in which a project is organized.

Wisconsin law already permits certain types of public/private partnerships that may be applied to ITS projects. Build-Operate-Transfer-Lease agreements, for example, are expressly permitted. In addition, the Department and municipal governments may lease their property to private entities. This authority, however, is not sufficient in many cases. It is also too limited to allow much flexibility in how projects are organized. WisDOT's inability to enter into compensation agreements with private sector entities, for example, is an important limitation.

Some of the limitations discussed above may be addressed by simply structuring the public/private partnerships in a particular way. In many cases, however, this may not be possible. Specific legislation therefore is required to engage in a broad range of public/private partnerships, authorize certain projects or to amend those specific provisions that would otherwise bar a potential ITS project that meets the public purpose requirements. Specific authorizing legislation for ITS public/private partnerships would even largely resolve the constitutional issues.

OPTIONS FOR OVERCOMING BARRIERS

There are several ways in which Wisconsin law could be amended to make the establishment of public/private partnerships for ITS simpler and more effective. The Task 6 Report, *Options for Statutory Changes to Enhance Public/Private Partnerships for ITS in Wisconsin*, identifies four approaches and proposes statutory language for implementing each approach. The four options are distinct alternatives for purposes of illustration. In reality, however, WisDOT has great flexibility in addressing the issues, and it is not limited to the four options. The State could choose one of the four, adopt a variation on any one, or combine the options in some way. Each approach has strengths and weaknesses and a combination of elements of each may be the best approach.

The four options are:

- General legislation creating authority for WisDOT to engage in innovative technology projects and business arrangements.

- General legislation creating authority for WisDOT to engage in economic development projects
- Detailed legislation addressing each of the limitations identified in the Task 2 Report.
- Detailed legislation creating specific authority for WisDOT to engage in ITS public/private partnerships.

As a part of its legislative strategy, WisDOT should identify a non-controversial project that has ambiguous legal status as a catalyst for approaching the legislature and seeking authority for ITS public/private partnerships.

Also, in the process of finalizing legislation, it is important to doublecheck for any unintended consequences. For example, counties currently have the right under Wisconsin law to enter into a contract with the state to perform maintenance on state roads. The effect of proposed legislation on this and other provisions of law, should be re-examined carefully, especially if the proposed legislation draws from more than one approach.

The following is a description of each approach and a discussion of the strengths and weaknesses of each.

1. CREATION OF BROAD AUTHORITY TO ENGAGE IN INNOVATIVE TRANSPORTATION-RELATED ACTIVITIES

Probably the most practical and effective way to provide WisDOT most of the authority it needs is to adopt legislation that would give WisDOT broad permission to engage in innovative transportation-related arrangements, without specifically referring to ITS.

The draft legislation for this option (See Report 6) is modeled on legislation adopted by the State of Minnesota:

> *84.01(31) Innovative agreements, receipts, appropriation. To facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation, and to promote and encourage economic and technological development in transportation matters within and between governmental and non-governmental entities and notwithstanding any other provision of law:*
>
> > *(a) The Department may enter into agreements with other governmental or non-governmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for the benefit of the citizens of Wisconsin.*

(b) The department shall promulgate rules to implement and administer this subsection.

(c) In addition to funds otherwise appropriated by the legislature, the Department may accept and spend funds and in-kind compensation received under any agreement authorized in paragraph (a) for the purposes set forth in that paragraph, subject to a report of receipts to the Department of Revenue at the end of each biennium and, if receipts from the agreements exceed $200,000 or equivalent value in each biennium, the Department shall also notify the governor and appropriate committees in the senate and the assembly.

(d) Funds received under this subdivision must be deposited in the transportation fund established by s. 25.40, provided, however, that an agreement entered into under the authority of paragraph (a) may provide that funds received pursuant to that agreement shall be dedicated for use in connection with any project established pursuant to that agreement, in which case such funds shall be deemed to have been duly appropriated by the legislature and the provisions of s. 25.40(2) shall not apply.

(e) The receipt by the Department of in-kind compensation under this subdivision shall not be deemed to require an appropriation of funds by the legislature.

The Minnesota legislation has been modified to account for a few differences in Wisconsin state law, the most important being that it grants authority to reinvest revenues generated by a project or to invest those revenues in other ITS projects.

Using the Minnesota statute as a model offers several practical advantages. First, although it does not specifically refer to ITS, the Minnesota Department of Transportation has relied on the original legislation to develop numerous ITS projects. Therefore, if Wisconsin were to adopt similar legislation, explicitly based on the Minnesota version, WisDOT would be able to point to the application in Minnesota to support the position that the language encompasses ITS applications. Second, the Wisconsin legislature has often looked to the experience of Minnesota for models of other types of legislation, and legislation based on a statute that has been adopted and successfully applied in Minnesota would probably be viewed favorably by the Wisconsin legislature.

Adopting a single provision that would authorize WisDOT to engage in various types of public/private partnerships would address the concern that state agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. Such a provision would alleviate the uncertainty on the part of both WisDOT and private investors regarding WisDOT's authority to engage in public/private partnerships for the deployment of ITS projects and make it unnecessary to find an implied grant of authority.

2. CREATION OF BROAD ECONOMIC DEVELOPMENT AUTHORITY

The second option would be to adopt legislation giving WisDOT general authority to engage in activities and projects that would enhance the economic development of the state. Of the four options, this approach would give WisDOT the most latitude in the types of projects in which it could engage.

This approach may not be practical because it is so broad. The state legislature is unlikely to give WisDOT authority over "economic development" that could be construed as extending beyond the transportation field. Furthermore, if it were adopted, by possibly giving WisDOT authority over areas in which it did not previously have authority, conflicts could arise between WisDOT and other state agencies. For example, the Department of Commerce already has responsibility for economic development matters, under various statutes. *See, e.g.* Wis. Code §§ 560.08, 560.66. Even if WisDOT only exercised the new authority to promote ITS public/private partnerships, its actions might be subject to challenge if they infringed on an area over which another state agency has been expressly delegated specific authority.

3. SPECIFIC AMENDMENTS OF EXISTING STATUTES

The third method of revising the existing statutory framework is to amend each individual code provision that has been identified in the Task 2 Report as potentially inhibiting WisDOT's ability to enter into ITS partnerships. The chief advantage to this option is that if each provision is revised appropriately, there will be clear direction for both WisDOT and private investors regarding WisDOT's authority to engage in such public/private partnerships. This option also has the advantage of eliminating apparent ambiguities and inconsistencies in current law that may restrict deployment of ITS, and would retain the current structure of the Wisconsin Code as much as possible.

This option has a number of drawbacks, however. These generally derive from the piecemeal approach of revising a large number of sections of code. First, it requires the most detailed drafting of the four options because it requires identifying each provision of the Wisconsin Code that might present an obstacle to ITS public/private partnerships. It also requires determining how to modify each provision in a way that does not reduce WisDOT's current authority and responsibilities, while still promoting ITS. Even if great care is taken in identifying all sections of code that need revision, a risk remains of failing to identify an important statute. So WisDOT might find that the legislation ultimately does not suit the intended purpose.

For the second approach to be effective, the Legislature would need to pass each change essentially in the form it was proposed. Ensuring that revisions made to each of these provisions during the legislative process are consistent and sufficient to serve the purposes and goals of the originally drafted revisions would require an immense amount of coordination. In addition, if every provision were not enacted in the form in which it was originally intended, WisDOT might ultimately find that it has the authority to do some things but not others, which would mean that although some forms of public/private partnerships would be feasible, others might not. While such an occurrence could still result in a statutory framework more friendly to ITS public/private partnerships, it might still leave in place certain provisions which could substantially inhibit WisDOT's authority to enter into certain types of public/private partnerships or make such partnerships unattractive to private investors. For instance, if all of the revisions authorizing WisDOT to participate in public/private ITS projects are enacted except revisions which deal with the funding or disposition of the revenues generated, WisDOT would be free to engage in a public/private partnership but powerless to reinvest the revenues from such projects, which could significantly affect a project's viability.

Finally, as the number and variety of revisions to the Wisconsin statutes increases, so does the possibility that projects that rely on the revisions may be challenged in court. So, too, does the possibility that the courts may interpret some of the changes in ways different from what was intended, or as having consequences not intended or anticipated by those revising the language in the context of ITS partnerships.

4. CREATION OF SPECIFIC ITS AUTHORITY

The fourth method of revising the existing statutory structure would be to adopt legislation containing a separate provision of Code which expressly authorizes certain types of ITS public/private partnerships. The chief advantage of this option is that it would clearly establish the authority of WisDOT to enter into specified types of public/private partnerships for the deployment of ITS. However, as with any "laundry list" provision, it is impossible to include all potential types and forms of public/private partnerships that may be necessary for the deployment of public/private partnerships in the future. This problem would seem only to be exacerbated by the rapid growth and technological advances occurring in this area today.

Consequently, this method might require the revision of the particular provision each time a new type of public/private partnership or project was developed. In addition, taking into consideration the length of time such revisions may take, the need for such revisions before a project can be conducted may slow the implementation of new projects considerably.

REGULATIONS

If the state were to enact broad statutory authority allowing WisDOT to enter into public/private partnerships, the Department might find it desirable or necessary to implement regulations to clarify the nature of this authority. These regulations would take the form administrative rules that would be incorporated into the Transportation Administrative Code. The draft language in the Task 6 Report for the last legislative option discussed above might serve as the basis for administrative rules. Excerpts from this draft language that might also be suitable for administrative rules are as follows:

Section 1. Project Selection

(A) The Department of Transportation may solicit proposals from, and negotiate and enter into agreements with, private entities and other public entities both within and without the State of Wisconsin to undertake as appropriate, together with the Department of Transportation and other public entities for research and experimentation, or for sharing facilities, equipment, staff, data, or other means of providing services, the study, planning, design, construction, operation, and maintenance of infrastructure facilities and intelligent transportation systems, using in whole or in part private sources of financing.

(B) Each proposal shall be weighed on its own merits, and each agreement shall be negotiated individually, and as a stand-alone project.

(C) Projects may be selected by the Department of Transportation and private entities at their discretion.

(D) All projects designed, constructed, conducted or operated must comply with all applicable rules and statutes, in existence at the time the agreement is executed.

(E) The Department of Transportation may consult with legal, financial, and other experts within and outside government in the negotiation and development of the agreements.

Section 2. Terms of Agreement

(A) Agreements may provide for private ownership of a project or facilities related to a project during the construction period.

(B) After completion and final acceptance of each project or discrete segment thereof, the agreement may provide for public ownership of the infrastructure facilities and lease to the private entity unless the Department of Transportation elects to provide for ownership of the facility by the private entity during the term of the agreement.

(C) The Department of Transportation may lease a project, or applicable project segments, to private entities for operating purposes for up to fifty years per segment.

(D) The Department of Transportation may exercise any power possessed by it to facilitate the development, construction, financing operation, and maintenance of projects under this chapter.

(E) Agreements may provide for payment of compensation for services rendered by public entities or facilities or property made available by them for use in a project. Such compensation may be in cash or in kind, and may be in any amount or form that is lawful and agreed to by the parties.

(F) Agreements for police services under the agreement may be entered into with any qualified law enforcement agency, and shall provide for reimbursement for services rendered by that agency. Such reimbursement may be in cash or in kind.

(G) The Department of Transportation may provide services for which it is reimbursed, including but not limited to preliminary planning, environmental certification, and preliminary design.

(H) The plans and specifications for each project constructed under this section shall comply with the Department of Transportation's standards for public projects, as adjusted to accommodate innovative techniques.

(I) In the case of state transportation facilities, a facility constructed by and leased to a private entity is deemed to be a part of the state highway system for purposes of identification, maintenance, and enforcement of traffic laws and for the purposes of applicable sections of this title.

(J) Upon reversion of a facility to the Department of Transportation, the project must meet all applicable standards reasonably established by the Department of Transportation.

(K) Agreements shall address responsibility for reconstruction or renovations that are required in order for a facility to meet all applicable standards upon reversion of the facility to the Department of Transportation.

(L) For the purpose of facilitating projects and to assist private entities in the financing, development, construction, and operation of infrastructure facilities and intelligent transportation systems, agreements may include provisions for the Department of Transportation to exercise its authority, including:

(i) the lease of facilities, rights of way, and airspace, including airspace next to, above or below the right of way associated or to be associated with a private entity's project facilities,

(ii) exercise of the power of eminent domain,

(iii) authority to negotiate acquisition of rights of way in excess of appraised value, and

(iv) granting of development rights and opportunities,

(v) granting of necessary easements and rights of access to state owned property controlled by the Department of Transportation, issuance of permits and other authorizations, leasing existing rights of way or rights of way subsequently acquired with public or private financing,

(vi) protection from competition,

(vii) remedies in the event of default of either of the parties,

(viii) granting of contractual and real property rights,

(ix) liability during construction and the term of the lease, and

(x) other provisions deemed necessary by the Department of Transportation.

(M) Agreements may include any contractual provision that is necessary to protect the project revenues required to repay the costs incurred to study, plan, design, finance, acquire, build, install, operate, enforce laws, and maintain infrastructure facilities and intelligent transportation systems.

(N) Agreements must include provisions requiring that liability insurance coverage be secured and maintained in amounts appropriate to protect the project's viability and may address Department of Transportation for design and construction liability where the Department of Transportation has approved relevant design and construction plans.

(O) Nothing shall limit the right of the Department of Transportation to render such advice and to make such recommendations as it deems to be in the best interests of the state and the public.

Section 3. Financial Arrangements

(A) The Department of Transportation may enter into agreements using federal and public entity financing in connection with projects, including without limitation, grants, loans, and other measures authorized by federal and state law, and to do such things as necessary and desirable to maximize the funding and financing, including the formation of a revolving loan fund to implement this section.

(B) Collections of the Department of Transportation under this provision may be reinvested in an ITS or related project

(C) Agreements may authorize a private entity to lease project facilities from the Department of Transportation and to impose user fees or other reasonable charges to allow a reasonable rate of return on investment, as established through a negotiated agreement between the Department of Transportation and the private entity.

(D) Agreements may require that, over the term of the agreement, user fees, or other reasonable charges may be applied to payment of the private entity's capital outlay costs for the project, including interest expense, the costs associated with operations, collection of user fees, toll revenues, and other charges, maintenance and administration of the facility, reimbursement to Department of Transportation for the costs of project review and oversight, technical and law enforcement services, establishment of a fund to assure the adequacy of maintenance expenditures, and a reasonable return on investment to the private entity.

(E) Agreements may provide for sharing of revenues or profits between private sector entities, the Department of Transportation, and any other public sector participants.

(F) The use of any excess revenues or fees may be negotiated between the parties.[2]

[2] The language here is based mainly upon model legislation for public/private partnerships developed by the American Legislative Exchange Council.

CHAPTER 5
LESSONS LEARNED

There is a great amount of experience accumulated in the United States and other countries regarding ITS public/private partnerships. This chapter presents important lessons that have been based on a variety of case studies and other inputs.

The lessons in this chapter are organized by topic and should provide guidance to WisDOT staff, private partners, and other stakeholders as the Department proceeds to implement a full and effective program of ITS public/private partnerships.

DEFINITION OF PARTNERSHIP

- It is important to understand that a partnership means sharing risks, resources and benefits.

- The definition of partnership used in Mn/DOT projects is "a cooperative program that promotes efficiencies in providing governmental services; 'partnership' is not intended to define a joint venture or separate legal entity.' " The lesson here is it is desirable to make clear the nature of a partnership.

PRIVATE PARTNERS

- Business decisions really guide the private sector, even after the contract is signed.

PUBLIC PARTNERS

- Ideally one should build and use a multi-agency, multidisciplinary coalition including, for example, traffic, communications, Information Services, Emergency Management Services, Public Safety, Facilities, legal, procurement, public relations, top management, transit and private partners. Key success factors are a strong lead agency, a leading core of the group, a visionary element, and top-level commitment from all agencies.

CONSUMER AWARENESS

- Lack of consumer awareness of technological innovations of ITS products and programs can hinder the success of a public/private partnership. The Minnesota Mayday Plus public/private partnership faced the obstacle of lack of awareness of automated crash notification technology and procedures.

CHAMPION

- Public sector champions are vital to the successful deployment of ITS involving a public/private partnerships.

- So are champions in the private sector.

- Over-dependence on a champion can backfire if the champion decides to leave his or her organization. Each champion should have a backup.

COMMON VISION

- It is important for the partners to establish a common vision for a project to help avoid misunderstanding and conflict.

DIFFERENCES IN ORGANIZATIONAL CULTURES

- Establishment of public/private partnerships need to account for the cultural biases of different types of organizations and mitigate these differences. For example, the orientation of public agencies and defense contractors may be so different that a concerted effort may be needed to overcome cultural differences to avoid jeopardizing an effective partnership.

OUTREACH AND BUY-IN

- Recognize that a substantial amount of time must be spent educating legislators and agency personnel about ITS and the benefits to be gained through public/private partnerships and innovative funding.

- It is extremely important to have a systematic, structured information campaign. One must get top-level support and commitment and early buy-in.

- Lack of openness and procedures that are overly protective of proprietary ideas involving potentially controversial projects can cripple or kill a program, which occurred in the State of Washington.

UPPER MANAGEMENT SUPPORT

- Although the SmartTrek Model Deployment Initiative in Washington State has been largely successful, lack of strong support at the uppermost levels of Washington State DOT has impeded ITS program development in the Seattle region. This situation is attributed to the effort of these

officials to "read" legislators who favor funding more traditional capital projects rather than ITS-related projects.

SPEED OF DEPLOYMENT

- An issue in setting up public/private partnerships that addresses advanced technology is the decision whether to implement quickly with a less sophisticated system, or to take a longer time to custom-design special features applicable to the individual project. Experience tends to favor the former approach, although the latter approach is not uncommon.

- Rather than attempting to achieve broad-based consensus about "specific" policy direction before acting, it is more productive to move ahead with deployment. The ITS environment is too complex technically and changing too fast for a large group of stakeholders to reach consensus on specific approaches for timely service delivery. In fact, it is precisely this sort of bureaucratic process that public/private partnerships are intended to transcend.

STATUTORY AUTHORITY

- Legislation established to foster the success of ITS public/private partnerships has promoted an environment for partnership development and operational test enhancement in Minnesota. Wisconsin and other states could benefit from legislation with similar intent.

STATUTORY AUTHORITY IN SOUTH CAROLINA

- A process that requires legislative input or approval at the proposal stage discourages private sector participation. Unlike some other states, South Carolina can make negotiation decisions without legislative approval.
- South Carolina's enabling legislation allows it to act as project banker and provides the state flexibility to use a wide variety of finance mechanisms.
- The private sector is allowed to exercise eminent domain.
- South Carolina has demonstrated the feasibility of taking advantage of the IRS 63-20 ruling to establish a non-profit corporation as a financial intermediary to issue revenue based bonds. A 63-20 corporation can also issue general obligation bonds.
- South Carolina has also demonstrated the feasibility of using tourist fees and hospitality taxes to finance transportation improvements.

POLICY FRAMEWORK

- The State of Washington had a policy framework that promoted Transportation System Management (TSM) and public/private partnerships. This type of policy framework fostered ITS public/private partnerships and would benefit other states.

SYSTEM COMPATIBILITY AND INTEROPERABILITY

- System compatibility is a major issue, and common standards and protocols are seen as a way of promoting competition, and resolving other issues. Partnering on national efforts can also help.

FIELD OPERATIONAL TESTS vs. DEPLOYMENT

- There is a big difference between a field operational test and the model deployment initiative. The ITS Model Deployment Initiative established the first step of a comprehensive and long-term deployment and it has yielded permanent benefits. Public/private partnerships should not focus on field operational tests if the goal is to produce continuing benefits. Rather deployment should be the goal of a public/private partnership.

PROCUREMENT AND SOLICITATIONS

- Partnering arrangements require non-traditional procurement and contracting mechanisms.

- A process can be designed to generate both solicited and unsolicited proposals.

- In Minnesota virtually all publicly funded procurements, including those involving public/private partnerships must go through a Request for Proposal process.

- An open solicitation process modeled after Washington's is likely to result in many creative proposals for public/private partnerships.

- A flexible, open solicitation process to achieve public objectives for ITS and to attract creative, economically viable ideas of the private sector is highly desirable. However, such a process is likely to fall far short of its potential or even fail without procedures to ensure full public involvement if projects or programs are controversial.

- A public/private partnership program modeled after Virginia's would allow any private firm or consortium to propose any idea to any responsible road entity (e.g. state or local government) and permit any responsible road entity to issue an RFP. Significant numbers of creative proposals are likely to be submitted under a public/private partnership program like Virginia's. The administrative burden of such a program is high even with a proposal submittal fee. VDOT suspended receipt of unsolicited proposals for highway maintenance.

- The Advanced Maintenance Concept Vehicle Project used an invitation to attend a workshop to attract potential private sector participants. No RFP was issued. A workshop, forum, or other similar gathering can be used to explain a project, help set future direction, explore mutual interests, invite private participation, and obtain a commitment from the private parties as to their level of involvement.

- A private partner can be selected on the basis for a Request for Statements of Interest. The Yellowstone National Park sent out letters explaining the proposed project to three firms they felt were experienced in the technology needed to develop the AVI project at Yellowstone. These firms were asked to respond if they were interested in developing a partnership to undertake the project. From the interest received, one was selected as the primary private partner. The technological and institutional approach to developing the public/private partnership in Yellowstone may serve as a model for other national and state parks, including those in Wisconsin.

- MnDOT issued a Request for Partnership Proposals (RFPP), a process which other states can emulate. The RFPP acknowledged the innovative skills and abilities within the private sector to develop creative and novel ways to provide information services which are mutually beneficial to all parties, including the general public, the public sector and the private sector. Responders were provided the minimum information necessary to describe the deployment partnership. Firms were given the opportunity to be creative and propose an innovative business entity that met the minimum requirements, yet had the flexibility to do other activities which could be profitable to the private sector.

- If an innovative procurement process for a public/private partnership does not work out, a state can always revert to a traditional contracting process as Mn/DOT did, and simply buy the equipment and/or contract for the services it wants.

- It might be possible to avoid an aborted procurement involving a public/private partnership if the state seeks preliminary revenue and cost estimates and then a Best and Final Offer.

BUSINESS PLANS

- A unique aspect of Mn/DOT's RFPP for a Roadway Weather Information System was the requirement that offerors submit a Business Plan including market research and analysis, estimated market share and sales, design and development plans, and a financial plan including *pro forma* financial statements. The Business Plan is not a typical request in RFPs, and requires information radically different from what engineering firms are accustomed to providing. If the public/private partnership is premised upon a business venture, as this project was, then a business plan is essential to determining the viability of the venture.

- One of the critical aspects of business plans (and are of the most time consuming) is preparing realistic estimates of costs and investment recovery. As it turns out, this may have been one of the downfalls of Mn/DOT's Request for Partnership Proposals. The procurement was aborted because there was a multimillion dollar gap between what the state was willing to pay and the investment recovery requirements estimated by the bidder the Mn/DOT ultimately entered into negotiations with.

PUBLIC AND PRIVATE SECTOR ROLES

- It is critical to clearly define public and private sector responsibilities.

- When there is more than one entity in a partnership, there is a need to clearly define funding responsibilities before the start of a project.

PRIVATE SECTOR INCENTIVES

- During the workshop to solicit interest from private partners to participate in the Advanced Maintenance Concept Vehicle Project, some private sector participants said public agencies do not offer any loyalty in return for the investment made by private companies in partnerships due to the requirements for competitive bidding for subsequent work. The lack of commitment dissuaded partners from making as large an investment in the project as they otherwise might, and some private firms ultimately decided not to participate for this reason.

SHARING RISKS, COSTS AND BENEFITS

- It is important to manage expectations.
- To make the relationship with a private partner work, one needs mutual trust, the ability to accept and share risk, and the acceptance of uncertainties.
- The private sector will tend to try to shift the costs and risks to the public sector while reaping the rewards, if Virginia's experience is any indication. Private investment may be less than expected.
- When risk and uncertainty of an ITS public/private partnership is significant, it is feasible to have a fixed price contract with a variable structure suitable to the development of ITS.
- Benefits received by each partner should be proportional to the resources expended, especially in the areas of revenue sharing, assignment of intellectual property rights, and ownership of data.
- Multiphase contracts, in which the design phase is cost-plus-fixed fee and the implementation phase(s) is (are) fixed price can significantly reduce the risk and costs for all parties. This is particularly important when implementing new systems and technology where there is a great deal of uncertainty.
- Partners in Motion in the Washington, D.C. metropolitan area required government cost sharing at the outset, but after a period of time the cost sharing ceased and the ATIS now stands on its own two feet.
- The Minnesota Mayday Plus, like other true public/private partnerships, has the obvious benefit that neither the public or private sector must bear all the costs.

HARD VS. SOFT MATCHING FUNDS

- There is an asymmetry between the risk of hard versus soft federal aid matching funds. If the private sector puts up cash and the public sector soft match, it can make negotiations more difficult and potentially jeopardize the partnership.

NEGOTIATIONS

- Develop an approach to public/private partnerships that emphasize the need for professionalism of all participants.

- It is crucial to get the technical and procurement people on both the public and private sides together early. One needs a strong scope section in the partnership agreement yet there need to be flexibility and options.
- Negotiations among partners are often challenging, arduous and difficult to conclude. While many negotiations succeed, some inevitably fail. Increasing the probability of success depends upon having a well-thought-out public/private partnership program.

- In negotiations, a single point of contact with the public sector is greatly preferred to multilateral discussions with numerous government jurisdictions.

- Do not leave critically important subcontractors out of the negotiations as occurred in the collapse of the initial negotiations for the NY-NJ-CN Model Deployment Initiative.

- Ownership rights and issues of liability are among the issues that are difficult to negotiate and make the contracting process a barrier to public/private partnerships.

SCOPE CREEP

- It is important to guard against scope creep, which can lead to too rapid expansion of the system and place demands on partners in excess of the scope originally agreed to.

PRE-AGREEMENT

- A public/private partnership benefits greatly from a pre-agreement understanding regarding the project's goals and objectives, roles and responsibilities of each party, and project overall costs.

CONTRACTS AND AGREEMENTS

- A contract for a successful partnership, based on VDOT experience, is more effective if it presumes the parties have a strong reason to be in the partnership and does not contain recourse if one partner fails to perform.

- The contractual relationship, which reinforces a traditional fee-for-service relationship, is difficult to reconcile with a partnership.

- Reductions in funding can undermine a public/private partnership. Having realistic contingencies to deal with potential funding reductions may help avoid damage to or dissolution of a partnership.

- Public/private partnerships typically involve contractual agreements between parties based on market factors in place (and projected) at the time of the agreement. Public/private partnerships need to be able to accommodate changing market conditions for ITS products and services by including a provision to allow parties to negotiate modifications to the contract when changing conditions require. Also allowing flexible cost, schedule and/or scope within agreed-upon conditions, such as using a cost-plus-fixed-fee contract can help to address changing conditions.

- The experience of the Advanced Maintenance Concept Vehicle project shows that a public/private partnership does not necessarily require a formal agreement. This public/private partnership proceeded without a formal agreement between the public and private partners although a formal agreement was established among the participating states. Private partners joined the project to learn from the State DOT's, get exposure for their new ideas and products, and obtain referrals from interested parties that make inquiries.

BUSINESS MODELS

- ITS public/private partnerships in the metropolitan and urban areas of the United States have been disappointing in terms of their speed of deployment, coverage, and the value provided to motorists and truckers in excess of information available for free. Experience based in Japan and England as well as other industries, such as Cable Television and Electric Utilities, offers business models that have been far more successful.

- Business models for public/private partnerships in the United States have not fully exploited the inherent value in publicly owned rights-of-way and other public property. Instead of developing a methodical approach to parlaying the value of public-rights of way into ITS deployment, agencies have gone after the "low hanging fruit" and simply bartered access to public rights of way in exchange for bandwidth. Lessons from other countries and other industries suggest other business models, particularly variants on franchising, are much more effective. A franchise is defined as granting access to public rights of way in order to allow a firm to earn a profit and satisfy a public interest obligation. A franchise usually involves revenue sharing, and not merely bartering.

- Technological and structural change in the economy can significantly affect what types of business models are most likely to be successful for ITS. Part of the reason why business models that exploit the value of publicly owned rights of way have not been widely applied may be that ITS planners anticipate that the wireless revolution is likely to reduce the need to install ITS sensors, equipment, and communication devices in public rights-of-way. There is a need for a careful examination of how the future developments in wireless technology will affect the best institutional approaches to deploying ITS over time.

Other countries

- The Japanese deployment of VICS, one of the most successful Advanced Traveler Information Systems (ATIS) deployments in the world, has used a public/private partnership business model that relied upon private sector manufacturers to finance key portions of the system. The private sector is able to capture the willingness of the public to pay for the equipment. This business model has applicability in certain parts of the United States and for certain types of ITS user services. A critical success factor has been the development of communication infrastructure in the public rights of way (e.g. beacons with two way communications) to monitor speeds of vehicles and support delivery of real-time travel information to vehicles, which permits real-time route guidance. This information has much more value to drivers than navigation equipment which uses a digital map and static data. For manufacturers to finance ITS deployment, achieving significant economies of scale in manufacturing is essential. The lesson learned in Japan is that sufficient geographic coverage is essential, which in the United States requires a multi-state, large-scale regional, national, or even international approach.

- In Trafficmaster, the United Kingdom has experienced one of the other most successful ITS implementations that involve a public/private partnership. The success of Trafficmaster depended upon the company obtaining exclusive rights to deploy surveillance equipment on the motorways of the United Kingdom, based upon a pan-European patent, which other firms or countries must license. In effect, the United Kingdom, by licensing Trafficmaster and giving access to public rights-of-way, has granted this company an exclusive franchise. Trafficmaster is a profitable company, whose sole business is built around the provision of real time, reliable traffic information to its customers in the UK. Aside from being profitable, Trafficmaster differs in a number of respects from traveler information systems in the US: (1) Trafficmaster collects all its traffic data, with no data feed from public agencies; (2) Trafficmaster has patented its data collection technologies, requiring competitors using

similar technologies to obtain a license from Trafficmaster. No competitor has emerged to date in the UK or the wider European market.

Intermediaries

Intermediaries have been shown to be an effective business model for ITS public/private partnerships. Intermediary organizations are set up to enable the public and private sectors to work together in ways that neither could do on their own.

- A steering committee or board of directors composed of both public and private sector representatives can balance and promote both public and private sector interests.

- Operation Respond Inc. has demonstrated that one can establish a non-profit educational institute as a means for the public and private sector to share in the costs and fund a research and development program regarding the continual enhancement and dissemination of software for real-time operations management. The staff can use the non-profit educational institute as a vehicle to carry out a wide variety of education-related activities associated with the software including training and community awareness.

HELP INC. – AN EXAMPLE OF AN INTERMEDIARY AND FRANCHISE

- Help Inc. has shown it is possible to establish a non-profit intermediary corporation with public and private representation in order to oversee ITS implementation through the granting of a franchise or other contractual relationships.
- Under the Help Inc. business model Lockheed Martin has been granted a franchise to construct infrastructure in public rights of that allows trucks equipped with transponders to bypass weigh stations. Lockheed recovers infrastructure investment and other costs by collecting 99 cents (capped at $3.96 per day) each time a truck with transponder receives automated clearance to bypass a weigh station. This is known as the Prepass program.
- A franchise established under the intermediary can potentially be granted exclusive rights, which increases the likelihood that the services provided by the franchisee will be profitable.
- The intermediary, if it includes adequate public representation, can assume responsibilities for ensuring rates charged for services and return on investment are reasonable.

Franchising and Licensing

- Franchising holds considerable promise for ITS deployment based on the experience of the cable television industry. The creation of a model franchise agreement for cable television helped demystify the franchising process. The model franchise agreements for Advanced Traffic Management Systems and Advanced Traveler Information Systems prepared for the Federal Highway Administration might play a similarly useful role in the deployment of ITS in Wisconsin.

- A franchise is a means of allowing the public and private sector to capture and share the value of public rights-of-way for telecommunications and ITS service offerings. During the history of cable television, government managed to capture this value in various ways. Originally rural communities exchanged access to public rights-of-way for service and for a nominal franchise fee (e.g. $1). Later in the history of cable television, as the value of the franchise increased with greater Cable TV programming offerings and large number of subscribers, there was a period in which franchises were nearly auctioned to the highest bidder. Revenue sharing has occurred and service providers have also offered in-kind payments.

- If government pursues franchising as an integral part of enhancing public/private partnerships for ITS, care is required to minimize the undesirable effects of granting exclusive rights. Government should allow competition to play a role at the appropriate times, during the procurement process, upon expiration and renewal of a franchise, and when an industry has matured to the point where competition is supportable.

Auctioning Exclusive Rights

- The experience of cellular and wireless industries demonstrates that granting exclusive or partially exclusive rights to serve a particular territory can lead to rapid deployment. These rights can be potentially be auctioned. ITS public/private partnerships might have similar success if they followed a similar business model.

LESSONS FROM THE HISTORY OF THE ELECTRIC UTILITY INDUSTRY

- Granting franchises to power companies, which allowed them to access public rights-of-way to install street cars and lighting, ignited the industry. The lesson is franchising might be equally effective for ITS.
- The establishment of regulatory agencies to regulate rates, return on investment, and entry and exit into markets helped temper the monopoly power that investor-owned utilities ultimately accumulated. ITS needs to deal with similar issues if ITS service providers are granted exclusive rights.
- Strategies designed to encourage the rapid deployment of ITS need to apply a reasoned approach over the long run to avoid swinging back and forth from an emphasis on competition one day to monopoly and regulation the next.
- As in the middle years in the history of the electric power industry, governmental entities deploying various types of ITS will struggle to cooperate and achieve economies of scale and system reliability.
- The experience of the electric utility industry suggests that significant questions remain regarding whether localities will be willing to sacrifice home rule and autonomy to subsume certain transportation responsibilities under the umbrella of a regional agency or some type of public/private partnership.
- The electric power industry was slow to address rural needs, resulting in remedial action by Congress. ITS America, the federal government, and the states have not made the same mistake, and have undertaken rural ITS programs.
- Even if ITS is rapidly and successfully deployed, the experience of the electric utility industry suggests ITS will be subject to external changes, including structural changes in the economy. The ITS community needs to continually engage in strategic planning that assesses the threats and opportunities to successful deployment, operations, and maintenance of ITS.

Shared Resource Projects

- Numerous Shared Resource Projects throughout the country have demonstrated that it is feasible to enter into an agreement with telecommunication providers to exchange access to public rights of way for a fiber optic backbone.

- Shared resource projects are expedient ways of developing infrastructure for ITS but, as experience from other industries show, are not necessarily the best bargain.

- A recent FCC case regarding a shared resource project in Minnesota has raised serious questions about whether it is possible to grant exclusive rights to a telecommunication company to install fiber optic cable in public rights of way.

Investment Recovery by Transaction Fees

- One of the most successful business models for public/private partnerships are instances where the private sector funds the initial construction or implementation and costs plus profit are recovered through transaction fees. Many types of infrastructure and systems are financed this way, for example vehicle inspection and maintenance facilities and the electronic clearance systems deployed by Lockheed Martin under Help Inc.

- Objections by many states to the transaction-based processing and monopoly business model of Lockheed Martin has resulted in a competitive business model emerging. Under Norpass of TransCore Inc., the state builds the infrastructure, and Norpass provides technical and administrative services. Norpass charges an annual flat fee of $45 to enroll a truck (power unit) which can then bypass Norpass weigh stations an unlimited number of times.

TOLL ROADS AND CONGESTION PRICING

- Toll road development programs and congestion pricing are extremely controversial, likely to be rejected by the public and politicians, and should not be made an integral part of a program to enhance public/private partnerships for ITS. The foundation for developing a toll road or congestion pricing program should be implemented separately from a program to enhance public/private partnerships for ITS. Otherwise the ITS public/private partnership program risks being badly damaged.

- Public opposition to toll roads is difficult to overcome and is likely to undermine an open solicitation for ITS if the agenda is predominantly toll road development.

FINANCE AND LEVERAGING OF FUNDS

- Multi-year funding commitments substantially reduce project risk.

- Debt financing (e.g. State Infrastructure Banks) can be wedded to a public/private partnership program.

- Competition for funds inhibits all types of ITS projects. Broader and more creative funding sources such as state infrastructure banks, industrial revenue bonds, etc. can relieve the competition for funds.

PROHIBITION AGAINST REINVESTMENT

- Partners in Motion traveler information system in the Washington D.C region includes a revenue sharing agreement. To avoid depositing funds into a transportation or general fund, which in some states might preclude use of funds for ITS purposes, the Partners in Motion contract calls for the public partners' share of revenues to be reallocated to system upgrades, expansion of the coverage area, and other related services.

FREE DATA AND COVERAGE

- Deployments that can support public/private partnerships that include profitable ITS user services, such as traveler information, need to have coverage, quality and timeliness of data substantially greater than provided by free radio and broadcast services or basic services. TravInfo has not succeeded in this respect because Caltrans, due to contractual difficulties, was unable to install the number of loop detectors on the freeways originally planned nor has other surveillance and detection technology been installed, for example AVI that builds upon electronic toll collection on the bridges.

- The AzTech ATIS business model is based on a public/private partnership that will eventually allow the public sector to operate a self-sustainable ATIS. The underlying principle is that the public sector is responsible for public sector data collection and fusion. The data is made available at no cost to the private sector for dissemination to the traveling public. In return all the value-added information that the private sector attaches to the data stream must be provided free of charge to the participating public sector partners. The success of the business model depends partly on the coverage, quality, and timeliness of data. Ironically, AZTech's primary ATIS business partners, use a business model whose profitability assumes that publicly generated traffic data may not be valuable enough to consumers and motorists to produce a

profitable traveler information system. Rather, the business partners bundle traveler information with other more valuable information (e.g. stock quotes, weather) to provide a profitable information service. Microsoft has a similar philosophy in its Sidewalk information service.

TRAFFIC SURVEILLANCE

- One of the most intriguing and successful aspects of TransGuide traveler informaton system in San Antonio was the private sector distribution of thousands of automated vehicle identification tags to be installed on windshields and the deployment of tag readers. These tags allow vehicles to serve as probes and enable a traffic management system to calculate speeds on 100 miles of freeways and arterials.

PROGRAM EVALUATION

- A public/private partnership program should have a built-in procedure to evaluate the program and permit modifications and corrections.

INTELLECTUAL PROPERTY RIGHTS

- Issues regarding intellectual property can be avoided by establishing clear policies at the outset.

- If federal funding is involved, one must observe federal policy regarding intellectual property rights.

- In one public/private partnership a dispute over how to handle intellectual property rights ended when a letter from the FHWA's Chief Counsel clarified the Federal governments policy on intellectual property: the public sector may use pre-existing products but may not make derivative works or attempt to derive the source code of the products. When software, data or documentation is funded with federal dollars, the public sector receives a royalty-free, non-exclusive and irrevocable license to make ample use of the intellectual property. To avoid having to live with these conditions, the public/private partnership may wish to not use federal funds and negotiate their own approach to intellectual property rights.

- Ownership rights to software developed under a public/private partnership can remain with the private sector if no public monies are used to develop the software.

- The Partners in Motion contract specified that repackaged public data may not be distributed in any manner without the written consent of the private sector ATIS provider, except that the participating states may use the data exclusively with each agency. This type of clause can protect value-added data resellers, although Freedom of Information Act court challenges could arise.

ACCESSIBILITY OF PUBLICLY OWNED DATA

- The policy of open access to data and information may inhibit private sector participation. The private sector may require more limited access as a condition for a profitable business.

UNIVERSAL ACCESS AND EQUITY

- A public/private partnership can accommodate both basic services to provide universal access and satisfy equity requirements as well as to provide value added and potentially profitable traveler information service.

FREE DATA AND PUBLIC GOODS

- The public sector is concerned about private sector monopolization of data while the private sector is concerned about the public sector giving data away for free.

LIABILITY

- Liability concerns are often addressed successfully in contract negotiations by including an indemnification clause and a limitation on liability.

- Tort liability regarding erroneous data has been an issue in TravInfo and is an issue for others. TravInfo protected itself by including disclaimers of liability and a warranty requirement in the terms and conditions of the Registered Participant Agreement signed by private partners intending to offer specific products and services.

PRIVACY

- The failure to fully protect the privacy of businesses and individuals can quickly undermine a public/private partnership.

- A liability and procedural issue tied to the distribution of information is the taping of traffic flows captured by the video monitoring cameras along the roadways. AzTech developed a policy that cameras would not play a

law enforcement role. AzTech provides open access to camera feeds via local television. Finally AzTech enacted an informal policy of not retaining tapes from the camera feeds in order to avoid being subpoenaed and used in lawsuits.

FINAL

PROJECT TASK REPORTS

ENHANCING ITS PUBLIC/PRIVATE PARTNERSHIPS IN WISCONSIN

Prepared for:

WISCONSIN DEPARTMENT OF TRANSPORTATION

Prepared by:

BOOZ·ALLEN & HAMILTON INC.

With

Miller & Van Eaton, P.L.L.C.

and

K.L. Engineering, Inc.

May 1, 2000

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Project Task Reports for Methods to Enhance Public/Private Partnerships for ITS in Wisconsin		5. Report Date May 1, 2000 6. Performing Organization Code Booz·Allen & Hamilton Inc.
7. Author(s) William A. Hyman, Matt Ames, Marci Frischkorn, Kim Lobdell, Rafael Aldrete, Daniel Villar		8. Performing Organization Report No.
9. Performing Organization Name and Address Booz·Allen & Hamilton Inc. 8283 Greensboro Drive McLean Virginia 22102		10. Work Unit No. 11. Contract or Grant No. Wisconsin Contract 0092-45-11
12. Sponsoring Agency Name and Address Wisconsin Department of Transportation 4802 Sheboygan Avenue Madison, WI 53707-7910		13. Type of Report and Period Covered Final Report January 1999 – May 2000 14. Sponsoring Agency Code

15. Supplementary Notes

Wisconsin DOT Project Manager: Philip DeCabooter, Chief ITS Engineer
Subcontractors to Booz·Allen & Hamilton were Miller & Van Eaton P.L.L.C. and K.L. Engineering Inc.

16. Abstract

These task reports provide the background material for the report, "Guidelines for Enhancing ITS Public/Private Partnerships in Wisconsin," prepared for the Wisconsin Department of Transportation. The guidelines recommend an institutional approach to enhancing public/private partnerships for Intelligent Transportation Systems (ITS) in Wisconsin. The institutional approach consists of a set of principles, an institutional architecture, and options for expanding statutory authority. The guidelines also contain lessons learned from the implementation of ITS public/private partnerships in the U.S., Europe and Japan, as well as lessons learned from other industries.

The guidelines were prepared with extensive outreach to the private sector. This outreach included a survey, interviews, a focus group, and a workshop.

In this document are six task reports that provide background studies for the final guidelines and describe the various outreach activities. The six task reports are as follows:

Task 1 Report. Case Studies and Outreach
Task 2 Report. Legal and Procurement Barriers to Public/Private Partnerships in Wisconsin
Task 3 Report. Attracting Resources to ITS Projects
Task 4 Report. Opportunities for Public/Private Partnerships
Task 5 Report. Assessment of Policies Regarding Accessibility and Fees for Public Information and Data
Task 6 Report. Options for Statutory Changes to Enhance Public/Private Partnerships for ITS in Wisconsin

17. Key Words ITS, Intelligent Transportation Systems Public/Private Partnerships, Institutional Issues Legal Issues, Institutional Framework		18. Distribution Statement No restrictions.	
19. Security Classif. (of this report) Unclassified	20. Security Classif. (of this page) Unclassified	21. No. of Pages 345	22. Price

Form DOT F 1700.7 **(8-72)** Reproduction of completed page authorized

FINAL

TASK 1

TECHNICAL MEMORANDUM

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

December 16, 1999

TABLE OF CONTENTS

OVERVIEW
TASK 1 TECHNICAL MEMORANDUM

This Technical Memoradum provides documentation concerning the main activities that occurred under Task 1 of the project, "Methods to Enhance Public Private Partnerships for ITS Deployment in Wisconsin."

The documents included in this Technical Memorandum are presented generally in order of importance:

- **Section A. Case Studies.** A variety of case studies were performed to research and investigate programs and practices of other states as well as a few international deployments. The case studies draw on a literature review, interviews, and knowledge of team members regarding the most significant and pertinent ITS public/private partnerships that have occurred to date. These case studies shed light on the major issues, barriers and lessons learned regarding public/private partnerships. The case studies help clarify needs for changes in Wisconsin statutes, conditions and mechanisms to ensure the feasibility of ITS public/private partnerships . Finally, the case studies focus upon areas of strategic interest to Wisconsin including traveler information, commercial vehicle operations, rural ITS services, and how to achieve expanded coverage of ITS through various types of business models such as franchising and intermediaries.

- **Section B. Summary of Focus Group Meeting.** A focus group was assembled primarily to obtain input from the private sector regarding how to overcome barriers to ITS public/private partnerships and what changes to Wisconsin statutes should be pursued. The main outcome of the focus group was a recommended approach to drafting statutory changes to support ITS public/private partnerships in Wisconsin. This approach involves setting out alternative strategies consisting of general language similar to the State of Minnesota's legislative authority, an enumeration of specific authority that is needed that could be either pursued through statutory changes or administrative rules, and at least one other approach.

- **Section C. Summary of Interviews with Electric Utilities and State Agencies.** The project team conducted interviews with two electric utilities – Alliant Energy and Madison Gas and Electric -- and four state agencies: Wisconsin Department of Tourism, Wisconsin Department of Commerce, Wisconsin Department of Work Force Development and the Wisconsin Public Service Commission. These interviews resulted in two types of input for the project. The first concerns the desirability of granting exclusive (e.g. monopoly) rights to ITS service providers in order to create conditions attractive for private investment and what type of regulatory oversight against abuse of monopoly power is appropriate in Wisconsin. The consensus of the meetings was that granting exclusive rights can catalyze an industry such as electric power or ITS but the Wisconsin Public Service Commission

would be unlikely to exercise any regulatory oversight regarding ITS deployment involving monopoly franchises. The meetings with other agencies were valuable because they identified opportunities for public private partnerships that involve the interests of more than one state agency. These opportunities include ITS services that can support tourism, international trade, and "welfare to work".

- **Section D. Summary of Survey Results.** Ninety private firms working in the ITS arena were sent a survey that asked respondents to rate the severity of different barriers to ITS public/private partnerships. Respondents were also asked to indicate whether changes to Wisconsin statutes were needed to effectively address the barriers. While only a small number of firms responded, the information received proved to be valuable input into drafting recommended statutory changes. The one challenge mentioned most frequently was the issue of the lengthy procurement process involved in public/private partnerships. Another barrier was a general lack of understanding about how public/private partnerships work and what the benefits, risks, and costs are.

- **Section E. Kickoff Meeting.** This technical memorandum includes materials that document the activities of the kickoff meeting. These materials consist of the overhead presentation for the main kickoff meeting held in the morning and a description of the value-chain exercise that was conducted in the afternoon. The purpose of the value chain exercise was to educate Wisconsin staff regarding potential sources of value, how value arises in the delivery of ITS products and services, and the conditions under which the value would be sufficient to support a public/private partnership. The value customers receive from an ITS product or service must exceed the value received from the next best substitute. Sellers must be able to exclude users on the basis of being able to charge a price (e.g. free rush hour traffic reports of TV and radio broadcasters will not produce revenues from the sale of information) and the net revenues private firms receive must exceed the net revenues that can be earned from the next best investment.

SECTION A

CASE STUDIES

CASE STUDIES

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

December 16, 1999

EXECUTIVE SUMMARY

This report includes a variety of case studies selected for the purpose of illuminating key issues and lessons learned regarding enhancement of public/private partnerships (PPPs) for Intelligent Transportation Systems (ITS) . The case studies were selected to a provide a number of different perspectives:

1. Descriptions of various state programs aimed at attracting private investment through an open solicitation process (i.e. call for partnership proposals), sometimes focused on building toll roads.
2. Public-private partnerships that have required use of public rights-of-ways
3. Public private partnerships that have been implemented in metropolitan areas
4. Rural experience with public private partnerships
5. Institutional issues and partnerships regarding Commercial Vehicle Operations
6. Experience in related industries, namely Cable Television and Electric Utilities
7. Experience in other countries regarding the most successful approaches to deploying ITS, particularly advanced traveler information systems.

Some case studies highlight many different issues and offer numerous lessons learned. Others, were selected to communicate a single key issue or lesson. Collectively, the case studies raise these key issues and lessons learned:

- A flexible, open solicitation process to achieve public objectives for ITS and to attract creative, economically viable ideas of the private sector is highly desirable. However, such a process is likely to fall far short of its potential or even fail without procedures to ensure full public involvement if projects or programs are controversial.

- Toll road development programs are extremely controversial, likely to be rejected by the public and politicians, and should not be made an integral part of a program to enhance public/private partnerships for ITS. The foundation for developing a toll road program should be implemented separately from a program to enhance public/private partnerships for ITS. Otherwise the ITS public/private partnership program risks being badly damaged.

- ITS public/private partnerships in the metropolitan and urban areas of the United States have been disappointing in terms of their speed of deployment, coverage, and the value provided to motorists and truckers in excess of information available for free. Experience based in Japan and England as well as other industries, such as Cable Television and Electric Utilities, offers business models that have been far more successful.

- Business models for public/private partnerships in the United States have not fully exploited the inherent value in publicly owned rights-of-way and other public

property. Instead of developing a methodical approach to parlaying the value of public-rights of way into ITS deployment, agencies have gone after the "low hanging fruit" and simply bartered access to public rights of way in exchange for bandwidth. Lessons from other countries and other industries suggest other business models, particularly variants on franchising, are much more effective. A franchise is defined as granting access to public rights of way in order to allow a firm to earn a profit and satisfy a public interest obligation. A franchise usually involves revenue sharing, and not merely bartering.

- Technological and structural change in the economy can significantly affect what types of business models are most likely to be successful for ITS. Part of the reason why business models that exploit the value of publicly owned rights of way have not been widely applied may be that ITS planners anticipate that the wireless revolution is likely to reduce the need to install ITS sensors, equipment, and communication devices in public rights-of-way. There is a need for a careful examination of how the future developments in wireless technology will affect the best institutional approaches to deploying ITS over time.

- While the density of population in urban areas suggests that public/private partnerships for urban ITS is more likely to attain early success than rural areas, this is by no means the case. Rural case studies presented here indicate that public/private partnerships for rural areas can anticipate early success as well. Indeed Cable TV was first deployed in rural and small urbanized areas.

- Negotiations among partners are challenging. While many will succeed, some will inevitably fail. Increasing the probability of success depends upon having a well-thought-out public/private partnership program. The Guidelines that will be developed under Wisconsin's project on "Methods to Enhance Public-Private Partnerships for ITS" should significantly increase the probability of successful negotiations.

The following table summarizes key issues and lessons learned from each of the case studies:

Case Study	Key Issues and Lessons Learned
ADOT PPP Toll Road Program	• Opposition to toll roads for various reasons has so far stymied construction of any toll roads. • Legislative requirements that a reasonable alternative route exist may diminish the attractiveness of private sector toll road finance. • A process can be designed to generate both solicited and unsolicited proposals.
Washington State	• An open solicitation process modeled after Washington's

Case Study	Key Issues and Lessons Learned
New Partners Program	is likely to result in many creative proposals for PPPs. • Lack of openness and procedures overly protective of proprietary ideas involving potentially controversial projects can kill a program. • Public opposition to toll roads is difficult to overcome and is likely to undermine an open solicitation for ITS if the agenda is predominantly toll road development. • The collapse, or more accurately, the sharp contraction of the Washington State New Partners Program and difficulties elsewhere in toll road construction have discouraged many engineering companies and sources of capital from investing in toll roads.
Public-Private Partnership Program of Virginia	• A PPP program modeled after Virginia's would allow any private firm or consortium to propose any idea to any responsible road entity (e.g. state or local government) and permit any responsible road entity to issue an RFP. • Significant numbers of creative proposals are likely to be submitted under a PPP program like Virginia's. • The private sector will tend to try to shift the costs and risks to the public sector while reaping the rewards, if Virginia's experience is any indication. Private investment has been less than expected. • The administrative burden of such a program is high even with a proposal submittal fee. VDOT suspended receipt of unsolicited proposals for maintenance and operations. • Debt financing (e.g. State Infrastructure Banks) can be wedded to a PPP program. • A PPP Program should have a built-in procedure to evaluate the program and permit modifications and corrections. • Negotiations are arduous and difficult to conclude.
South Carolina's Program of Infrastructure Finance	• A process that requires legislative input or approval at the proposal stage discourages private sector participation. Unlike some other states, South Carolina can make negotiation decisions without legislative approval. • South Carolina's enabling legislation allows it to act as project banker and provides the state flexibility to use a wide variety of finance mechanisms. • The private sector is allowed to exercise eminent domain. • South Carolina has demonstrated the feasibility of taking advantage of the IRS 63-20 ruling to establish a non-profit corporation as a financial intermediary to issue revenue

Case Study	Key Issues and Lessons Learned
	based bonds. A 63-20 corporation can also issue general obligation bonds. • South Carolina has also demonstrated the feasibility of using tourist fees and hospitality taxes to finance transportation improvements.
TransGuide Model Deployment Initiative	• One of the most intriguing and successful aspects of TransGuide was the private sector distribution of thousands of automated vehicle identification tags to be installed on windshields and the deployment of tag readers. These tags allow vehicles to serve as probes and enable a traffic management system to calculate speeds on 100 miles of freeways and arterials. • When risk and uncertainty of an ITS PPP is significant, it is feasible to have a fixed price contract with a variable structure suitable to the development of ITS. • Issues regarding intellectual property can be avoided by establishing clear policies at the outset. • The policy of open access to data and information may inhibit private sector participation which may require more limited access as a condition for a profitable business.
Seattle SmartTrek MDI	• The state of Washington had a policy framework that promoted Transportation System Management (TSM) and PPPs. This type of policy framework would benefit other states. • Although the SmartTrek MDI has largely been very successful, lack of strong support at the uppermost levels of Washington State DOT has impeded ITS program development in the Seattle region. This situation is attributed to these officials efforts to "read" legislators who favor funding more traditional capital projects rather than ITS related projects. • Rather than attempting to achieve broad-based consensus about "specific" policy direction before acting, it is more productive to move ahead with deployment. The ITS environment is too complex technically and changing too fast for a large group of stakeholders to reach consensus on specific approaches for timely service delivery. In fact, it is precisely this sort of bureaucratic process that public-private partnerships are intended to transcend. • Recognize that a substantial amount of time must be spent educating legislators and agency personnel about ITS and

Case Study	Key Issues and Lessons Learned
	the benefits to be gained through PPPs and innovative funding.
AZTech: The Phoenix, Arizona MDI	• The AzTech ATIS business model is based on a public/private partnership that will eventually allow the public sector to operate a self-sustainable ATIS. The underlying principle is that the public sector is responsible for public sector data collection and fusion. The data is made at no cost to the private sector for dissemination to the traveling public. In return all the value added information that the private sector attaches to the data stream must be provided free of charge to the participating public sector partners. The success of the business model depends partly on the coverage, quality, and timeliness of data. Ironically, AZTech's primary ATIS business partners, use a business model whose profitability assumes that publicly generated traffic data may not be valuable enough to consumers and motorists to produce a profitable traveler information system. Rather, the business partners bundle traveler information with other more valuable information (e.g. stock quotes, weather) to provide a profitable information service. Microsoft has a similar philosophy in its Sidewalk information service. • Liability concerns were addressed successfully in contract negotiations by including an indemnification clause and a limitation on liability. Similar provisions are likely to work elsewhere. • A dispute over how to handle intellectual property rights ended when a letter from the FHWA's Chief Counsel clarified the Federal governments policy on intellectual property: the public sector may use pre-existing products but may not make derivative works or attempt to derive the source code of the products. When software, data or documentation is publicly funded, the public sector receives a royalty-free, non-exclusive and irrevocable license to make ample use of the intellectual property. • A liability and procedural issue tied to the distribution of information is the taping of traffic flows captured by the video monitoring cameras along the roadways. AzTech developed a policy that cameras would not play a law enforcement role. AzTech provides open access to camera feeds via local television. Finally AzTech enacted an

Case Study	Key Issues and Lessons Learned
	informal policy of not retaining tapes from the camera feeds in order to avoid being subpoenaed and used in lawsuits. • It is important to guard against scope creep, which can lead to too rapid expansion of the system and place demands on partners in excess of scope originally agreed to. • It is important to manage expectations. • Ideally one should build and use a multi-agency, multidisciplinary coalition including traffic, communications, Information Services, Emergency Management Services, Public Safety, Facilities, legal, procurement, public relations, top management, transit and private partners. Key success factors are a strong lead agency, a leading core of the group, a visionary element, and top-level commitment from all agencies. • To make the relationship with a private partner work, one needs mutual trust, the ability to accept and share risk, and the acceptance of uncertainties. • It is crucial to get the technical and procurement people on both the public and private sides together early. One needs a strong scope section in the partnership agreement yet there needs to be flexibility and options. • Business decisions really guide the private sector, even after the contract is signed. • There is a big difference between a field operational test and the model deployment initiative. The MDI establishes the first step of a comprehensive and long-term deployment and it yields permanent benefits. • It is extremely important to have a systematic, structured information campaign. One must get top-level support and commitment and early buy-in.
NY-NJ-CN Model Deployment Initiative	• Establishment of PPPs need to account for the cultural biases of different types of organizations and mitigate these differences. For example, the orientation of public agencies and defense contractors may be so different as to jeopardize an effective partnership. • It is important for the partners to establish a common vision for a project to help avoid misunderstanding and conflict. • Reductions in funding can undermine a PPP. Having realistic contingencies to deal with potential funding

Case Study	Key Issues and Lessons Learned
	reductions may help avoid damage to or dissolution of a partnership. • The contractual relationship, which reinforces a traditional fee-for-service relationship, is difficult to reconcile with a partnership. • In negotiations, a single point of contact with the public sector is greatly preferred to multilateral discussions with numerous government jurisdictions. • Partnering arrangements require non-traditional procurement mechanisms. • Do not leave critically important subcontractors out of the negotiations as occurred in the NY-NJ-CN MDI. • There is an asymmetry between the risk of hard versus soft federal aid matching funds. If the private sector puts up cash and the public sector soft match, it can make negotiations more difficult and potentially jeopardize the partnership. • Benefits received by each partner should be proportional to the resources expended, especially in the areas of revenue sharing, assignment of intellectual property rights, and ownership of data. • Multiphase contracts, in which the design phase is cost-plus-fixed fee and the implementation phase(s) is (are) fixed price can significantly reduce the risk and costs for all parties. This is particularly important when implementing new systems and technology where there is a great deal of uncertainty. • Acknowledge the uncertainties in the market for ITS products and services. • Develop an approach to PPPs that emphasizes the need for professionalism of all participants.
TravInfo—the San Francisco Bay Area ATIS	• A PPP can accommodate both basic services to provide universal access and satisfy equity requirements as well as to provide value added and potentially profitable traveler information service. • Deployments that can support PPPs that include profitable ITS user services, such as traveler information, need to have coverage, quality and timeliness of data substantially grater than provided by free radio and broadcast services or basic services. TravInfo has not succeeded in this respect because Caltrans, due to contractual difficulties, was unable to install the number of loop detectors on the

Case Study	Key Issues and Lessons Learned
	freeways originally planned nor has other surveillance and detection technology been installed, for example AVI that builds upon electronic toll collection on the bridges. • Tort liability regarding erroneous data has been an issue in TravInfo and is an issue for others. TravInfo protected itself by including disclaimers of liability and a warranty requirement in the terms and conditions of the Registered Participant Agreement signed by private partners intending to offer specific products and services.
Partners in Motion, the Washington DC regional ATIS	• It is important to understand that a partnership means sharing risks, resources and benefits. • Public sector champions are vital to the successful deployment of ITS involving a PPP. • A contract for a successful partnership, based on VDOT experience, is more effective if it presumes the parties have a strong reason to be in the partnership and does not contain recourse if one partner fails to perform. • Ownership rights to software developed under a PPP can remain with the private sector if no public monies are used to develop the software. • The Partners in Motion contract specified that repackaged public data may not be distributed in any manner without the written consent of the private sector ATIS provider, except that the participating states may use the data exclusively with each agency. This type of clause can protect value-added data resellers, although Freedom of Information Act court challenges could arise. • Partners in Motion includes a revenue sharing agreement. To avoid depositing funds into a transportation or general fund, which in some states might preclude use of funds for ITS purposes, the Partners in Motion contract calls for the public partners' share of revenues to be reallocated to system upgrades, expansion of the coverage area, and other related services. • Partners in Motion required government cost sharing at the outset, but after a period of time the cost sharing ceased and the ATIS now stands on its own two feet.
Operation Respond	• It is feasible to establish a non-profit educational institute as a means for the public and private sector to share in the costs and fund a research and development program regarding the continual enhancement and dissemination of software for real-time operations management.

Case Study	Key Issues and Lessons Learned
	• The staff can use the non-profit educational institute as a vehicle to carry out a wide variety of education-related activities associated with the software including training and community awareness. • A steering committee can balance and promote both public and private sector interests.
HELP Inc.	• Non-profit intermediary corporations with public and private representation can be established to oversee ITS implementation through the granting of a franchise or other contractual relationships. • Under the Help Inc. business model Lockheed Martin has been granted a franchise to construct infrastructure in public rights of that allows trucks equipped with transponders to bypass weigh stations. Lockheed recovers infrastructure investment and other costs by collecting 99 cents (capped at $3.96 per day) each time a truck with transponder receives automated clearance to bypass a weigh station. This is known as the Prepass program. • A franchise established under the intermediary can potentially be granted exclusive rights, which increases the likelihood that the services provided by the franchisee will be profitable. • The intermediary, if it includes adequate public representation, can assume responsibilities for ensuring rates charged for services and return on investment are reasonable. • An intermediary, such as Help Inc., can accomplish what neither the public sector or the private sector can accomplish alone. • Objections by many states to the transaction-based processing and monopoly business model of Lockheed Martin has resulted in a competitive business model emerging. Under Norpass of TransCore Inc., the state builds the infrastructure, and Norpass provides technical and administrative services. Norpass charges an annual flat fee of $45 to enroll a truck (power unit) which can then bypass Norpass weigh stations an unlimited number of times.
The Japanese Vehicle Information and Communication	• The Japanese deployment of VICS, one of the most successful ATIS deployments in the world, has used a public/private partnership business model that relied

Case Study	Key Issues and Lessons Learned
System (VICS)	upon private sector manufacturers to finance key portions of the system. The private sector is able to capture the willingness of the public to pay for the equipment. This business model has applicability in certain parts of the United States and for certain types of ITS user services. • A critical success factor has been the development of communication infrastructure in the public rights of way (e.g. beacons with two way communications) to monitor speeds of vehicles and support delivery of real time travel information to vehicles, which permits real-time route guidance. This information has much more value to drivers than navigation equipment which uses a digital map and static data. • The high levels of congestion in Japan have contributed to the market success. • For manufacturers to finance ITS deployment, achieving significant economies of scale in manufacturing is essential. The lesson learned in Japan is that sufficient geographic coverage is essential, which in the United States requires a multi-state, large-scale regional, national, or even international approach.
Trafficmaster – United Kingdom ATIS	• The success of Trafficmaster is predicated upon it obtaining exclusive rights to deploy surveillance equipment on the motorways of the United Kingdom, based upon a pan-European patent, which other firms or countries must license. In effect, the United Kingdom, by licensing Trafficmaster and giving access to public rights-of-way, has granted this company an exclusive franchise. • Trafficmaster is a profitable company, whose sole business is built around the provision of real time, reliable traffic information to its customers in the UK. • Aside from being profitable, Trafficmaster differs in a number of respects from traveler information systems in the US: (1) Trafficmaster collects all its traffic data, with no data feed from public agencies; (2) Trafficmaster has patented its data collection technologies, requiring competitors using similar technologies to obtain a license from Trafficmaster. No competitor has emerged to date in the UK or wider European market.
Cable Television Franchising	• Franchising holds considerable promise for ITS deployment based on the experience of the cable television industry.

Case Study	Key Issues and Lessons Learned
	• If government pursues franchising as an integral part of enhancing PPPs for ITS, care is required to minimize the undesirable effects of granting exclusive rights. Government should allow competition to play a role at the appropriate times, during the procurement process, upon expiration and renewal of a franchise, and when an industry has matured to the point where competition is supportable. • The creation of a model franchise agreement for cable television helped demystify the franchising process. The model franchise agreements for Advanced Traffic Management Systems and Advanced Traveler Information Systems prepared for FHWA might play a similarly useful role in the deployment of ITS in Wisconsin. • A franchise is a means of allowing the public and private sector to capture and share the value of public rights-of-way for telecommunications and ITS service offerings. During the history of cable television, government managed to capture this value in various ways. Originally rural communities exchanged access to public rights-of-way for service and for a nominal franchise fee (e.g. $1). Later in the history of cable television, as the value of the franchise increased with greater Cable TV programming offerings and large number of subscribers, there was a period in which franchises were nearly auctioned to the highest bidder. Revenue sharing has occurred and service providers have also offered in-kind payments.
Electric Utilities	• Granting franchises to power companies, which allowed them to access public rights-of-way to install street cars and lighting, ignited the industry. The lesson is franchising might be equally effective for ITS. • The establishment of regulatory agencies to regulate rates, return on investment, and entry and exit into markets helped temper the monopoly power that investor-owned utilities ultimately accumulated. ITS needs to deal with similar issues if ITS service providers are granted exclusive rights. • Strategies designed to encourage the rapid deployment of ITS need to apply a reasoned approach over the long run to avoid swinging back and forth from an emphasis on competition one day to monopoly and regulation the next. • As in the middle years in the history of the electric power

Case Study	Key Issues and Lessons Learned
	industry, governmental entities deploying various types of ITS will struggle to cooperate and achieve economies of scale and system reliability. • The experience of the electric utility industry suggests that significant questions remain regarding whether localities will be willing to sacrifice home rule and autonomy to subsume certain transportation responsibilities under the umbrella of a regional agency or some type of PPP. • The electric power industry was slow to address rural needs, resulting in remedial action by Congress. ITS America, the federal government, and the states have not made the same mistake, and have undertaken rural ITS programs. • Even if ITS is rapidly and successfully deployed, the experience of the electric utility industry suggests ITS will be subject to external changes, including structural changes in the economy. The ITS community needs to continually engage in strategic planning that assesses the threats and opportunities to successful deployment, operations, and maintenance of ITS and response to the threats.
Automated Vehicle Identification (AVI) Smart Card – Yellowstone National Park	• A private partner can be selected on the basis of a Request of Statement of Interest. The Yellowstone National Park sent out letters explaining the proposed project to three firms they felt were experienced in the technology needed to develop the AVI project at Yellowstone. These firms were asked to respond if they were interested in developing a partnership to undertake the project. From the interest received, one was selected as the primary private partner. • The technological and institutional approach to developing the PPP in Yellowstone may serve as a model for other national and state parks, including those in Wisconsin. • An issue in setting up public/private partnerships that addresses advanced technology is the decision whether to implement quickly with a less sophisticated system or to take a longer time to custom design special features applicable to the individual project. Risks and rewards have to be evaluated in conjunction with the benefits and immediate needs.
Concept Highway	• This project used an invitation to attend a workshop to

Case Study	Key Issues and Lessons Learned
Maintenance Vehicle	attract potential private sector participants. No RFP was issued. A workshop, forum, or other similar gathering can be used to explain a project, help set future direction, explore mutual interests, invite private participation, and obtain a commitment from the private parties as to their level of involvement. • A PPP does not require a formal agreement. This PPP proceeded without a formal agreement between the public and private partners although a formal agreement was established among the participating states. Private partners joined the project to learn from the State DOT's, get exposure for their new ideas and products, and obtain referrals from interested parties that make inquiries. • During the workshop to solicit interest from private partners, some private sector participants said public agencies do not offer any loyalty in return for the investment made by private companies in partnerships due to the requirements for competitive bidding for subsequent work.
Minnesota Mayday Plus	• In Minnesota nearly all publicly funded procurements, including this project, must go through a Request for Proposal Process. • Ownership rights and issues of liability are among the issues that are difficult to negotiate and make the contracting process a barrier to PPPs. • PPPs typically involve contractual agreements between parties based on market factors in place (and projected) at the time of the agreement. PPPs need to be able to accommodate changing market conditions for ITS products and services by including a provision to allow parties to negotiate modifications to the contract when changing conditions require. Also allowing flexible cost, schedule and/or scope within agreed-upon conditions, such as using a cost-plus-fixed-fee contract can help to address changing conditions. • Lack of consumer awareness of technological innovations of ITS products and programs can hinder the success of a PPP. Mayday Plus faces the obstacle of lack of awareness of automated crash notification technology and procedures. • Automated crash notification, with its ability to transmit crash severity data and interface directly to the public

Case Study	Key Issues and Lessons Learned
	safety answering post, represents a significant advancement over other crash notification procedures. As the equipment becomes available, the interface between the public service answering posts and emergency service providers will become more crucial. Standardization of equipment and protocols, training of dispatchers, and jurisdictional boundaries are just a few of issues which will have to be addressed. • This PPP, as well as others, has the obvious benefit that neither the public or private sector must bear all the costs.
RWIS Institutional Issues prepared for the Aurora Program	• There is a need to clearly define funding responsibilities before the start of a project when there is more than one entity in a partnership. • Competition for funds inhibits RWIS projects in general and RWIS public/private partnerships specifically. Creation of new and creative funding sources such as state infrastructure banks, industrial revenue bonds, etc. can relieve the competition for funds. • There is a fear on the part of maintenance personnel that more efficient winter maintenance operations made possible by RWIS could jeopardize overtime earnings opportunities and even threaten jobs. This concern can be addressed through education and training, and the implementation of flexible systems that will gain user acceptance. • The public sector is concerned about private sector monopolization of data while the private sector is concerned about the public sector giving data away for free. • Both the public and private sector are concerned about liability regarding improper use of RWIS data; the private sector desires public sector indemnification. • System compatibility is a major issue, and common standards and protocols are seen as a way of promoting competition, and resolving other issues. Partnering on national efforts can also help.
MnDOT Road Weather Information System	• MnDOT issued a Request for Proposals for Partners (RFPP), a process which other states can emulate. The RFPP acknowledged the innovative skills and ability of the

Case Study	Key Issues and Lessons Learned
	private sector to develop creative and novel ways to provide information services which are mutually beneficial to all parties, including the general public, the public sector and the private sector. Responders were provided the minimum information necessary to describe the deployment partnership. Firms were given the opportunity to be creative and propose an innovative business entity that met the minimum requirements, yet had the flexibility to do other activities which could be profitable to the private sector. • A unique aspect of the RFPP was the requirement that the proposers submit a Business Plan including market research and analysis, estimated market share and sales, design and development plans, and a financial plan including *pro forma* financial statements. The Business Plan is not a typical request in RFPs, and requires information radically different from what engineering firms are accustomed to providing. If the public/private partnership is premised upon a business venture, as this project was, than a business plan is essential to determining the viability of the venture. • One of the critical aspects of business plans, and the most time consuming, is preparing realistic estimates of costs and investment recovery. As it turns out, this may have been one of the downfalls of this procurement. The procurement was aborted because there was a multimillion dollar gap between what the state was willing to pay and the investment recovery requirements estimated by the bidder the MnDOT ultimately entered into negotiations with. • If an innovative procurement process for a public/private partnership does not work out, a state can always revert to a traditional contracting process as MnDOT did, and simply buy the equipment and/or contract for the services it wants. • The aborted procurement possibly could have been avoided if the state sought preliminary revenue and cost estimates and then a Best and Final Offer.
Minnesota Smart Work Zone	• Legislation established to foster the success of ITS PPPs has promoted an environment for partnership development and operational test enhancement in Minnesota. Other states could benefit from legislation with

Case Study	Key Issues and Lessons Learned
	similar intent. • The definition of partnership used for this and many other MnDOT projects is "a cooperative program that promotes efficiencies in providing governmental services; 'partnership' is not intended to define a joint venture or separate legal entity." The lesson here is that is desirable to make it clear what the nature of a partnership is. • This project had a pre-agreement understanding regarding the project's goals and objectives, roles and responsibilities of each party, and project overall costs. Other PPPs would benefit from this initial step. • The formal cooperative agreement further clarified MnDOT's and its partner's role in the project. The partnership agreement included shared responsibilities and risks and served to join the complimenting needs and services for the benefit of both a private business and the State of Minnesota.

ADOT'S PUBLIC PRIVATE PARTNERSHIP TOLL ROAD PROGRAM A CASE STUDY[1]

INTRODUCTION

Arizona initially passed legislation in 1992 allowing ADOT to enter into partnerships with private entities for the identification and development of up to four toll roads and other transportation projects. This legislation was amended in 1995 to remove a provision that made the State responsible for any default on the part of the proposer, and to increase opportunities for local government involvement. The second piece of legislation permits the State to acquire ROW on behalf of the private sector, and construct complementary facilities. The proposed facility may be privately-owned for the period of the contractual arrangement, or may be State-owned.

As a result of these two pieces of legislation, private entities can now propose projects that they believe will be profitable. This can either occur in response to solicitations from ADOT or without a solicitation. These entities can be single companies or, more likely consortia of companies. Contracts are negotiated carefully, and the private parties must be very well-prepared, because their proposals must contain specific pricing (toll) levels. Consortia do their own projections of ADT and traffic mixes using private traffic models. They are given full access to ADOT traffic counts and records for the preparation of their proposals. Construction financing; comes from private capital or from private bonds on the commercial bond market.

Although ADOT is prohibited from building or operating toll facilities, it can build or contribute to connecting facilities such as interchanges or bridges. If ADOT contributes to this type of connecting facility (rather than building it), it could do so through the SIB, which it administers. In this case, the SIB would loan the money to the private party(ies). The SIB could not, however, underwrite the entire construction project.

All tolls are temporary, with the private parties entering into a franchise agreement that leaves ADOT with possession of the road after the negotiated toll period ends. By legislation, a "reasonable alternative route" for any proposed toll road must be available. The franchise agreement limits the rate of return the operators may receive. If tolls do not yield sufficient revenue, the operators must either restructure their fees which is problematic from a marketing perspective), or look for subsidization from the state (which is unlikely). This is why the proposal preparation and contract negotiation process must be done carefully.

[1] *This case study comes verbatim from the following source: Leong, Dennis and Robert Russell, Build-Operate-Lease Transfer Stiudy, Draft Report, Wisconsin Department of Transportation, June 1, 1999.*

All franchise agreements, (as well as all ADOT projects), must be approved by the State Transportation Board (STB), which oversees Arizona road construction. The STB meets monthly, and all ADOT bid/lets (not just toll franchise projects) must be approved before any contract becomes effective. The STB is composed of seven members, all appointed by the Governor, and (theoretically) represents all regions of the state, so that urban interests do not outweigh rural ones, etc.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

To date proposed highway projects have centered around the Phoenix metro area, focusing on a 231-mile regional freeway system. In 1985 voters of Maricopa County authorized a ½ cent sales tax for twenty years to help finance the system. At the time the tax was projected to raise $6.5 billion. Economic growth was slower than anticipated, and highway costs escalated faster than anticipated, so it was clear there would be a funding gap. Voters refused to authorize a tax increase, so ADOT obtained legislative approval to take solicited and unsolicited proposals from private entities to build and operate toll roads. Both kinds were received.

Lessons Learned

Experience has shown ADOT that there are three aspects to any of these franchise projects that the franchisee must face: engineering, financing, and public education/marketing. No franchise has been constructed to date, and the downfall of all attempts has been the third aspect. Local opposition arose from:

- Anti-growth environmental objections
- NIMBY Local community fears of being bypassed
- Local resistance to tolls and additional taxes, or
- Perceived inequity of some roads/areas being tolled versus other that were not.

Two projects that were part of the originally envisioned regional freeway system are still in the public hearing and review stages, which are required before the STB can approve or reject the final agreements.

WASHINGTON STATE NEW PARTNERS PROGRAM
A CASE STUDY

INTRODUCTION[2]

The case of the New Partners Program in the State of Washington is an example of the effects of politics, one of the greatest risks faced by public-private partnerships, on the successful implementation of a partnership program. Even though state lawmakers had unanimously approved the law that originally created the New Partners program, it was virtually paralyzed after a strong public opposition developed to specific projects being implemented.

Despite the problems experienced by New Partners, the program still is a good example of how to conduct a successful process for soliciting and developing creative ideas for public/private partnerships. The New Partners open solicitation approach may prove to be worthwhile following in cases where political risks are low or can be adequately addressed.

Institutional Setting

In 1993 the Washington State Legislature unanimously approved Substitute House Bill (SHB) 1006, creating the program New Partners: Public Private Initiatives in Transportation. The program was created as a response to a critical funding shortfall, and was aimed at testing the feasibility of privately financed transportation improvements and leveraging the limited public funds. Support for the program was reaffirmed in 1994, when lawmakers authorized $25 million in bond sales to provide loans and grants for potential projects. Box 1 provides a more detailed look at the provisions of SHB 1006.

[2] *The material presented in this case study is largely based on the following article: Ellis, J.A. and Brooks, R. (1995). "Politics Takes a Toll". Infrastructure Finance.*

Box 1. Washington State SHB 1006

- *The Washington State Department of Transportation (WSDOT) was allowed to enter into agreements with private entities to develop transportation capital improvements and recover the costs with user fees, tolls or other investment mechanisms that allowed a reasonable return on investment.*
- *The Secretary of Transportation was given broad authority to administer the program, solicit proposals from the private sector, and to select up to six projects for implementation.*
- *All projects selected were subject to approval by the State Transportation Commission and should comply with all applicable rules and statutes in existence.*
- *Private entities could identify and propose any transportation capital improvement project consistent with the applicable transportation plan.*
- *WSDOT authority could be used, including rights of way, airspace, real property, exercise of eminent domain, development permits, protection from competition, etc.*
- *The State would be reimbursed for services such as planning, environmental study and review, design, engineering, construction maintenance and law enforcement.*
- *The projects would be implemented through a BTO agreement, that is, owned by the private entity during construction, transferred to the state at completion, and then leased back for up to 50 years.*
- *A maximum rate of return would be established for each project.*
- *Established "incentive" rates of return to encourage attainment of safety, performance or transportation demand management goals.*
- *Federal, state and local financing could be used, including grants, loans, letters of credit.*
- *Authorized leveraging of federal ISTEA funds, including the use of a revolving loan fund*

In January of 1994 WSDOT issued a solicitation for conceptual project proposals and received 14 proposals from 11 different consortiums to plan, design, finance and build more than $6 billion in transportation capital improvement projects. Later on, in August of 1994, the State Transportation Commission approved six of the projects to proceed and negotiate the franchise agreements. One of the projects approved, SR 18 Corridor Improvements, was dropped, leaving the remaining five (see Box 2) to continue with negotiations.

Box 2. Washington State's Public/Private Partnerships

- ***State 522 Corridor Improvements.*** *Ten-mile four-lane toll highway on an existing two-lane state route between the cities of Woodinville and Monroe*
- ***SR 520/Evergreen Point Floating Bridge Improvements.*** *Two-phase project that would connect existing freeway ramps with the I-5 express lanes; seismically upgrade elevated structures, remove unused ramps, and build noise-mitigation projects. In its second phase, HOV lanes in each direction and a bicycle/pedestrian path would be built across Lake Washington.*
- ***SR 16 Tacoma Narrows.*** *Series of alternatives to reduce congestion on the Tacoma Narrow Bridge and SR 16, and to complete HOV lanes on SR 16 from I-5 to Gig Harbor. Alternatives included a new suspension or cable stayed toll bridge parallel to the existing bridge; the addition of a lower deck on the existing bridge; or the management of transportation demand on the existing bridge with tolls and reversible lanes.*
- ***Park-and Ride Capacity Enhancement.*** *Single level parking decks would be constructed over existing parked spaces at 22 King County park-and-ride lots owned and operated by King County and WSDOT. In addition to new parking spaces, the project would provide additional security and develop commuter services at the facilities.*
- ***Puget Sound Congestion Pricing Project.*** *In Phase I existing underutilized HOV lanes would be converted to "Fare Lanes". Buses and carpools would continue to ride free, while low-occupancy vehicles would pay a toll. In Phase II, additional portions of the planned HOV network would be built and operated as "Fare Lanes".*

PROGRAM IMPASSE, INSTITUTIONAL ISSUES AND LESSONS LEARNED

Program Impasse

New Partners was an innovative program that was moving forward with a remarkable speed and with full support from the authorities as well as from the private sector. It was a program created under an advanced institutional framework where both public and private partners would be cooperating and equally sharing risks as well as benefits. The selection process was designed to assure that only those projects with the best opportunities to succeed would be undertaken. Even the strategies and resources for achieving "community acceptance" of each project were heavily weighed in the selection process.

Although it seemed that there was strong public support to the theory of public-private partnerships, shortly after the State Transportation Commission approved the selected projects, citizens began organizing to protest tolls, individual projects and even the entire program.

In addition to burgeoning public opposition to the program, a change in legislative leadership further slowed it down. After a decade of Democratic majority, the Republican party was in control of the State House of Representatives again. New Partners had been originally pushed forward by the Democrats, who had now little influence in protecting the program.

The growing public pressure led to a long and difficult legislative session in 1995, where the issue of how much the public should be involved in the decision-making related to state transportation improvements was addressed. Finally, the House passed a bill that ensured the public's right to decide whether the state can enter into agreements with private entities. The new law required any future project developed under the program to have substantial public involvement and approval conditions. In addition, under the new law, privately financed projects have to demonstrate public interest and support through an advisory vote by the people living in the corresponding project area.

As a result of the political turmoil, the New Partners program was brought to a stop and many private investors were discouraged. It is a fact that after private companies have spent millions of their own money developing proposals, this type of experience can certainly dissuade them from participating in similar programs in the future.

Public opposition to large infrastructure projects and toll or user fee financing is not uncommon for the majority of private companies involved in public/private partnerships. However, what is new in the case of New Partners, is the legislation

requiring substantial evidence of public support in the form of a vote, before any project can even enter into the planning and explanatory phase.

Issues

The institutional issues that emerged in the New Partners program are clearly concentrated around politics and gaining public support for paying user fees and tolls for facilities that have traditionally been free.

- The private sector explored potential projects in a competitive environment and in a manner which protected their proprietary interests. As a result the public learned little about their plans
  - Although project proponents had approached individual officials, the majority of the public felt left out of the process.
  - The opposition deemed the authority given to WSDOT to solicit proposals and enter into agreements as arrogant, and charged the state with secrecy and collusion
  - Private companies' proposals that contained proprietary information were criticized as "secret plans" when withheld from public record requests

- The opposition argued that tolls were "taxes", and as such, should have been subjected to a vote of the people (even though user fees had been authorized by law)
  - In many cases people were surprised that a toll or user fee project was being proposed as a traffic solution
  - The agreements with private companies were denounced as "rights to bulldoze", rather than agreements to assign risks and to establish other project conditions

Lessons Learned

- The New Partners program achieved extensive private sector participation as a result of the project solicitation process. This broad response was motivated to a large extent by the conditions set forth in SHB 1006 and the open nature of the solicitation process.
- This approach allowed the private sector to identify those projects and approaches that would best fulfill their expectations from a public/private partnership under the conditions specified by the government. In addition, the solicitation process was very successful at promoting private sector creativity with development of competitive alternatives.

- A clear lesson learned from the New Partners program is that the importance of public support for public/private partnerships should not be underestimated. Public and private sponsors should develop strategies that assure support from public opinion to mitigate political risks, and that these strategies are incorporated early in the development of a public/private partnerships program. By better informing the community is about what and why is happening, and the consequences of not taking action, the chances of obtaining a larger public support base for this type of programs will ultimately improve.

EPILOGUE

The referendum on the Takoma Narrows toll bridge project supported completion of the project and so it is moving forward. None of the other projects previously stopped have received this type of public support so far.

THE PUBLIC PARTNERSHIP PROGRAM OF THE COMMONWEALTH OF VIRGINIA
A CASE STUDY[3]

INTRODUCTION

Virginia's public-private partnership program has passed through two distinct phases. First, legislation was passed that specifically authorized development of the Dulles Greenway toll road by a private corporation. The Virginia Department of Transportation (VDOT) and the state legislature subsequently determined that a new and more comprehensive approach was needed and passed new legislation which authorized both solicited and unsolicited proposals throughout the state.

History

Legislation was passed in 1988 specifically enabling the development of this limited access four-lane extension to an existing state toll road serving Dulles International Airport. Proposals were solicited by VDOT from private developers to design, finance, build and operate the facility. The private developer owns the facility and the right-of-way, and the legislation required that the land be acquired by donation or by fee to assure use in perpetuity. All assets of the toll road must revert to the State ten years after construction debt is repaid. The project was entirely financed by private equity and by the issuance of private taxable bonds. The rate of return on the investment was capped at 18% by the authorizing legislation. This "greenfield" project has suffered severe financial difficulties because the traffic volume that was projected for the route has not materialized.

Subsequently the Commonwealth of Virginia enacted the Public-Private Transportation Act of 1995. Both solicited and unsolicited public-private partnership proposals may be accepted by any governmental unit in the state, provided that the unit already has the authority to construct the project under the standard process of project development (i.e., a city would not be able to accept a proposal to construct an interstate highway). The legislation allows for toll road and non-toll road projects, such as ongoing maintenance contracts. All projects must be compatible with state and local transportation plans. This is an open authorization structure that allows any private sector firm to propose anything to any government agency. It also allows any government agency to issue a Request for Proposal (RFP) for a specific project or area.

After submitting an initial "Conceptual Proposal" and a $5,000 fee to VDOT, if a proposer's idea is accepted, the next step is to submit a detailed proposal and a $20,000

[3] *Much of this case study is drawn verbatim from the following source: Leong, Dennis and Robert Russell, Build-Operate-Lease Transfer Stiudy, Draft Report, Wisconsin Department of Transportation, June 1, 1999.*

fee to a Public-Private Transportation Advisory Panel for an in-depth review for feasibility and consistency with state and local goals. If the panel recommends acceptance of the proposal, the VDOT then negotiates contract terms with the proposer. Nearly every aspect of the partnership is open to negotiation, including the rate of return, toll levels (if relevant), other user fees, length of the contract, and in-kind services provided by the State.

The State will not finance a project or share in the financing, but is willing to negotiate the loan of federal funds through the Virginia SIB, which is part of the State's Toll Facilities Revolving Account. The State is also willing to reduce the risk to investors and add value to the process. Accordingly, the State will negotiate such in-kind contributions as preliminary engineering, Environmental Impact Statements (EIS) analysis and approvals, Right-of-Way (ROW) acquisition, and how police costs will be covered.

The main steps of VDOT's process for the submittal of unsolicited proposals are as follows:

1. The private entity submits a conceptual proposal to the state or local government. The proposal is posted in newspapers for 60 days to invite competitive proposals.
2. Each proposed transportation project is reviewed by an Initial Review Committee based on proposer qualifications, technical merit and financial feasibility.
3. Conceptual proposals which meet minimum engineering and financial requirements are presented to the Commonwealth Transportation Board for conceptual approval prior to being advanced to the Public-Private Transportation Advisory Panel for further review and final evaluation.
4. The Public-Private Transportation Advisory Panel makes the final evaluation based on offeror qualifications, technical merit, financial feasibility, public support and project compatibility. The panel recommends projects which promote the Commonwealth's transportation goals to the Commonwealth Transportation Commissioner for final approval.
5. The Commonwealth Transportation Commissioner makes final project selections from among recommendations of the advisory panel and negotiates comprehensive agreements with selected proposers.

The Commonwealth of Virginia has successfully implemented a process for attracting creative public/private partnerships applicable to responsible road entities of all levels of government. The process permits both unsolicited and solicited proposals. Since Virginia DOT's program began, there have been approximately 13 unsolicited proposals and two solicited proposals. Among the projects that have been approved and are being implemented are the Route 895 Connector in the Richmond area, projects of the Hampton Roads infrastructure improvement program, and the Dulles Bus Rapid

Transit System, as well as a maintenance contract for a section of the Interstate. The maintenance contract has since been expanded to three sections of the Interstate System in Virginia.

The maintenance contract , which covers a 5½ year period is being accompanied by an independent evaluation. The contractor, VMS Inc., must achieve performance goals set on the basis of levels of service goals for different maintenance activities.

Only one local government so far has sought to take advantage of the Public-Private Partnership Act. The City of Chesapeake solicited a project for a link between the Interstate and the outer banks of North Carolina. The city could not successfully conclude negotiations, and then issued a competitive solicitation.

Issues

While the program has generally been successful, Virginia DOT has suspended receipt of unsolicited proposals for maintenance and operations contracts under the Public-Private Partnership Act. The reason is the administration burden, although VDOT staff have remarked that the maintenance outsourcing contract has been controversial among the contractor industry. The department has decided to await completion of the independent evaluation before accepting proposals for additional maintenance outsourcing contracts.

The original intent of the Public-Private Partnership Act was to leverage public with private sector resources. However, VDOT has found that less private sector resources have been forthcoming than were anticipated. For example private firms have sought Design-Build-Operation contracts without risk.

Specific projects, especially toll roads, as well as program areas such as maintenance contracting , can raise political controversy and opposition which can slow or derail a project or program.

Lessons Learned

The following are lessons learned from VDOT's experience with its public-private partnership Act:

- It is possible to obtain legislative authority for an open solicitation process for public-private partnerships suitable to not only state but also local levels of government. VDOT's process is different from other states in that a private firm, or consortium can submit a proposal at any time and the state may issue a Request for Proposals for public/private partnerships. A flexible open solicitation process can address different modes of transportation and cover projects at all stages of the lifecycle design, build, operations, and maintenance.

- It is essential to establish a fair and transparent process for review and approval of a project proposal and to set out clear evaluation criteria.
- Agencies with an open solicitation process should require firms submitting proposals to pay part of the costs of evaluating the proposal.
- An open solicitation process offers the possibility of receiving creative proposals for public-private partnerships other than those the state might conceive of.
- Based on VDOT's experience, do not expect an open solicitation process to attract large amounts of private capital investment. Private firms may be looking toward government contributions to minimize their risk.

It is often difficult to conclude negotiations, and states that seek to develop public private partnerships, need to be realistic that some negotiations will fail.

SOUTH CAROLINA'S PROGRAM OF INFRASTRUCTURE FINANCE A CASE STUDY[4]

INTRODUCTION

South Carolina has enacted legislation that gives the state and localities a variety of tools to create revenue streams that can be used to finance projects that involve public private partnerships. As a consequence the state has been able to advance a number of significant projects.

History

The South Carolina Legislature passed enabling legislation in 1994. The legislation affords SCDOT maximum flexibility in negotiations with the private sector, and allows the agency to make negotiations decisions internally, without the Legislature's approval. A process that requires legislative input at the proposal level would discourage private sector participation. The law allows the SCDOT to act as a project banker through the SIB, and allows consideration of design-build-operate and turnkey projects (design-build) as potential arrangements. Project proposals can only be initiated by a state-issued RFP and unsolicited proposals cannot be considered.

Because the State is better suited to acquire project right-of-way through its right of eminent domain, it allows the private sector to make use of this eminent domain through the negotiation process. The state may assume liability risks and help with police protection and other services. It can also choose to contribute the EIS and various permits to a developer to add value.

This program recognizes the fact that the SCDOT has good credit, but limited cash to construct expensive infrastructure. It uses many different approaches to convert other streams of revenue into cash for present construction including county sales taxes, and MPO federal apportionments. The State Infrastructure Bank (SIB) is employed as a financial intermediary.

The SIB, which has its own Board, is a major financing mechanism in South Carolina. Legislation was passed to guarantee funding for the bank from truck registration fees, a 3% share of the total amount of SCDOT construction and maintenance budget (about $16 million a year), and income from general obligation bonds issued for specific projects. The SIB can also issue state highway bonds backed by future federal apportionments, as long as the project is on a federal highway. The

[4] *Much of this case study is drawn verbatim from the following source: Leong, Dennis and Robert Russell, Build-Operate-Lease Transfer Stiudy, Draft Report, Wisconsin Department of Transportation, June 1, 1999.*

interest on the bonds is an eligible expense. By using their SIB in this fashion, SCDOT hopes to shorten a 21-year building program to 7 – 9 years. Three major projects exemplify the South Carolina Program.

The Conway Bypass

This is a design-build project that is part of a larger highway construction program in the Myrtle Beach Tourist region of Horry County. It was initially envisioned that the entire program would be financed through a 20-year County sales tax. Voters were promised that 80% of the revenues would be paid by non-local tourists and visitors to the area. The tax was rejected in a county-wide referendum because local residents doubted that non-locals would actually pay so much of the cost, and were unwilling to accept any additional taxes. The project was therefore scaled down. A local committee, dubbed the RIDE committee, proposed a hospitality tax in Horray County that would generate $20 million/year from a 1.5% tax on hotels, golf courses, and other tourist venues. This tax was approved, and as planned, the SIB will loan money to Horry County for the construction of the project, with the loan to be repaid by hospitality tax revenues. SCDOT will act as an agency for Horry County, providing services as the approving engineer on the project, approving payments as invoices are submitted by the private contractor designing and building the road. The road is scheduled to open in March 2000.

The Southern Connector (Greenville)

The county approached SCDOT through the Metropolitan Planning Organization (MPO) for this project. The project has been in the MPO's Transportation Improvement Plan (TIP) since 1967. It is a $200 million project with the interest alone exceeding their annual apportionment of $7 million. With SCDOT assistance, the local community formed a non-profit 63-20 corporation to issue toll revenue bonds to finance the road. The SCDOT will grant the corporation a franchise to collect tolls on the road unitl the debt is retired. SCDOT will own the entire road, operating the non-toll portion of the highway, and the corporation will operate the tolled portion.

After the debt is retired the corporation will dissolve, and ownership and operation of the entire road will be reverted to SCDOT. At that point, tolls will cease to be collected, because state law prohibits SCDOT from collecting tolls (at least, for now). The key to success was local consensus, since the corporation is comprised of local business people and leaders. The road is scheduled to open in November 2001.

Mark Clark Expressway

This project's status is currently uncertain. There has been too much local opposition, especially on environmental grounds, (construction would affect large expanses of marshland near the shore). On the other two projects, the environmental

reviews and documentation were already complete and relatively non-controversial. Although the SIB has agreed to fund this and another bridge in Charleston that is greatly in need of replacement, the local community cannot reach a consensus on a revenue source (whether it should be tolls, sales tax, etc.) So the project is stalled.

Institutional Accomplishments, Issues and Lessons Learned

South Carolina has implemented a program of infrastructure finance that gives the state substantial additional flexibility in funding infrastructure projects in a manner that can attract private investment and support public private partnerships, including those pertinent to ITS. Although the projects discussed above are not ITS projects, the financial approaches used and made feasible by the authorizing legislation can potentially be applied to ITS projects involving public-private partnerships.

The Conway By-pass project is noteworthy from the standpoint of the feasibility of financing a project based upon tourist and hospitality taxes. The success of this project suggests that ITS projects which significantly benefit the tourist industry could be financed in a similar fashion.

The Greenville Southern Connector project is instructive as a way for local governments to finance infrastructure improvements, and in fact offers a way to construct toll facilities even if the state is prohibited from constructing toll roads or there is strong political opposition to state finance or participation in toll road projects. The key to the Greenville Southern Connector project was the establishment of an intermediary 63-20 non-profit corporation composed of business and government leaders and the ability of that entity to accept a franchise from the state to collect tolls. This could have only been accomplished as the result of strong local consensus to build the project.

The third project reinforces the lesson that projects usually face an uphill battle in areas of environmental sensitivity.

SAN ANTONIO TRANSGUIDE MDI
A CASE STUDY

INTRODUCTION

San Antonio's TransGuide MDI represents the case of a successful partnership, where a number of different public agencies are cooperating towards implementing one of the most elaborate ITS in the United States. However, several issues prevented wider private sector participation in this MDI. Most of these issues revolved around legal and policy constraints placed on publicly funded projects and public property.

Background

In February 1996 the USDOT released the Request for Participation (RFP) in the ITS Model Deployment Initiative (MDI). The MDI called for public and private sector partners to develop and integrate intelligent transportation systems technology to reduce travel times, improve emergency response and provide travel information to the public. In the Fall of 1996, USDOT announced that the metropolitan areas of Phoenix, San Antonio, Seattle and New York City had been selected to participate in the MDI. Prior to being chosen as one of the MDI sites, the Texas Department of Transportation (TxDOT) had significant experience in ITS deployment with the development of TransGuide. In 1988, the San Antonio TxDOT District committed to build a traffic operations center that would be one of the most advanced in the nation. TxDOT, the City of San Antonio (police/fire/EMS/traffic), and VIA Metropolitan Transit Authority formed a partnership that resulted in the development of TransGuide, the Transportation Guidance System.

TransGuide is a network consisting of road sensors, variable message signs, computers, closed circuit cameras, and people teamed to benefit the overall transportation system in the San Antonio Area.[5] The system was initially aimed at the development of an Advanced Traffic Management System (ATMS), and went on line in July 1995 along 26 miles of highway in Metropolitan San Antonio.

Participants In The TransGuide MDI

Upon learning about the USDOT's RFP in 1996, the TransGuide team formed a working group to develop the MDI proposal. TransGuide's partners (TxDOT, VIA and the City of San Antonio agencies) had the overall responsibility for the MDI, with the TxDOT San Antonio District as the lead agency in the $13.5 million project. The partner

[5] *Allan DeBlasio et. al., Successful Approaches to Deploying a Metropolitan Intelligent Transportation System, Volpe National Transportation Center, March 1999*

agencies established the following two oversight committees for managing and directing the MDI:

- **TransGuide Executive Oversight Committee.** This committee is chaired by the TxDOT San Antonio District Engineer and includes high level managers from the partner's agencies and the TransGuide Director of Operations.
- **TransGuide Technical Oversight Committee.** This committee is chaired by San Antonio TxDOT District Director of Transportation Operations, and consists of representatives from the Federal Highway Administration, the Federal Transit Authority, and technical staff from the partner's agencies.

TransGuide contracted with Southwest Research Institute (SwRI) as the Systems Integrator and Prime Contractor for the MDI. SwRI had already participated in the development of TransGuide, and was very familiar with it. All the subcontractors for the MDI components reported directly to SwRI[6], and the TransGuide Technical Committee served as an intermediary between the TransGuide Executive Committee and the SwRI.

The TransGuide MDI Project

TxDOT District staff was the main procurement agent for selecting the contractors to implement the MDI. This allowed TxDOT to author licensing agreements protecting its rights to all intellectual property, to issue work orders to the contractors, and develop inter-agency agreements. However, there were specific items procured directly by other agencies under the coordination of the TxDOT district, such as equipment and systems development services required by the Bus Incident Management System component of the MDI, which is discussed in a later paragraph.

The contract agrement between TransGuide and SwRI was a fixed-price contract with variations available on each task for the development of the MDI. Under this contract, SwRI offered different options that could be completed under different funding levels. These task cost variation provisions incorporated into the contract would allow the transfer of funds among tasks when necessary.

TransGuide's Intellectual Property Rights policies were very clear in the MDI contract. All software developed for the MDI would be the property of the State of Texas and assigned to TxDOT. In addition, each participant had to provide a certification stating that they had agreed to that condition.

6 *Richard Bolczak, Metropolitan MDI Workshop Wisdom: Project Organization and Outreach, prepared for Federal Highway Administration, March 1999.*

The TransGuide MDI proposal submitted to the USDOT stressed public safety, traffic operations and transit and consisted of the following programs:[7]

- **Emergency Medical Services (EMS) Management System.** This system, also known as LifeLink, permits two-way teleconferencing between emergency medical personnel in a hospital and paramedics in an ambulance en route to the hospital.
- **Traveler Information Kiosks.** This program consists of interactive touch screen traveler information kiosks placed at key tourist and pedestrian points in the city.
- **In-Vehicle Navigation Units.** These units provide drivers with real-time traffic conditions and incident information, vehicle location, and information on regional points of interest.
- **Real-Time Travel Information Tag.** This program consists of sensor tags placed inside the windshields of thousands of volunteer vehicles to gather average travel speeds in the city.
- **Real-Time Area Wide Travel Database.** This system consists of a database of all travel speeds in San Antonio based upon TransGuide traffic data, reports of traffic accidents from the San Antonio Police Department, lane closure information, real-time travel tag information, GPS and theoretical data.
- **Railroad Grade Crossing Safety System.** This system alerts motorists to potential railroad operations delays near freeway exits.
- **Bus Incident Monitoring System.** This system consists of monitoring cameras located inside VIA Metropolitan Transit buses as a security measure for transit users.
- **Traffic Signal Integration.** This program integrates TransGuide technology with the City of San Antonio traffic signal system to provide real-time information to the city system.
- **Public Information Campaign.** This program includes continued public outreach efforts through tours, speeches, brochures, videos, community involvement, active program participation (such as the volunteer travel tags), and partnering.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

- TransGuide succeeded at bringing together several public sector partners in a strong partnership thanks to the long term relationship already established among them.

[7] *Federal Highway Administration and Federal Transit Administration, Intelligent Transportation Systems Model Deployment Initiative, brochure, 1998.*

  - Intellectual property issues very common to other MDIs were avoided thanks to several factors, among which are:

– Clear intellectual property policies were established from the beginning.

– SwRI, the firm that performed the systems integration, is a not-for-profit organization and was not interested in retaining the rights to the MDI software, and was already familiar with the existing system.

– The City of San Antonio does not generally pursue patents and allows all intellectual property to be open to public use.

- Even though a fixed-price contract was used for the MDI, its variable structure made it very flexible enough to accommodate a development type contract.

Issues

- TxDOT has a policy that states it owns and maintains any equipment purchased by TxDOT. This policy raised an issue of maintenance liability within the Bus Incident Management System project. If the cameras for this system were bought by TxDOT, the cameras placed on VIA's buses would be considered TxDOT property and their maintenance would become the responsibility of TxDOT. The issue was solved by having VIA purchase the equipment and assume responsibility for its maintenance.
- The existing TxDOT transportation data policy is to share as much information as possible. In addition, in compliance with the Texas Open Records Act, all transit and traffic signal data is readily available to the public with few restrictions. The Texas Transportation Institute developed a draft policy on behalf of TxDOT that allows the access of traffic data (speeds and counts) and video images on the Internet and over the telephone. TransGuide partners realized that a formal policy on transportation data sharing must be developed in order to limit access to this information if the private sector was going to be able to sell the information and develop a profitable traveler information system.
- Private sector participation in the traveler information kiosks program has not materialized due to existing legislation that prohibits advertising on state-owned kiosks. This issue could be resolved by having the kiosks owned and installed by private firms. However, other information sharing issues would still have to be resolved before this approach becomes feasible.
- Since tags used in the Real-Time Travel Information program are TxDOT's property as well, it is not possible to display private advertisement decals on the tags to make them more attractive to users.[8]

[8] *Miller, Kevin T. and Lisa J. Dignazio," The San Antonio Model Deployment Initiative: Lessons Learned,"78th Annual Meeting of the Transportation Research Board, Pre-CDROM, January, 1999.*

- Due to legal and policy constraints put on TxDOT, the public will only be able to use the Kiosks and the Internet, while the real-time in-vehicle navigation system is only available to public owned vehicles.

Lessons Learned

Most of the issues that affected the TransGuide MDI revolved around legal and policy constraints placed on publicly funded projects and public property. The State of Texas has very strict laws governing the use of items purchased, developed or accepted by the project, which had an impact on the outreach effort. Thus, legal and policy obstacles that can prevent or restrict private participation can significantly affect successful project implementation, and should be considered during project development.

SEATTLE SmartTrek MDI
A CASE STUDY

INTRODUCTION

The greater Seattle metropolitan area has experienced substantial economic and population growth over the past few years, resulting in one of the country's worst traffic congestions. Seattle, in the Puget Sound region, is one of the four sites chosen by the USDOT in 1996 to participate in the Model Deployment Initiative. SmartTrek is a public-private partnership project aimed at improving overall transportation in the region by integrating new and existing data sources to deliver a regional, multimodal Advanced Traveler Information Systems (ATIS).[i]

The Seattle metropolitan area is geographically contained within a single state and under a single regional council, which favors the coordination of the agencies involved. This situation contrasts with that of other metropolitan areas that must coordinate multiple state agencies and regional planning organizations, and has favored the resolution of issues. The following paragraphs further describe the SmartTrek MDI efforts to involve the private sector in ITS.

PROJECT DESCRIPTION

Background

In February 1996 the USDOT released the Request for Participation (RFP) in the ITS Model Deployment Initiative (MDI). The MDI called for public and private sector partners to develop and integrate intelligent transportation systems technology to reduce travel times, improve emergency response and provide travel information to the public. In May 1996, the USDOT announced that the metropolitan areas of Phoenix, San Antonio, Seattle and New York City had been selected to participate in the MDI. The Seattle metropolitan area MDI, named SmartTrek, was developed to increase the performance, efficiency and reliability of the Puget Sound region transportation system. The SmartTrek proposal was granted $13.7 million of the $38.7 million total of the MDI funds. Under SmartTrek, 25 public agencies and private companies initiated 29 projects designed to build upon the region's extensive Intelligent Transportation Systems infrastructure.

Prior to participating in the MDI, the Washington State Department of Transportation (WSDOT) already had significant experience in the deployment of ITS technologies. The responsibility for grant application and management of ITS is handled by WSDOT's Advanced Technology Branch. The branch represents the WSDOT in the Washington State Transportation Center (TRAC), and is responsible for technical management on research projects, the statewide ITS plan, field operational

tests (North Seattle ATMS, SWIFT, PuSHMe, TravelAid), three early deployment planning corridor studies, and then the SmartTrek MDI.[9]

SmartTrek significantly expands the types and quality of traveler information provided in the Seattle metropolitan area. SmartTrek proposed to provide real-time traveler information via the Internet in different formats and to include options to customize information and automatically send updates to personal computers. Additional features were to be added to existing hotlines, variable message signs (VMS), highway advisory radio (HAR), and in-vehicle and hand-held devices. In addition, SmartTrek proposed to provide pre-trip and en-route information about the status of arterial traffic, ferry boat locations and vehicle queues at ferry terminals, parking in Seattle as well as bus locations.

Participants in the SmarTrek MDI

When rumors started circulating about the MDI, representatives from private sector firms began discussions with WSDOT staff. Upon learning about USDOT's RFP in 1996, staff from WSDOT and these firms responded to it. This team looked at all of the gaps in the region's existing traveler information system. They put together a core group of people in and outside WSDOT who had worked on other ITS projects, as well as those who had worked on the field operational tests in the area, and identified who needed to be involved. Different public agencies, functional teams and the private sector were represented in the team that developed the proposal.

Public sector partners in the SmartTrek MDI include: the WSDOT, the Puget Sound Regional Council (the MPO), the King County DOT, the University of Washington, the Port Authority of Seattle, the Washington State Department of Information Services, Washington State Ferries, the Federal Highway Administration, and the Federal Transit Administration, and local transportation authorities. Private sector partners, on the other hand, include: the Boeing Company, Etak Inc., Fastline, Metro Networks, the Microsoft Corporation and PB Farradyne among others.
The WSDOT Advanced Technology Branch is the lead agency for the SmartTrek MDI, and is responsible for overall project management. An Expert Oversight Committee, representing major transportation stakeholders provides the guidance to the program management team. A Policy Support Group (including a Puget Sound regional Council representative) provides guidance on policy and political issues associated with development of SmartTrek and ITS in general. [10]

The SmartTrek MDI Project

[9] *Successful Approaches to Deploying a Metropolitan Intelligent Transportation System*
[10] *Metropolitan MDI Workshop Wisdom: Project Organization and Outreach*

The different SmartTrek project components were determined by developing functional areas and building upon the infrastructure in place or soon to be in place in the region. The functional components of the MDI were organized into "project bundles". These bundles are essentially committees, as each bundle has a leader and members that support work activities, which allows for cooperation among the different partners. Bundles included Transportation Management System, Regional Multimodal Traveler Information Services, Transit Management and Electronic Clearance, Emergency Services and Incident Management and Public Involvement, Outreach and Marketing.

The public and private partners in SmarTrek signed 17 different contracts supporting ATIS, of which the following three deserve particular mention[11]:

1. The WSDOT gives four local television direct access to its video cameras, allowing the stations to select any CCTV view for reference or transmission. Although access is provided free of charge, the stations pay the costs of their own hardware, software, operation and set-up for obtaining the video feed. Each station can also connect to the WSDOT's FLOW map, which depicts real-time traffic conditions graphically.
2. As part of the SWIFT FOT and the SmartTrek MDI, the WSDOT has contracted with the University of Washington to create an ITS backbone that fuses traffic and transit information. The fused data is provided gratis to SWIFT and SmartTrek participants, as well as Independent Service Providers.
3. Microsoft Corporation has contracted with WSDOT to develop its own communications infrastructure, which links Microsoft to the WSDOT's data collection system. Microsoft fuses the WSDOT data to provide the Traffic View application on its Sidewalk Web page. Again, this data connection is provided to Microsoft free of charge as part of SmartTrek.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments[12]

The emphasis on public-private partnerships for ITS program development in the Seattle area is supported by coherent policy and legislation. In the state of Washington, the responsibility for statewide policy development resides with the Washington State Transportation Commission (WSTC). The WSTC has eight policy objectives, of which two are particularly relevant to ATIS business development:

11 *Business Models for ATIS Deployment (1997). Proceedings from the ATIS Business Models Workshop. ITS America.*
12 *Ibid.*

1. Employ Transportation System Management (TSM) measures to increase transportation efficiency, which has the following action strategies:
   - Implement TSM efforts to improve system efficiency before expanding the existing transportation system
   - Apply new technology, strategies to transit, highway and street systems
   - Promote the development and implementation of dynamic, computerized transit and congestion system information
   - Encourage communication between public transportation providers and users by improving the coordination of planning, programs, and services
   - Provide up-to-date traveler information to the public.

2. Cooperate and coordinate with private and public transportation partners so that systems work together effectively, with the following action strategies:

   - Formalize and expand the State's leadership role in promoting public-private partnerships at every level of government
   - Minimize legal regulatory barriers to private participation in owning, planning, financing, building, maintaining, and managing transportation facilities and services
   - Authorize user fees or tolls within a project area to allow a reasonable rate of return on a project-by-project basis, through a negotiated agreement between the state and the private entity.

Issues

As mentioned earlier, the fact that the Seattle metropolitan area is geographically contained within a single state and under a single regional council favors the coordination of the agencies involved. This situation contrasts with that of other metropolitan areas that must coordinate multiple state agencies and regional planning organizations, and has favored the resolution of issues.

However, institutional issues have curtailed further development of ITS in the Seattle area. According to a recent report[13], there is a lack of strong support at uppermost levels of the WSDOT, which impedes ITS program development in the area. This situation is attributed to these officials' efforts to "read" legislators, who favor funding more traditional capital projects rather than ITS related projects.

[13] *Partially transcribed from "Business Models for ATIS Deployment" (1997). Proceedings from the ATIS Business Models Workshop. ITS America.*

Lessons Learned

The 1997 ATIS Business Models Workshop synthesized some of the lessons learned from the Seattle SmartTrek MDI as follows[14]:

- ITS efforts must be carried through by public sector champions equipped with the entrepreneurial vision to break new ground and the organizational savvy to function effectively in both public and private sectors. Getting the job done is an art, not a science; therefore, creative, energetic leadership is required.
- Rather than attempting to achieve broad-based consensus about "specific" policy direction before acting, it is more productive for the public sector champion of ITS to move ahead. Adjusting program features or slowing down as necessary to address policy-makers concerns. The ITS environment is too complex technically and changing too fast for a large group of stakeholders to reach consensus on specific business plan approaches in time for effective service delivery. In fact, it is precisely this sort of slowing-down bureaucratic process that public-private partnerships are intended to transcend.
- Recognize that a substantial part of your time must be spent educating legislators (and agency personnel) about ATIS and the benefits to be gained through innovative funding.

In addition, SmartTrek's program manager, Peter Briglia[15], has pointed out that the public sector needs to keep in mind the private sector partner's goals. That is, government agencies need to get comfortable with the idea that the private sector needs to make a profit.

[14] *Transcribed from "Business Models for ATIS Deployment" (1997). Proceedings from the ATIS Business Models Workshop. ITS America.*

[15] *Newsletter of the ITS cooperative deployment network (1999). "A melange of traveler information: 'Lessons Learned' from Seattle SmartTrek's Peter Briglia". http://www.nawgits.com/smarttrek1.html*

AZTech: THE PHOENIX ARIZONA MDI A CASE STUDY

INTRODUCTION[16]

The Aztech Model Deployment Initiative (MDI), in the Phoenix metropolitan area, is a public/ private partnership formed by more than 30 public agencies and private companies. AZTech's partners have been successful at developing one of the first privatized traveler information systems in the country, and the MDI has already initiated its second phase.

AZTech's success is in part due to the strong public partnership that had been developed prior to the USDOT's MDI program, which provided the credibility necessary to attract the private sector. This case study describes the AZTech MDI, presents its major highlights and discusses the institutional issues that have developed around it. Finally, this paper presents some of the lessons learned by the MDI project participants, as narrated by AZTech's officials.

PROJECT DESCRIPTION

Background

In February 1996 the USDOT released the Request for Participation (RFP) in the ITS Model Deployment Initiative (MDI). The MDI called for public and private sector partners to develop and integrate intelligent transportation systems technology to reduce travel times, improve emergency response and provide travel information to the public. Twenty-three metropolitan areas around the country put together teams to submit proposals for the MDI. In May1996, the USDOT announced that the metropolitan areas of Phoenix, San Antonio, Seattle and New York City had been selected to receive funding from the $35.5 million MDI program.

The Phoenix MDI proposal was led by the Arizona State Department of Transportation (ADOT). Prior to participating in the MDI, ADOT and other transportation authorities in the Phoenix area had already been involved in ITS partnerships . In 1995 the Phoenix Metropolitan Area received funding for an ITS early

16 *This case study contains material extracted from the following documents:*

- *ITS America (1997). "Business Models for Advanced Traveler Information Systems Deployment". Proceedings of the ATIS Business Models Workshop.*
- *Buick, T.R. and Pretorius, P. (1999). AZTech MDI "Blooms in the dessert"; lessons learned and new initiatives. Presented at ITS America 1999 Ninth Annual Meeting and Exposition*
- *USDOT (1997). "ITS MDI. The model deployment initiative" Informational Brochure.*
- *Bolczak, R. (1999). "Metropolitan MDI workshop wisdom: project organization and outreach". FHWA*
- *FHWA (1999). "Successful Approached to Deploying a Metropolitan Intelligent Transportation System" Final Report.*

deployment planning study. This study fostered the interaction and development of alliances among the different transportation agencies within the Phoenix metropolitan area around ITS issues. In addition, the deployment of many of the components of ADOT's Trailmaster Freeway Management System (FMS) required the coordination of efforts with other jurisdictions.

The MDI proposal included two major projects, the AZTech Intelligent Transportation System and the Rapid Access for Phoenix Intermodal Deployment (RAPID) project, both residing under the AZTech MDI. The AZTech ITS project integrates various traveler information sources and enables the ADOT Trailmaster FMS to serve the metropolitan area as the Regional Multimodal Traveler Information Center. The RAPID project is a demonstration of the feasibility of broadcasting real-time traffic information to in-vehicle devices and other fixed receivers using a Radio Broadcast Data System (RBDS) transmission.

Project Partners

The AZTech MDI is a partnership of public agencies and several private companies administering a $7.5 million federal grant. Arizona DOT and Maricopa County serve as the lead agencies in the MDI. Two committees , an Executive Committee and a Technical Oversight Committee, formed by senior level officials representing a cross section of public partners, were established to oversee the project.

The primary public sector partners in the AZTech MDI and their role are as follows:

- **The Federal Highway Administration.** Provide assistance and guidance throughout the project, oversee the evaluation of the project, and provide the MDI funding.
- **The ADOT**. Chief sponsor of the project. The MDI is located in the Trailmaster FMS Traffic Operations Center (TOC).
- **The Maricopa County DOT.** Provides GIS base maps, tests vehicles and consolidates traffic and incident data and transmits it to ADOT's TOC. It also provides an interface with the media and other jurisdictions.
- **The Arizona State University.** Acts as the chief project evaluator.

The primary private sector partners and their roles are the following:

- **TRW Transportation Systems.** Integrate transportation systems by providing the communications equipment and software to link traffic centers and also by providing traveler information.

- **ETAK, Inc.** Disseminates real-time information to travelers through a variety of commercial networks. Etak and its subcontractor, Metro Networks, merge, manage, and transmit information to wireless and wireline communication systems.
- **Scientific Atlanta.** Provides its subcarrier traffic information channel (STIC) to rental car companies and other users to give motorists traffic updates, help them find attractions, and allow them to receive turn-by-turn directions as they drive.

The AZTech MDI

The vision of AZTech is centered around providing improved safety and regional mobility through expanding the existing Trailmaster Freeway Management System, interconnecting the traffic signal systems of the major cities, and developing a regional, multi-modal traveler information center.

The AZTech MDI is developing a regional traveler information system to provide up-to-the-minute traffic information on accidents, delays, bus routes and schedules. Traveler information will be available on in-vehicle navigation systems, portable computers, pagers, cellular phones, the Internet, cable TV, and information kiosks. Other elements of the MDI are: eight arterial smart corridors, a bus transit AVL system, transit information service improvements, an AZTech server, and a privatized ETAK Advanced Traveler Information Sytem (ATIS) server.

The AZTech's MDI physical infrastructure consists of the following:

- **Data Collection and Fusion.** The Trailmaster data collection system covers around 50 miles of the area's freeways and some major arterials through inductive loops and CCTV cameras. In addition, over 85 buses will be monitored by global positioning systems as they travel their routes. Data will be combined at ADOT's TOC, which is the center for all maintenance, construction and incident management of the statewide Trailmaster system.

- **Information Dissemination.** Motorists are warned about of changing freeway conditions through ADOT's overhead variable message signs. Private partner companies will be offering up-to-the minute traffic information through a variety of services and products. In addition, kiosks at traffic centers will provide drivers with information on bus routes, schedules, traffic conditions and tourist attractions.

The AZTech ATIS business model is based on a public/private partnership that will eventually allow for the private sector to operate a self-sustainable ATIS. The underlying principle is that the public sector contributes the public sector data collection and fusion. This data is made available at no cost to the private sector for dissemination to the traveling public. In return, all the value added information that the private sector attaches to the data stream must be provided free of charge to the participating public sector partners.

The public partners primary risk revolves around the development of new technology and operating and maintaining that technology once it is completed. The reward is contributing to a better informed driving public, reducing congestion, preserving the environment and developing safer traveling conditions. On the other hand, the private partners risk is the possibility of losing money in providing services to the public, while the reward is the possibility of making a profit from providing a service to the public.

In order to act as a catalyst for market penetration, AZTech may co-fund some of the initial costs of the information service providers that will distribute the data to the product and service partners. As an initial effort, the MDI planned to fund some communications networks (like FM Subcarrier leases) and some development work for software to be used in field devices (like handheld computers).

Procurement of products and services for the MDI has been kept fairly traditional. The most innovative procurement practice has been the development of request for proposals with an award criteria based on qualifications and cost, not just low-bid.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

- The AZTech MDI was able to successfully expand and build on pre-existing public partnerships, which allowed it to achieve excellent interagency cooperation. For example, achieving inter-jurisdictional signal coordination was not difficult. AZTech public partners had already had the chance to develop a trusting relationship and multi-jurisdictional agreements for traffic signal control have been easily drafted.
- A significant number of private sector firms are involved in the AZTech MDI, which bills this ATIS as the first privatized traveler information system in the country.
- The AZTech MDI delivered almost twice as much as what they committed to for 80 percent of the budget, which enabled them to request proposals for the next phase. For the second phase AZTech received 19 proposals

from 32 organizations, and awarded more that $1 million to build on the traffic management and traveler information system.

- Liability concerns of all parties were successfully addressed on time. Each AZTech MDI partner should be legally responsible for the actions of its employees, including subcontractors. The contract between the Maricopa County DOT (MCDOT) and private sector participants includes an indemnification clause and a limitation of liability. Through the former, the private sector partners hold all public partners harmless in all suits arising from wanton, willful, or negligent acts and omissions on the part of the private sector contractor, its agents or subcontractors. Public/private sector liability is limited to the amount of the specific contract and does not extend to indirect or consequential losses incurred by the MCDOT.

Issues

- As in other MDIs intellectual property rights were also a concern in the AZTech MDI. Private firms were concerned that state and federal laws would require them to surrender valuable rights in intellectual property (software, proprietary data, etc.) developed with public funds.

  AZTech participants relied on a letter from the FHWA's Associate Chief Counsel, that clarified the Federal Government's policy on intellectual property. This letter significantly improved the contract negotiation process, and four months of intense negotiation ended within two weeks after receipt of the letter. All participants agreed to conform to FHWA's policy. Two licensing agreements were developed: one for pre-existing products and privately-funded developments and one for products developed during the course of the MDI using federal funds. The former allows the public sector partners to make limited use of pre-existing products and expressly prohibits the public sector from making derivative works or attempting to derive the source code of the products. The second license gives the public sector a royalty-free, non-exclusive and irrevocable license to make ample use of government funded software, data or documentation when it is solely for official purposes. In both licenses, the private partner retains all ownership rights to pre-existing products and privately funded developments.

- A liability and procedural issue tied to the distribution of information is the taping of traffic flows captured by the video monitoring cameras along the roadways.

  AZTech public partners have tried to address concerns regarding camera use. ADOT agreed that the cameras would not play a law enforcement role, and is drafting a policy to this effect. AZTech provides open access to camera feeds via

local television. Finally, AZTech enacted an informal policy of not retaining tapes from the camera feeds in order to avoid being subpoenaed and used in lawsuits.

Lessons Learned

A paper by Thomas R. Buick, AZTech's Executive Committee Co-Chairman and Pierre Pretorius, AZTech's Program Manager discusses some of the lessons learned from the first phase of the MDI. These lessons are transcribed in the following paragraphs[17].

- **Pulling together the MDI and procurement-related, privacy or intellectual-property issues.**

  Pulling it together was complicated mainly because of the tight deadlines. One should brainstorm at the beginning regarding what is going to be involved. Due to the nature of the project there were many new fields, issues, areas of scope and questions. Early input from the system integrator concerning system capacity is important. It is also essential to define your telecommunication backbone very early. Bring the procurement people into the fold early as well. Intellectual property and licensing were issues arose near the outset, but early counsel with the Federal government resolved the issue.

- **Technical and institutional elements needed to fashion a successful MDI without which one could not have succeeded.**

  It is critical to realize that technological deployment is possible and feasible, but without the accompanying institutional change one might not get all the expected benefits. Institutions need to adapt their organizational structures, skills and resources to deal with the technological change. Furthermore, accept that changes will happen throughout the project, but guard against incremental expansion. It is easy in a large metropolitan area to get “agency creep” because success breeds more demands and can lead to too rapid expansion of the system.

- **Lessons in interagency cooperation**

  AZTech was very fortunate to have excellent interagency cooperation. It is important not to create expectations that cannot later be filled, i.e. manage your expectations. Match your wish list with what you can achieve in the available time. It takes time to gear up for a project of this scope. Nobody could commit to the project or request additional funds until the project was awarded. That required a lot of goodwill and persistence to get the matching funds programmed, but AZTech did it. Ideally one should build and use a multi-

[17] *Buick, T.R. and Pretorius, P. (1999). AZTech MDI "Blooms in the dessert"; lessons learned and new initiatives. Presented at ITS America 1999 Ninth Annual Meeting and Exposition*

agency, multi-disciplinary coalition. The coalition should include traffic, telecommunications, IS, EMS, Public Safety, Facilities, legal, procurement, PR, top management, transit, plus the private partners.

Some key factors to success are:

- You need a strong lead agency
- Establish a leading core to the group
- You need an element that is visionary
- All the agencies need top-level commitment.

- **Lessons in working with the private sector.**

  One needs some degree of mutual trust, ability to accept and share risk, and acceptance of uncertainties between partners in order for the relationship to work. It is crucial to get the technical and procurement people on both the public and private sides together early. One needs a strong scope section: be clear but try to stay flexible and include options. Remember good contracts will not make bad partners into good partners. The lead-time for contracts was extremely long. We found that the private partners also have a hierarchical negotiation process with a just as long sign-off chain. They have their own bureaucracies. Always remember that business decisions really guide the private sector, even after the contract is signed. They have a responsibility towards their stockholders to fulfill.

- **Benefits related to the MDI**

  AZTech exceeded their goals by delivering almost twice as much as what they committed to for 80% of the budget. This enabled AZTech to request proposals for their next phase. The fact that 32 organizations submitted 19 proposals demonstrates the positive impact of integrating intelligent transportation infrastructure and the benefit of making the traveler information available for dissemination to the public. There is a big difference between a field operational test and the model deployment initiative. The MDI establishes the first step of a comprehensive and long-term deployment and it yields permanent benefits. AZTech have already seen major benefits in the effect on special event management and interjurisdictional signal coordination, even before the official rollout.

- **The importance of a professionally run public awareness campaign**

It is extremely important to have a systematic, structured information campaign. One must get top-level support and early commitment and buy-in. It works to set-up a hotline to help customers get information. Also develop the means to handle consumer inquiries and help consumers and traveler information providers find each other. Try to provide money to buy advertising. The rules of the public sector do not allow for advertising and it is not really geared for marketing. One should target specific audiences for your public outreach campaign. AZTech targeted the traveling public, elected officials, businesses and transportation officials in the Phoenix metropolitan area. Transportation officials require technical information, while the traveling public needs an easily understood explanation of the technology and its benefits. Always update the media. The media provides an outlet for free publicity and the ability to reach the traveling public. Stories initially may describe ITS as gee-whiz technology, but the public outreach staff must relay the day-to-day commuting benefits to keep the media's interest over the long term.

- **The operational phase**

AZTech is one of the 4 MDI's and has a contract with the FHWA to serve as showcases for others to come and visit and see and learn what has been done with regards to integrating traffic management systems and establishing a multimodal privatized traveler information system. AZTech will continue this role for at least the required 5 years to operate and manage the system and beyond that as it is expanded and updated. Operations and management brings new challenges where only a few agencies have ventured before. AZTech, for example, entered into multi-year; multi-agency procurement contracts and that reduce the procurement cycles for its partners significantly.

THE NEW YORK – NEW JERSEY – CONNECTICUT MDI A CASE STUDY

INTRODUCTION

The case of the New York/New Jersey/Connecticut Model Deployment Initiative illustrates the problems that may arise from a failure to develop a strong and healthy partnership agreement. This case study describes the development and institutional structure of the NY/NJ/CT MDI, as well as its final stalemate with the original private partners. In addition, this case presents part of the results from a study carried out by USDOT's Volpe Center examining the issues that brought the original MDI partnership to an end, as well as some of the lessons learned. Finally, a very brief review of the revival of this MDI is also discussed in order to illustrate the changes that took place after the previous experience.

INSTITUTIONAL SETTING

The NY/NJ/CT Region

The New York/New Jersey/Connecticut region has the highest population density, most complex transportation network, and most active public transportation system in the United States. The region is formed by New York City, Long Island, the Lower Hudson Valley, Southwest Connecticut, Northern New Jersey, and Central New Jersey. A population of 18 million people in 29 counties spread across three states that make over two billion trips every year, represents the largest transportation market in the nation.

NY/NJ/CT ITS Model Deployment Initiative Partners

In February 1996 the USDOT released the Request for Participation (RFP) in the ITS Model Deployment Initiative (MDI). USDOT sought applications from public and private partnerships to demonstrate and showcase model deployments of a fully integrated, metropolitan ITS infrastructure with a five year commitment to operate the system.

Upon learning about USDOT's RFP, the New York Department of Transportation (NYSDOT) placed an advertisement for companies interested in joining as partners in the endeavor. According to NYSDOT's Request for Information (RFI), private companies would be expected to lead the effort, develop the proposal, provide matching funds and bring in other private subcontractors.

NYSDOT identified the Transportation Operations Coordinating Committee (TRANSCOM), a multi-agency transportation coalition in the NY/NJ/CT region, as the

lead public agency for the MDI. TRANSCOM was formed by 14 transportation and public safety agencies that represent the NY/NJ/CT metropolitan area as a whole. Since TRANSCOM is not a legal entity, NYSDOT remained as the contracting agency. Lockheed Martin Federal Systems (LMFS) was the only respondent to the NYSDOT RFI for private partners in the MDI. LMFS proposed to develop a Personal Traveler Condition Information (PTCI) system as a centerpiece of the MDI. In December 1996, LMFS was selected as the prime contractor for the MDI proposal.

SmartRoute Systems (SRS) was brought into the team by LMFS. SRS proposed to build, finance, and operate the basic traveler information center (TIC) as a self-sustainable module. LMFS also brought in ten other subcontractors that included MetroCommute Options (MCO).

Project Award and Negotiations Stalemate

The team (TRANSCOM, LMFS and other subcontractors) decided that the core of the proposal would be a traveler information system along with the integration of existing systems and outreach. As part of the proposal, LMFS proposed the PTCI system, which would provide travelers with personalized information delivered via phone, fax, beeper or e-mail. The public sector proposed a Transit Itinerary Planning System (TRIPS) and a basic traveler information center (TIC). SRS provided the information for the development of the TIC. The budget estimated in the proposal was approximately $12.3 milllion.

The private sector proposed to provide 20 percent of the fund match required by USDOT for the MDI funds. The public sector agencies were not expected to provide any hard cash match, but would supply staff and collect and provide data to the project. The proposal also expected the project to generate revenues from subscriptions to the PTCI service and from advertising on the PTCI system and the basic TIC. In addition, aside from the TRANSCOM Regional Architecture, the operations and maintenance (O&M) expenses of the MDI components would be covered by the private sector.

The proposal was submitted in April 1996. In September USDOT officials selected the four sites to receive funding, which included the NY/NJ/CT Metropolitan Area MDI, and negotiated funding levels with the management of the lead agencies. In October, the NY/NJ/CT MDI was awarded $10.36 million, approximately 15 percent less than the amount requested in the proposal.

Upon being selected, representatives from NYSDOT, TRANSCOM, and LMFS began to work on a detailed scope of services (SOS) and other contractual issues. Negotiations continued for almost 11 months. However, the parties were unable to resolve several major issues and negotiations were terminated in September of 1997.

INSTITUTIONAL ISSUES AND LESSONS LEARNED

A study published in September of 1998 by USDOT's Volpe Center identified 11 key issues that were significant obstacles to reaching an agreement between LMFS and the public sector partners. The study also developed recommendations based on the lessons learned by the NY/NJ/CT MDI experience. The following paragraphs present a summary of these issues and lessons learned as reported by the study.[18]

Issues

1. **Establishing a partnering arrangement was new to the parties**. Since the parties had not worked together previously, there was not enough time to develop open communications, trust and mutual appreciation. There was a lack of open sharing of information and trust between the parties, which was a major obstacle to forming a true partnership and to reach an agreement on outstanding issues.

2. **The parties entered the process with cultural biases**. Because of their individual organizational and cultural biases, the parties had differing expectations concerning a number of issues. Among these issues were the contracting mechanisms, flexibility of contract budgets, the degree of specificity that should be included in contract documents, how to deal with risk and uncertainty, and the sharing of information to support proposed costs and activities. The public sector expected to pursue a deliverable-type contract typical of the transportation industry for items such as road construction, while LMFS expected a more open-ended research and development (R&D) approach more in keeping with their systems development contracting experience with the Department of Defense (DoD).

3. **The proposal lacked significant details**. The public sector's vision for the outcome of the MDI and the private sector's business objectives were not fully discussed during the preparation of the proposal and, thus, were not clearly defined in the proposal. LMFS wanted to develop and market the PTCI software while the public sector was more focused on putting in place a long-term permanent traveler information system, consisting of both the PTCI and the basic TIC. SRS was interested in the long-term operation of the TIC as well, but they assumed that they would own and operate the TIC. Both parties included high-level information in the proposal and thought they would "iron out" the details later. It was during the negotiations that the differing visions and objectives became obvious and conflict developed.

4. **The parties had to accommodate a reduction in available funding.** The impact of the budget reduction requested by USDOT was exacerbated by the withdrawal of one of the original private sector participants. In addition to reducing the available "hard" match

[18] *Partially transcribed from De Blasio, A.J. and VanderWilden P. (1998). "Intelligent Transportation Systems, Assessment of ITS Deployment, The New York–New Jersey-Connecticut Metropolitan Deployment Initiative, A review of the negotiations process". Volpe National Transportation Systems Center, U.S. Department of Transportation.*

by $200,000, the withdrawal of this firm meant that other funds would have to be used to duplicate software that was to be provided by this firm for a component of the MDI. In order to accommodate the reduction in funding, LMFS was asked to reduce the cost of developing the PTCI system from $6.4 million to $4 million. This raised issues regarding the risk that each partner was willing to assume to provide these products and services and ultimately led to disagreements over how this would be accomplished and who would be responsible.

5. **Contractual requirements did not encourage partnering.** Contractual agreements are still a necessity in public/private partnerships in order to define terms and conditions between partners for items such as payment, project O&M, and product acceptance and testing. This contractual relationship is often difficult to reconcile with the idea of a partnership because contractual necessities reinforce traditional fee-for-service relationships between the public and private sectors. In the end, both LMFS and the public sector parties focused more on traditional contractual concerns rather than developing a partnering arrangement. The parties could not get beyond this contracting approach to form a viable partnership.

6. **Institutional Structures Created Communication Problems.** Organizing the MDI and maintaining communications among TRANSCOM's 14 member agencies was bound to be a challenge and proved time consuming. To address this issue, TRANSCOM formed a multi-agency public sector negotiating team, first with five members and later with three members, to negotiate with LMFS. The lack of a single point of contact for the public sector, and the division of lead agency responsibility for operations and contracting between TRANSCOM and NYSDOT, delayed negotiations. This situation also created confusion regarding who had the authority to make a final agreement for the public sector. On the other hand, the institutional structure of the private sector also caused problems as key LMFS managerial and technical personnel assigned to the MDI changed, which sometimes resulted in corresponding changes in LMFS' vision for the project.

7. **Partnering arrangements require non-traditional procurement mechanisms.** The MDI is a systems development project and required a larger degree of flexibility than deliverable-type projects. NYSDOT and TRANSCOM staff expected to use a firm-fixed-price (FFP) contract for specifying deliverables. By using this approach the public sector team felt they were not only complying with their agreement with FHWA, but also assuring that the project would get done within budget and at no additional cost to the public agencies, an important issue in gaining TRANSCOM's approval to serve as the lead agency. LMFS officials expected to use a cost-plus-fixed-fee (CPFF) design and development approach with more contractual flexibility.

8. **Subcontractors were not included in the negotiations process.** NYSDOT and LMFS teams were both accustomed to using a closed-loop, "contracting agency to prime contractor" approach, leaving the responsibility of coordinating the subcontractors to the

prime contractor. A number of the subcontractors involved in the MDI, particularly SRS, expected to be full participants in negotiations as they had been in other ITS projects where they served as a subcontractor. The lack of involvement of the subcontractors created confusion as to the roles of these participants and resulted in conflicting assumptions not being addressed until late in the negotiating process. This approach also caused delays in providing answers to questions posed by the public sector team related to subcontractor responsibilities and activities and resulted in a lack of dialogue on possible alternative solutions.

9. **The participants were uncertain what constituted an eligible match.** Under the NY/NJ/CT MDI proposal and partnership, the private sector had proposed to provide all of the 20% required "hard" match. However, USDOT requirements differed from DoD requirements with which LMFS staff was familiar. There were a number of differences between the public sector and LMFS over whether certain items could be counted as match. FHWA noted that some of the match being proposed did not follow USDOT guidelines. Conversely, private sector partners noted that the public sector's approach to issues regarding match illustrated their lack of understanding of the risk the private sector would be taking by investing real "hard" cash match and the unwillingness of public sector participants to share that risk. After some of the proposed match was deemed unacceptable, the MDI participants, particularly the private sector, had difficulty identifying new funding sources. Throughout the negotiations process, the participants struggled with these issues and also the issue of who would own the equipment purchased with private sector match.

10. **The basis on which to determine revenue sharing was not established.** Since the market for personalized traveler information services is not yet fully developed, the proposed revenues from potential subscribers to the proposed PTCI system could not be accurately estimated. Each sector had different ideas regarding an equitable split of revenues based on either O&M costs, provision of match, or initial investment of project capital.

11. **The market value of personalized traveler information systems has not been determined**. Due to the uncertainty surrounding the demand for the use of the PTCI, it was also difficult to determine the fair market value of the PTCI software. Under the original proposal, LMFS would develop a customized traveler information software package for $6.4 million that would provide traveler information on a subscription basis to paying customers and would be owned by the public sector. When prompted by the public sector to reduce this cost to $4 million, LMFS countered with a proposal to develop a proprietary product that would provide greater functionality and that would be licensed to the public sector for $3 million. Although the parties eventually settled on a $2.375 million license fee, neither party was completely satisfied, which continued to lead to further disagreements.

Lessons Learned

The report from the Volpe Center's study lists a series of recommendations for facilitating the deployment of ITS that reflect the lessons learned from the NY/NJ/CT Metropolitan Area MDI. These recommendations are transcribed in the following paragraphs.

- **Develop a Regional Vision for ITS.** Projects have the greatest chance for success when they are part of a shared regional vision. This vision should articulate the overall project goals, expected outcomes, time frame and milestones, and functional and organizational responsibilities. This vision also should recognize explicitly the differences in the underlying missions of private and public partners.

- **Facilitate the Initiation of Public-Private Partnering Arrangements**. New relationships and partnerships take time to develop. Funding agencies can play a key role in facilitating the development of that partnership through sponsoring retreats, seminars, or other methods of facilitation. Clear guidance from the funding agency is key in areas such as defining roles and responsibilities of the participants, model contracting procedures, matching criteria, assignment of intellectual property rights, and project management and coordination.

- **Provide Incentives for Participating.** All potential participants must be shown the benefits of being involved in the project. Public sector officials must be shown that the expenditure of their limited funds will provide tangible improvements to their operations and serve their constituency better. Private sector managers must be convinced that participation in the project will advance their business objectives. Policies and procedures that encourage partnering or sharing risks should be developed such as providing a funding source for the proposal development stage to cover costs incurred prior to full funding of a project. In all cases, benefits received should be proportional to the resources expended and to the risk undertaken, especially in the areas of revenue sharing, assignment of intellectual property rights, and the ownership and use of data.

- **Adopt a Partnering-Oriented Approach.** A partnering-oriented approach is required of both private and public sectors in establishing successful partnerships. This means that each sector seeks to understand and, as appropriate, adjust their ways of doing business in clear recognition of the other partner's traditional way of doing business in order to develop an approach that best fits the partnership and the project. This should result in a relationship where professionalism is the expected norm and partners are responsive to and appreciative of the demands and concerns of their co-professionals. Participants should also acknowledge what each party does best and structure a partnership to highlight and complement each other's strengths.

- **Acknowledge Uncertainties in the Market for ITS Products and Services.** Recognizing that the market for ITS products, services, and data has yet to be firmly established, private and public partners need to acknowledge the uncertain nature of ITS project-generated revenues and must structure their revenue-sharing arrangements and project assumptions to reflect those uncertainties.

- **Produce Guidelines that Explicitly Outline USDOT Fund Matching Requirements.** As parties enter into potential public-private ventures, they need to be aware of the requirements to match federal transportation funds. They need accurate information to ensure that the products and services they are offering will be accepted as "hard" match and on how to calculate the value of these items. This information will also help private sector firms understand the differences between matching transportation funds and matching funds from other agencies.

- **Appoint A Single Point Of Contact At The Project Level.** The establishment of a single point of contact, often the project manager, for both the private and public partners is essential in establishing clear lines of communication and authority for decision-making.

iTravel: THE REVIVAL OF THE NY/NJ/CT MDI

Shortly after the termination of the negotiations with LMFS, NYSDOT and TRANSCOM continued working on the MDI. A new public/private partnership was developed under the name of iTravel. This time the private partnership includes The Northeast Consultants (NEC), a joint venture of PB Farradyne and TransCore as the prime contractor, and other private partners. The basic elements of the NY/NJ/CT MDI remain unchanged: TRANSCOM's Regional Architecture, the basic TIC, a Personalized Traveler System (equivalent to the former PTCI), and a regional TRIPS.

However, iTravel offers a significant institutional departure from the previous MDI effort with LMFS. The iTravel team is using a three-phased, one contract approach for their procurement of a prime contractor. Work in Phase 1 (design phase), will be performed under a cost plus fixed fee contract. The scope of services for this phase includes a functional system description and baseline performance data, and detailed requirements, design, operations, and maintenance, and business plans will be developed. This phase will also cover early actions and outreach, as well as developing contract amendments.[19]

Phase 2, which includes the systems development and deployment, will be carried out on a firm fixed price based on the approved design document. Finally, work in Phase 3, comprising the 5-year operation of the system, will also be contracted

[19] *DeBlasio, A.J., Jackson, Tallon, A.C., PowersG.M., O'Donnell, J.P. (1999). " Successful Approaches to Deploying a Metropolitan Intelligent Transportation System". Volpe National Transportation Systems Center U.S. Department of Transportation.*

on a firm fixed price and will be covered by some public sector start-up funding and revenues.[20]

[20] *DeBlasio, A.J., Jackson, Tallon, A.C., PowersG.M., O'Donnell, J.P. (1999). " Successful Approaches to Deploying a Metropolitan Intelligent Transportation System". Volpe National Transportation Systems Center U.S. Department of Transportation.*

TRAVINFO: THE BAY AREA TRAVELER INFORMATION SYSTEM A CASE STUDY

INTRODUCTION

The San Francisco Bay Area's TravInfo project, officially initiated in June of 1993 as a field operational test (FOT), was one of the first ITS "public/private partnerships" in the United States. TravInfo is aimed at providing a single source of comprehensive, region-wide transportation information that travelers in the San Francisco Bay Area can access through a wide variety of methods and services from both the public and private sectors. Some of the factors that motivated the development of the project were the growing congestion problem, concern for the environment, need to improve safety, and the desire to utilize the existing infrastructure as efficiently as possible. TravInfo was expected to result in reduced congestion in the area's complex transportation network and in an increased usage of public transportation and ridesharing services.

Another important driver behind TravInfo was the idea that a public surveillance and database system, would effectively stimulate private sector innovations in Advanced Traveler Information Systems (ATIS) technologies and ultimately their deployment. In other words, it would test whether a commercial market for these services could be created. As opposed to other ATIS projects, TravInfo did not fund the development of any information distribution devices other than a regional telephone number for traveler information[21]. In this case, part of the role of the private sector partners was to participate in the project by developing products and services to disseminate TravInfo. A unique feature of the project is that its open-access database allows companies to retrieve the data and repackage it for ultimate distribution to the public, both through broadcast means and products developed by "Value-Added-Resellers".

PROJECT DESCRIPTION

History

TravInfo's public/private partnership was initially conceived in 1991. The project was in its conceptual planning stage from 1993 through 1996, when the implementation of its two-year FOT period started. Although the system that started operations was working, it was not the system originally envisioned, both because there was less substantially automated data coverage and because the traveler information center computer system was not developed to the level expected[22]. In order to compensate for this, the TravInfo operator, Metro Networks, began getting information

[21] *Crotty M., Berman M., Markowitz, J. "ATIS Meets the Consumer: the TravInfo Experience, "Metropolitan Transportation Commission, no date.*

[22] *Ibid.*

from other sources, including airborne reporters, Caltrans closed-circuit television (CCTV) cameras, and carpool drivers with cellular phones.

Aside from the above mentioned problems, Travinfo has worked for the most part as expected. The system provides two different data streams:

- Recorded information disseminated over a regional phone number, mainly directed to the general public.
- A database accessible through a telnet connection for approximately fifty registered TravInfo participants

The initial idea was to provide this information provided free of charge for the duration of the FOT.

Institutional Structure

TravInfo has a unique organizational structure. The project was implemented as a public/private partnership formed by public agencies, private firms, and research institutions based on a flexible institutional philosophy. The public sector assumed responsibility for program management of the FOT, while the private sector provides support to the program management effort. The Metropolitan Transportation Commission (MTC) directs the project on a day-to-day basis, under the supervision of a Management Board (MB). The MB is composed of three public agencies: the MTC, Caltrans District 4, and the California Highway Patrol (CHP). In addition, the MB has five ex-officio members: Caltrans Division of New Technology and Research, the Federal Highway Administration (FHWA), the Federal Transit Administration, the California PATH Program, and the Chair of the Steering Committee.

The MB created a TravInfo Advisory Committee (AC), now known as the Information Service Provider (ISP) Forum, with membership open to any firm or agency that wishes to participate. The Steering Committee (SC) was formed within the ISP Forum by 15 individuals selected by the MB to represent the ISP in the decision making-process. Most of the members of the Steering Committee come from the private sector, but non-profits and the public sectors are also represented. In order to study the various components of the TravInfo System the Steering Committee is also divided into several working groups that undertake specific tasks (such as review of the TravInfo system architecture and design)[23]. Figure 1 illustrates the TravInfo Organization.

[23] *Hall, R., Yim, Y., "TravInfo Field Operational Test: Public-Private Partnershi " in Proceedings of the 7th Annual ITS America Meeting, 1997, Washington, D.C.*

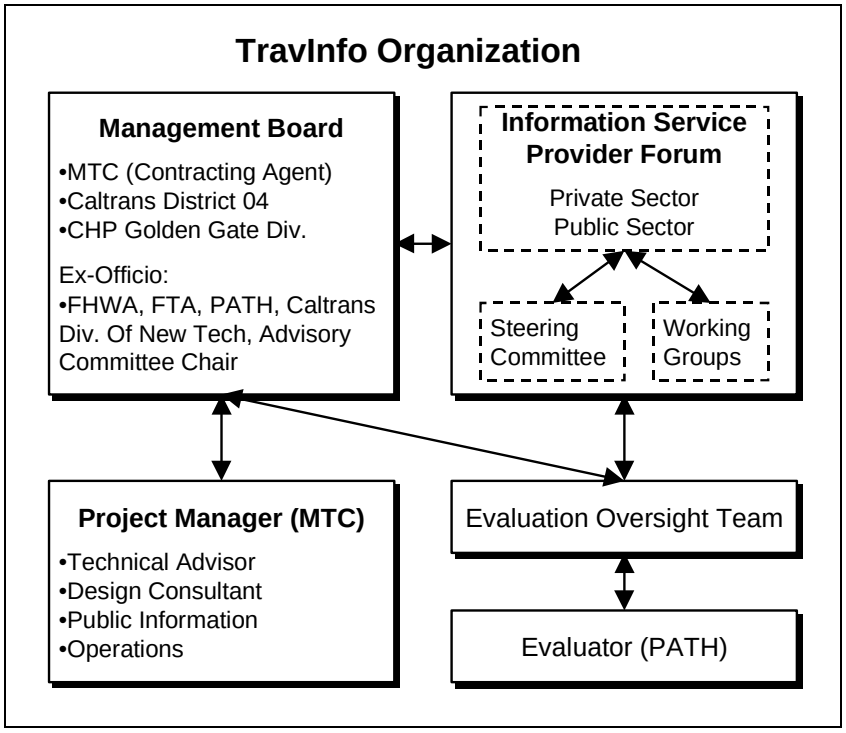


Figure 1. The TravInfo Organization[24]

The main functions of the Management Board can be summarized as follows:

- Policy setting for all of TravInfo test activities, including reviewing and approving procedures for the conduct of tests and setting access restrictions to databases
- Authorizing and approving TravInfo expenditures and consultants' work

The TravInfo ISP Forum and the Steering Committee have no direct authority for setting policies or procedures for the FOT and can only advise the MB on all issues. Both the public and private sector partners interact through the ISP Forum. The objective of the ISP Forum is to discuss TravInfo data and how to effectively disseminate it to the public. The ISPs are the core of the public/private partnership, since they take TravInfo data and develop new and innovative products and services to disseminate the data to the public.

Operation[25]

The information for TravInfo is gathered from several sources. Caltrans' Traffic Operations System, an area-wide network of freeway sensors and closed-circuit television cameras provides information on speed and congestion. Similar information is provided by the Freeway Service Patrol's roving fleet of tow trucks, equipped with an

24 *TravInfo Informational Brochure. Metropolitan Transportation Commission.*

25 *Information partially transcribed from http://www.travinfo.org/*

automatic vehicle location system. Data on accidents and other incidents on the area's freeways is provided by the California Highway Patrol's Computer-Aided Dispatch system. In addition the system includes data on construction work, road closings, and events that may affect traffic, such as sport events and concerts. Since TravInfo is a multi-modal system, it also contains data from the Metropolitan Transportation Commission's transit database and information on bicycling and park and ride facilities. All the information is collected at the TravInfo Traveler Information Center (TIC) in Oakland, where it is processed into a uniform database and then distributed to the public and the private sector.

The information is distributed to the public via the TravInfo Telephone System. The public can access TravInfoTM information through a menu-based automated voice phone system. The phone system permits callers to be switched to a human operator to obtain assistance in planning a trip or forming a carpool. All other information is available in an automated format. Transit features include route, schedule, fare and multi-modal transfer nodes information, in addition to trip planning between important origins and destinations. Traffic information includes information on incidents and congestion on major roadway systems. Information on ridesharing, transit station and park & ride parking availability and on bikeways is also offered via the phone system. On the other hand, the data is distributed to project participants (public and private partners) in a digitized form through both Landline Data Server (LDS) (modem) and wireless data broadcast (high speed FM subcarrier) systems. Firms and local public agencies can access this information and repackage it in ways that would be useful to potential markets and their constituency. In addition to enhancing information already available through the broadcast media (radio and TV), these firms are offering a variety of products using the TravInfoTM information, such as pager systems, cellular phones, on-line computer services, in-vehicle navigation systems, and kiosks.

INSTITUTIONAL ACCOMPLISHMENTS AND ISSUES

Accomplishments

The early accomplishments of TravInfo include the staffing and contractual arrangements[26].

Staffing. On June 1, 1993, the official TravInfo FOT initiation date, the funding agreements with Caltrans became effective, MTC's full-time project manager for TravInfo reported for work, and the Technical Advisor was given Notice to Proceed. On October 22, 1993, the Design Consultant hired to perform the systems engineering work signed the contract.

[26] *Partially transcribed from: Georgevich, J. and Crotty, M. (1994). "TravInfo: The Bay Area Advanced Traveler Information System. A Field Operational Test Report". IVHS America Fourth Annual Meeting.*

Formal Agreements. During the five months preceding June 1, an unprecedented level of inter-agency cooperation took place for the preparation and execution of five separate agreements essential to initiate work. These five formal agreements to initiate TravInfo included:

- The FHWA/Caltrans Cooperative Agreement, the first FOT cooperative agreement in the country, which established the format for future agreements;
- The Memorandum of Understanding Between Caltrans, CHP and MTC;
- The Caltrans/MTC Local Assistance Master Plan;
- The Supplemental Agreement to Caltrans/MTC Master Plan;
- The Caltrans/MTC Cooperative Agreement.

Issues

ATIS has had a wide and varied set of institutional challenges. In the case of TravInfo, the most fundamental issues revolve around the public-private partnerships and the dissemination of data among the partners.

- TravInfo realized possible tort liability regarding use of the content of the database by registered participants. The question was whether registered participants that access the database might attempt to hold the project liable in the event of erroneous, unreliable or lost data. TravInfo protected itself by including disclaimers of liability and a warranty in the terms and conditions of the Registered Participant Agreement. Since the TravInfo database is in the public domain, a potential problem exists if information is accepted from a private source.

- An important business issue in the implementation of TravInfo was the decision to make Caltrans Traffic Operations System (TOS) the primary source of information instead of pursuing a more independent and diversified path. Schedule problems with the TOS delayed major operations deployments. Complications in Caltrans contracting procedures slowed down full development of the TOS.

- The collection of traffic information at public expense for re-sale versus no-cost public access via an affordable medium such as a telephone advisory service was a major issue with TravInfo. Some participants did not want the information made available to the public without being repackaged and sold via the market. Others, primarily in the public sector, supported public access. Test partners in TravInfo decided that the public sector would collect and process the data, and the private sector would add value, including privately collected data and the development of consumer products and services. The TravInfo Traffic Advisory Service (TATS) would remain free of charge.

- TravInfo promoted wide participation, but also created a layered management structure that has, at times, made progress laborious. The project relies heavily on a cooperative

and non-adversarial working culture, which is noteworthy given the size and scope of the project and the level of public-private participation. In addition to project management, TravInfo was influenced by the Management Board (public representation only), a Steering Committee (public and private representation), and the ISP Forum (public and private representation). Although the Independent Evaluator's opinion is that this organization is effective, questions have been raised regarding the authority boundaries of the MB and the SC.

VDOT PARTNERS IN MOTION (FORMERLY WMTIS) A CASE STUDY[27][28]

INTRODUCTION

The Washington DC metropolitan area, consisting of the District of Columbia, Northern Virginia, and Suburban Maryland, has a population of about 4 million, and expects a constant increase of about 56,000 persons per year. In addition, because of funding and environmental constraints, transportation infrastructure capacity in the area will likely not be increased significantly. Both traditional and technology-based approaches are being pursued to alleviate current as well as future transportation problems.

The Virginia Department of Transportation (VDOT) is the lead agency in "Partners in Motion", formerly known as the Washington Metropolitan Traveler Information Service (WMTIS), a multi-agency public-private partnership. This public-private partnership comprises 37 public agencies and private businesses that are working together to provide on-demand, real-time, and route-specific information for all modes of travel.

The public sector role in the project includes program support and providing data, critical information, and funds. The private sector role includes installing the needed communications and information processing infrastructure, and also contributing to project funding. It is the intent of the public and private partners that all infrastructure, all operations and maintenance of the systems installed to provide the traveler information service to be the responsibility of the private sector. This case study discusses the contracting and procurement issues and opportunities encountered by VDOT in developing what was their first public-private partnership agreement for an Intelligent Transportation System (ITS).

Project Description

The partners in Motion project is a true public-private partnership in the Washington DC area. The contract for the project is between VDOT and Battelle Memorial Institute, the prime contractor. A Coordinating Committee of the public sector partners is used as a decision-making forum to guide the program development. The FHWA is an active partner, providing early programmatic and inter-agency coordination assistance. The project is funded 70 percent by the federal government via

---

Condensed from:

[27] *Booz·Allen & Hamilton Inc. "Virginia Department of Transportation Public-Private Procurement. Issues andAccomplishments and Interim Report".*

[28] *"Business Models for ATIS Deployment" (1997). Proceedings from the ATIS Business Models Workshop. ITS America.*

the FHWA, with the 30 percent match coming from private sector partners. The goal of the project is to develop a system and infrastructure to be owned and operated on a for-profit basis by the private sector partner (or their assignee). The contract is on a 6-year term. The first 3 years are devoted to:

- Installing the needed communications hardware and software infrastructure
- Integrating traveler information from each of the public sources including transit, carpool, and traffic information
- Synthesizing and re-packaging that information for resale by private information providers
- Recruiting information providers and assisting them in marketing the service
- Evaluating the service as it relates to adopted regional transportation goals.

The initial service (audiotext and Web page) began operating in June 1997, six months from the notice to proceed. The full system was planned to be complete within 1 year. The following two years of the contract are intended to allow the project to mature and to build market base. After 3 years (month 37), no public monies will be used for this project, that is, it must become self-sustaining. Also, beginning in month 37, ten percent of the gross revenue generated by this project will be returned to the public sector. These funds will be placed in escrow and will be spent to expand the project services and coverage as directed by the Coordinating Committee.

After 6 years, the public partners will evaluate the system performance and value to the public, and will also determine how best to continue the project. Their options include renegotiating the revenue sharing terms with the private sector partner and contracting with a new or with additional private partners.

The public agencies are not contractually bound to continue as participants in Partners in Motion. They can withdraw from the project at any time. Early on in the project there was an attempt to create a Memorandum of Understanding (MOU). However, this attempt was unsuccessful due to the amount of time and resources needed to get all agencies to agree to one document. Another attempt at an MOU between VDOT and individual agencies was also unsuccessful because VDOT did not want to have 25 potentially different MOUs with 25 different agencies. The final compromise is a non-binding letter of participation written by each agency to VDOT that contains two requirements: (1) an agreement to recognize VDOT as the contracting agency on behalf of the region, and (2) an agreement to not distribute the enhanced data from the regional database outside of its agency without consent from Battelle.

The Partners in Motion project does not provide exclusivity for Battelle or their team members, and all agencies can give their own information to anyone requesting it.

This project does not interfere with either existing or future information sharing relationships. Nevertheless, by purchasing the information from Partners in Motion, and Information Service Providers (ISPs) can have "one stop shopping".

Procurement Of Partners In Motion

Under current law, VDOT had the following procurement options available for Partners In Motion:

- The State of Virginia's Public Procurement Act, as it applies to VDOT, states that the Department of General Services (DGS) will oversee most procurements. The Act defines two types of services – professional and non-professional – and also outlines procurement regulations for goods.
  - Professional services include most work for which a State of Virginia professional license is required, such as engineering and land surveying. The Commonwealth of Virginia Transportation Board and the Attorney General must review professional services contracts before they are signed, making it a lengthy process. In the selection process, the best qualified professional services firm is selected. Fee negotiations can then begin with that firm. If the State and the firm cannot agree on the contract fee or terms, the State may begin negotiations with the second best qualified firm.
  - Software development and provision of ITS systems are consulting services that are not considered "professional" services in Virginia. The Transportation Board and Attorney General are not required to review such contracts, but they may request review if they wish. The "preferred" process for acquiring these services is competitive sealed bid. However, two other processes are available that are particularly advantageous for ITS procurements. These are competitive negotiations and non-competitive (sole-source) procurements. To pursue either of these procurement processes, justification must be developed that indicates how the process is superior financially and practically. The competitive negotiation process allows VDOT to negotiate both cost and terms with several qualified firms at the same time. Non-competitive (sole source) procedures allow VDOT to target a particular, unique, service provider. The Governor's office must approve non-competitive contracts exceeding $10,000.
  - The third category covered by the Virginia Procurement Act is goods. VDOT can acquire most goods, including ITS goods, independent of DGS.

- Virginia has also passed two other acts that potentially relate to ITS procurement – the Design/Build Act, and the Public Private Transportation Act (PPTA). The Design/Build Act is essentially an amendment to the Virginia Procurement Act, outlining additional requirements for design/build projects. The PPTA was developed to encourage private firms to invest in transportation infrastructure. It

also allows VDOT to accept and review unsolicited proposals for public-private partnerships. The language of the act includes systems "needed to operate the transportation facility." In the opinion of the State's Attorney General, many ITS systems are not strictly "needed", but enhance the function of the infrastructure.

VDOT Explores Procurement Options for Partners In Motion

Partners in Motion was a unique endeavor for VDOT. It involves extensive ITS systems, it is a public-private partnership, and it also involves revenue sharing. Thus, it was difficult to decide how best to procure such a project. The standard contracts created for more typical VDOT projects did not address the sharing of risks and resources that are inherent in public-private partnerships.

At an internal VDOT meeting involving staff from Administrative Services, the ITS Office, and the VDOT Commissioner, it was agreed that the project should be classified as non-professional services. A key point of discussion was that VDOT was not procuring anything, since nothing would be owned or operated by VDOT at the end of this contract. VDOT was simply creating the opportunity for a private sector partner to develop a profitable traveler information business. It was ultimately agreed that the primary purpose of the project was to procure traveler information services.

VDOT also had other options available to it, which were explored but rejected early in the process: the PPTA and the Design/Build option. The PPTA was rejected mainly because it requires State ownership of any infrastructure provided at the end of the contract term. The main objection to the Design/Build option was that the outcome of the Partners in Motion goes beyond the provision of an infrastructure element.

The Virginia Procurement Act and the standard contracting vehicles developed to comply with the Act included several perceived and actual barriers to its use for the traveler information project. These barriers were, for the most part, related to: privacy of proprietary information, intellectual property rights, risk sharing, and dispute resolution mechanisms unfavorable to the private sector. Many of these issues were ultimately accommodated.

Resolution of Legal Issues

Because of these barriers, VDOT pursued two legislative paths for developing a procurement process that would better meet the needs of ITS projects, and the Partners in Motion project in particular. VDOT pursued developing new legislation and amending the State Appropriations Act. However, both of these efforts were constrained by timing and they were too late in the legislative session to build the necessary support for the initiative. At the same time, VDOT also explored amending the Budget Act to change procurement law, but political support at the time was insufficient to pass it.

Nevertheless, as they were pursuing legislation, VDOT discovered that, because they had identified the Partners in Motion project as non-professional services, the Public Procurement Act included a potential for administrative relief. The statute offered the ability to request exemption from the existing procurement rules and

regulations if approved by the Director of the Division of Purchases and Supply at DGS. The exemption request was submitted by the Secretary of Transportation and approved by the Secretary of Administration.

It is important to note that the Partners in Motion procurement was accomplished without the exemption, using existing guidelines. Thus, the Partners in Motion public-private partnership contract was constrained by rules and regulations in the Virginia Procurement Act developed by more typical procurements. VDOT did not wish to pursue the Partners in Motion contract without any guidelines at all since some set of standards is required to guide the process, and there was not enough time to create new guidelines.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

The Partners in Motion contract is unique at VDOT because it was written to recognize the nature of a public-private partnership. For example, both public and private partners share revenues. In addition, the contract does not include clauses describing recourse if one of the partners fails to perform. If one partner does not perform, the contract ends in recognition that the partnership has failed. It is inherent in a partnership that both parties have a reason to be part of the agreement and that reason is adequate to keep both parties at the table. In the Partners in Motion project, the private sector has many incentives to remain in the partnership including ensuring that the reputation is maintained, strengthening their position as an experienced, premier provider of traveler information services, and the ability to generate profits.

The State also has incentives to remain in the partnership (as long as Federal funding is provided). One, the project can improve traffic conditions in the Washington, DC area. Second, public opinion of VDOT could be changed for the worse if they take no actions to improve traveler perception of driving conditions. In addition, both the public and private parties have much to lose in terms of exposing themselves to public criticism if the project fails. This provides both partners with added incentive to succeed.

Issues

The Washington DC area comprises three states and their counties and cities. Each of the states (MD, VA and DC) has its own priorities, schedules and funding. Within those states are counties and cities that also have their own priorities, schedules and funding. It is close to impossible to get all jurisdictions to agree on common activities. If jurisdictions or agencies agree to do a joint project that is funded through several agencies, there is no mechanism that allows it to happen. It is very difficult to combine funds from multiple agencies. This was one of the main reasons why VDOT

agreed to contract for the region – there was no other way to accomplish the project within a reasonable time frame. In addition, under this multi-jurisdictional environment it is easier to allow the private sector to do the work with input and direction from the public sector.

Other issues remain that are impediments to procurement of ITS via public-private partnerships. The Partners in Motion contract dealt with many of the issues, and left others for future resolution. This process provides valuable lessons useful to the development of the new ITS public-private partnership procurement procedures. These issues and their disposition in the Partners in Motion contract are summarized in the following paragraphs.

- **Intellectual Property Rights.** ITS relies on specially designed software to integrate and operate the system. Under Virginia law, contractors developing software on projects that include State funds retain ownership of intellectual property, but a license must be provided to the public sector so that they may use the software for their purposes. This language implies that software can be distributed by the public sector to any party if it meets its purposes. Contractors are concerned that, even if only private sector moneys are used to develop software for a public-private partnership, a license must be granted to the public. If the software rights are in the public domain, this might discourage some firms from competing for projects, reducing competition and incentive to partner. However, without such rights, the public sector could be constrained to using a single contractor to operate and maintain specific software products.

  VDOT solved this issue by structuring the Partners in Motion contract so that no public moneys would be used to develop software. Any software will remain the property of the private partner. A license is provided to VDOT to ensure that they have open access to the software.

- **Limitations on Dispute Resolution Mechanisms.** Because Virginia is a "Right to Work State", binding arbitration is not allowed under the Virginia Procurement Act for dispute resolution. Partners in Motion complies with this act.

- **Disposition of Surplus Property.** State laws require that property purchased using public funds be owned by the State. This can be an issue in ITS partnerships (like the Partners in Motion) that are meant to create private sector business opportunities. In addition, hardware is often needed for short periods during system development. Many agencies have overcome ownership difficulties by purchasing short-term leases instead of the equipment itself.

  The Partners in Motion project includes the installation of several pieces of equipment. The partners will evaluate the issue of ownership of the Partners in

Motion infrastructure near the end of the contract. One possible outcome is that all equipment and the information service itself will be the property of the private partner at the end of the agreement.

- **Sharing Risk (Hold Harmless Clause).** VDOT typically includes a "hold harmless" clause in all of their professional services agreements in which the State is held harmless from all acts, whether negligent or not, performed by the contractor.

  The Partners in Motion contract includes liability language that holds the State harmless from all negligent, unlawful, or intentional harmful acts of the contractor. However, liability for all other acts of the contractor may be shared by the private contractor and the State, as is outlined in Virginia State law.

- **Private Partner Audit Records Open to Public.** Although not required, a contractor audit may be performed during the life of the contract. To protect confidential records during an audit, the contractor must complete a form requesting exemption from the Virginia Freedom of Information Act (FOIA). Even though the contractor can protect data provided for an audit, the audit reports are public information under the State of Virginia FOIA. Such information may threaten the competitive position of the private partner in the market. Because this is a partnership, both the public and private partner may be damaged. It would be detrimental to both if the private partner's ability to make a profit is damaged.

  The Partners in Motion contract was not written to remedy the FOIA requirements for this issue. The private partners chose to take on this risk.

- **Need to Protect Repackaged Data.** The second Virginia FOIA issue has to do with the traveler information itself. VDOT and other public partners will provide raw transportation data to the private partner for them to repackage and sell. The raw data is publicly owned and can be requested by anyone. The repackaged data is private because of the repackaging and is only available if purchased. However, VDOT has included a provision in the contract that the repackaged data will be provided to VDOT at no cost. It is not clear if the repackaged data, because it is returned to the public sector, would then become public domain and accessible without cost via the Virginia FOIA.

  The contract indicates that "…these enhanced data may not be distributed in any manner without the written consent of the TIC contractor except that the participating State agencies may use the data exclusively within each agency…". However, it cannot be said whether this language will remedy the requirements of the FOIA for this issue, because legal challenges of this type have not yet reached the courts.

- **Difficulties Receiving and Disbursing Revenues to Partners.** Unlike many states, Virginia State law allows VDOT to bring in and disburse funds directly via the Transportation Fund (most states require all revenues be deposited into the General Fund). However, the accounting processes to track the public partner's Partners in Motion would be cumbersome. In addition, developing monetary revenue-sharing formulas that each public partner would agree are equitable may be difficult.

  Rather than sharing monetary revenues, the Partners in Motion contract calls for the public partner's shared revenues to be reallocated to system upgrades, expansion of the coverage area, and other Partners in Motion related services as determined by the Coordinating Committee.

- **Valuation of Private Match.** The private partners are providing matching funds. The match is in the form of services and software. It was difficult to assign value to software, and also difficult to ensure that the services proposed would be provided if the project scope changed over the course of the contract.

  The value of the previously developed software was approved by FHWA. The contractor was enjoined from using software that had been developed using Federal moneys in the past. In addition, the software cannot be used again in the future to provide a Federal match on any other contract. The contract simplified the issue of ensuring that the private partner provided their agreed upon match. If the Federal match requirements cannot be met, VDOT reserves the right to terminate the contract.

- **Need for Detailed Scope of Work.** The Virginia Procurement Act requires that the project scope be defined.

  The scope of services is not as detailed and specific as those in a typical services contract. Because of the nature of the project, the scope cannot be clearly developed. Nor would it be desirable to do so, because this project was advertised to allow each private respondent to develop their own unique solution. The contract includes a "Task 1" in the scope of services in which project details will be developed. This is a process similar to developing the contract plan details in a road design contract. It was the intent of the contract to allow details to be developed without the need for contract amendments, which can be a time-consuming process.

- **Performance Recourse.** Typically, VDOT contracts include strong language to enforce contract completion.

  Because the Partners in Motion project is a partnership, it was understood that all parties had strong incentives to remain working together. If there was no

partnership, there would be no project. In addition, VDOT recognized that there were many risks that could threaten the viability of the program.

The contract is written in a unique fashion regarding contract termination. It states that if VDOT terminates the contract without the consent of the private partner, then VDOT will not venture to complete the work using any other means. This clause recognizes the unique nature of the partnership and the sharing of the risks and benefits. The only reason that VDOT would terminate the contract is if the project has become not viable from VDOT's standpoint, not simply because they are displeased with the particular contractor. This clause protects any investments made by the private contractor if they are dismissed from the project. The contract can also terminate via mutual agreement

Lessons Learned

- VDOT was able to successfully develop a unique public-private partnership agreement because of the support from the Commissioner's office, the FHWA, and because of the staff. Staff did not rely solely on interpretations of law that were based on traditional contracts. No case law has yet been developed in Virginia to guide statutes as they apply to public-private partnerships. The staff interpretations of the laws included an assessment of the risks of using the existing procurement laws for the Partners in Motion public-private partnership. VDOT believed that the risks were acceptable, and essentially no greater than the risks taken on by the State in any other contract.
- To establish a public-private partnership, one must realize that a public-private partnership is necessary and often harder to achieve. Two years passed between the initial discussions about what needed to be done in the Washington DC region to the release of the Partners in Motion RFP. Everything will take longer than anticipated.
- It is important to establish clear objectives for an Advanced Traveler Information System (ATIS). Understanding what is needed, available, and realistic will avoid problems in the long run. In other words, it is critical to understand the real situation of the finances, politics, management, and available information.
- Interpretation and assessment of risk are critical issues. Interpretation of laws (that have not already been interpreted by the courts) and risk assessment are often based on the bias of the individuals. That bias is based on an array of factors including past experience, their perception of their job description, the level of support that they believe upper management provides, and personality traits such as risk aversion.
- VDOT found it had several options available to procure ITS public-private services. Each had barriers, and VDOT was able to create a solution that at least minimized, and overcame the barriers.

- Overall, the ability to develop a procurement process was successful because of individuals at VDOT. First, VDOT staff were convinced that creating a public-private partnership for the Partners in Motion project was in the public's best interest, and this conviction and enthusiasm helped motivate other staff. Second, VDOT staff were open-minded when approaching the problem of developing a procurement process for public-private partnerships. They did not let typical methods constrain them, and explored a wide variety of options. Last, VDOT staff truly understand the nature of a public-private partnership - that a partnership means sharing of risks and benefits, resources, and that each party has a reason to enter the agreement as a partner. In fact, VDOT considered pursuing the agreement without a contract.
- Finally public sector champions are vital to the successful deployment of an ATIS. These champions must demonstrate a strong commitment to providing leadership to both the public and the private sectors.

OPERATION RESPOND CASE STUDY[29],[30]

INTRODUCTION

Operation Respond is a program that provides information to first responders at the sites of hazardous material and passenger train incidents. It has evolved into a public-private partnership to facilitate funding and cooperation in responding to emergencies involving hazardous materials and passenger train accidents.

Background

This program has its genesis in community and corporate initiatives to address the threat of emergency releases of chemicals. The Kanawha Valley Emergency Preparedness Council in West Virginia and the Gateway Network in the St. Louis, Missouri area developed early emergency response systems. In 1970 two non-profit organizations – Transcaer and CHEMTREC – were established to help communities handle hazardous material emergencies.

As a result of public concern regarding hazardous material emergencies, Congress enacted the Hazardous Materials Transportation Uniform Safety Act of 1980. The Act directed the United States Department of Transportation to contract with the National Academy of Sciences to conduct a study to assess the feasibility and need for a central reporting system able to receive, store, and retrieve data on all daily shipments of hazardous materials by all modes. The Act also required DOT to begin a rule making procedure to assess how best to establish and operate a central reporting system and computerized data center.

The study, completed in 1993, identified the kinds of problems encountered by first responders, presented a number of case studies of motor carrier and rail hazardous material incidents, analyzed the timeliness, safety, and reliability of emergency response, and set out a number of technological and institutional options to address the charge of Congress. The Academy study concluded there was a need to improve the information available to first responders at the scene of incidents. The study also recommended that the DOT should undertake one or more demonstrations of automated information systems.

---

29 *Operation Respond Institute Inc., A White Paper – Spring 1998*

30 *U.S. Department of Transportation, Operation Respond: Lessons Learned, A Research and Development Program to Promote Safe and Secure Transportation by Improving Information Available to First Responders, Publication No. DOT-T-97-16, February 1997.*

At approximately the same time Congress called for the Academy study, the Federal Railroad Administration established a pilot project, "Operation Respond," with the Port Terminal Railroad Association in Houston, in order to improve the communication between railroads and first responders at hazardous material incidents. FHWA provided funding and PTRA provided in-kind support. Not only was there a cost-sharing, but also there was a cooperative labor-management team approach committed to getting the job done. Shortly thereafter the DOT's Research and Special Programs Administration provided additional funds to develop software to facilitate coordinated communication of critical information to first responders.

After the initial pilot, the project was expanded, and with its success FRA and PTA sought a broader funding mechanism than the contract between FRA and PTRA. As a consequence, Operation Respond, a non-profit educational institute was established to improve emergency response through public/private partnerships. DOT provided a grant to Operation Respond to further advance and speed the exchange of critical information for rail and truck hazardous material accidents at selected border crossings in support of the North American Free Trade Agreement. DOT also funded the development of emergency response software for the 1996 Olympics in Atlanta and a computerized hazardous material information system and training program for the Contra Costa, California area.

Operation Respond has a national steering committee composed of both public and private sector members, mainly including rail and motor carrier providers, industry and transportation associations, and labor unions.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

More recently the National Institute for Occupational Safety and Health has joined FRA in funding the project. Participating rail and motor carriers provide in-kind support through programming software, donating computer equipment, purchasing software, providing training assistance, and offering printing support.

The Operation Respond Institute is continually expanding the number of communities and private sector participants involved in programs to refine the software and protocols to improve emergency response. As the number of communities and private sector involvement increases, DOT has reduced federal funding.

Operations Respond develops software called OREIA which is designed to connect police and fire departments with databases of railroad and motor carriers. In the event of a hazardous material incidents, first responders are able to obtain quick, accurate information on the contents of shipments and take appropriate action to protect people and property. The software is able to deliver schematics of rail

passenger cars and locomotives that show seat configuration, emergency exit doors and windows and the location of electric and fuel sources. With this information police and fire rescue personnel can save critical time in emergencies. OREIS is now being used in over 350 places in 29 States, the District of Columbia, and several places in Mexico and Canada.

Some examples of public/private partnerships involving Operation Respond software are as follows:

- Mexico Border Program: Union Pacific Railroad donated twelve computers to Mexican Border Towns.
- Southern States Donation Program—Southern Railroad has purchased 38 sets of OREIS software and donated them to towns along their routes in Kentucky, Tennessee, Virginia, West Virginia, North Carolina, Ohio and Alabama. Similarly CSX has donated several sets of software along its routes in Virginia and West Virginia.
- Conrail Donation Program—Conrail has given 22 sets of OREIS and one year's member services to communities throughout the Conrail System.

Issues

- Railroads falsely assumed that making their data file available would be sufficient but user groups of first responders found the format and amount of information to be confusing. The file format consequently required modification.
- Incompatibility of operating systems sometimes hindered implementation
- Larger police departments generally have sophisticated computer systems and more resources while smaller communities do not.
- Inclusion of motor carriers, and rail passenger service was controversial, required substantial modification of Operation Respond software, and in some cases required the development of standalone features.

Lessons Learned

The experience of Operation Respond has yielded two sets of lessons, one concerning the establishment of the non-profit institute, and the other concerning public-private partnerships necessary to implement emergency response systems.

The following lessons apply to the establishment of the non-profit institute:

- It is feasible to establish a non-profit educational institute as means for the public and private sector to share in the costs and fund a research and development

program regarding the continual enhancement and dissemination of software for real time operations management.

- The staff of the non-profit educational institute can use it as a vehicle to carry out a wide variety of education-related activities associated with the software including training and community awareness.
- Public and private sector interests can be both promoted and balanced in a suitable manner with the oversight of a steering committee containing representatives of the key stakeholders.

Lessons Operations Respond has learned in piloting and implementing its software in various communities include the following:

1. Build on the experiences of others. A community should form a Local Steering committee comprised of all necessary stakeholders. Stakeholders include local emergency planning committees, area rail and motor carriers, police, fire fighters, government officials (state and local), and chemical companies.
2. Work together and work smart. Form small working steps to achieve agreement on training and technology needs. Try hosting meetings at sites of different members. Operation respond has been effective in breaking down communication barriers.
3. Include the 911 Emergency dispatcher.
4. Train all first responders
5. Keep reaching after the software, protocols, and training are introduced to a community
6. Avoid relying solely on the knowledge and experience of public-sector or voluntary personnel. Rail crew and motor carrier personnel also possess key knowledge and should be included in training sessions.

HELP INC.
A CASE STUDY[31]

INTRODUCTION

HELP Inc. is a non-profit corporation that allows the states to contract for services, via a franchise, to develop and deploy advanced technology systems to enhance commercial vehicle operations to the benefit of industry and government. HELP Inc. is an intermediary that was established to provide government agencies, the motor carrier industry and a private sector entrepreneur (franchisee) with a mutually advantageous institutional arrangement. In this arrangement, the private entrepreneur (namely Lockheed Martin Corporation) serves the needs of the government and motor carriers and applies its creativity to produce additional services for a profit. The institutional arrangement attempts to carefully balance the needs of public and private sectors as well as the interests of the franchisee.

HELP Inc. is an illustration of an intermediary institution set up to serve public and private interest that has proved to be a model for expeditious deployment of a certain class of ITS products and services.

PROJECT DESCRIPTION

Background

HELP Inc. is a non-profit corporation that allows the states to contract for services, via a franchise, to develop and deploy advanced technology systems to enhance commercial vehicle operations to the benefit of industry and government. HELP Inc. provides an institutional framework for the states and the motor carrier industry to work closely together in a way that neither individual state governments nor particular private firms could accomplish. Specifically, HELP Inc. may enroll a franchisee that serves as a facilitator between the public and private sectors, provides technical assistance, and develops a variety of profitable businesses whose revenues can be used to compensate for the actual costs of HELP Inc.

HELP Inc. developed out of the Heavy Electronic License Plate program and the Crescent Demonstration Program. These two efforts were designed to test and evaluate the feasibility of using electronic methods to improve the efficiency of motor carrier regulation, including that pertaining to credentials, safety and taxation. In particular, HELP Inc.'s mission consists of the following:

[31] *Hyman et al. (1995). "Overcoming Barriers to ITS – Lessons from other technologies". Federal Highway Administration.*

- Reduce government and industry tax burdens by promoting compliance with size, weight, and tax laws, and improving the efficiency and effectiveness of motor carriers and government in handling these administrative and regulatory matters.
- Establish, develop and maintain a reliable and secure communications network that connects various motor carrier monitoring locations, government, and industry administrators. The purpose of this network is to facilitate the lawful exchange of information and the filing of tax returns, reports and remittances.

In addition, government and industry may contract exclusively with HELP Inc. to fulfill this mission.

Operation

Under the franchise granted by HELP Inc. the franchisee installs electronic clearance systems in Interstate public rights of way and charge a transaction fee (99 cents per bypass capped at a maximum of $3.96 per day) each time a truck with a transponder is able to meet weight restrictions based upon weigh-in-motion measures and bypass a weigh station.[32] The franchisee pays the initial investment and on-going maintenance and operating costs. The result is a win-win situation for the states and motor carriers. The state avoids up-front investment costs. Moreover, every time a truck bypasses a weigh station, the state's costs of inspection are reduced and the truck avoids travel time delay at the inspection station.

Institutional Structure

The institutional structure of HELP Inc. was originally conceived during the HELP program, for which Lockheed Corp. was the contractor. Lockheed eventually became the franchisee under HELP Inc.

The active membership of HELP Inc. consists of 50 percent government members (public members) and 50 percent representatives of the motor carrier industry (private members). Any state, province or territory in the United States, Canada and Mexico can be a member. Each public member must identify a corresponding private member in the motor carrier business. Active members of HELP Inc. have voting rights and can hold office. There are also affiliate and associate members. Every active and affiliate member is represented on the Board of Directors. The Board of Directors has an Executive Committee composed of six individuals, including a Chair, Vice-Chair and Secretary/Treasurer. There is also an Executive Director who acts as the Chief Executive Officer. HELP Inc. was incorporated in Arizona under the provisions of the Arizona Nonprofit Corporation Act.

[32] *Sleven, Jonathan, "Prepass and NoPass," ITS World, July/August 1999, pp. 12-13.*

Responsibilities of the States Vis-à-vis HELP Inc.

The relationship between HELP Inc., and each of the states can be gleaned from a draft letter of intent on the part of the states to join HELP Inc. The following principles are set out in the letter of agreement:

1. HELP is to charge the motor carrier industry for services provided at rates the Board of Directors establish.
2. The state is to provide an infrastructure with HELP at weigh stations located at ports of entry, subject to state funds being available. HELP will provide the technical specifications at no charge.
3. The state is to define which credentials are needed to pre-clear trucks (i.e. trucks don't have to stop to have credentials checked) and give HELP the access it requires to determine if trucks have valid credentials and safety ratings.
4. The state and HELP Inc. agree that the goal is to transmit the needed data electronically while at the same time protecting its confidentiality
5. The state is to pre-clear at weigh stations motor carriers enrolled in the HELP program
6. The state is to make its infrastructure compatible with HELP System specifications
7. The state will respect the commitments to motor carrier data privacy made under the Crescent Demonstration Program.

The Role of the Franchisee

Besides assisting in the provision of the services outlined in the agreement letter between the states and HELP Inc., the scope of activities of the franchisee includes:

- Provide administrative assistance in the billing and collection for products and services to the states, while providing HELP Inc. the ability to mark up these products and services as a remarketer to recover indirect costs incurred by HELP Inc.
- Accomplish Electronic Data Interchange (EDI) translation and services. EDI refers to a wide range electronic information services in the logistics chain from inputs for manufacturing to the delivery of products to retailers.
- Provide non-EDI data translation services.

The franchisee was expected to take a comprehensive approach to addressing cost and revenues. The overall approach contained the following potential elements:

- Pursue a strategy that minimizes the need for capital investment on the part of both the states and HELP Inc. through some form of volume discount transaction processing schedule by good or service
- Minimum monthly charges or annual fees as relevant
- Per transmission charges and charges for connecting with the Value Added Network run by the American Association of Motor Vehicle Administrators
- Volume discounts for translator software, training, trading partner implementation services, etc.
- Custom products and services available through HELP Inc., to its customers on an extra charge basis.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

- HELP Inc. provided an institutional mechanism that allows the public (the states) and the private sector (the motor carrier industry) to work together in a way that neither party would have been able to accomplish individually. Achieving efficient coordination of different agencies in multijurisdictional environments is a extremely difficult task.
- HELP Inc. served as a catalyst for the establishment of new information services.
- Under the franchise agreement, the franchisee is able to pursue additional business transactions that are mutually advantageous to the states and Lockheed Corporation (see the first bullet under the role of the franchisee).

Issues

A number of states, most notably Oregon and Washington, found that HELP Inc., was not a satisfactory agreement. Among the issues brought up by the states are the following:

- There was no provision in the agreement for Lockheed Corporation to reinvest part of their revenues to expand the system.
- The states objected to Lockheed Corporation charging trucks each time they bypassed a weigh station. Rather, the states of Oregon and Washington have pursued a different arrangement where they sell tags/transponders to the truckers to help finance installation of the readers. So truckers just pay once , instead of every time they bypass a weigh station. In response to this desire for a different business model, the Norpass program of TransCore Inc. has emerged. Under this business model a state that is a Norpass participant installs the infrastructure. Transcore provides technical and administrative services and recovers costs and

earns a profit by charging $45 per truck (power unit) to enroll in the Norpass program. Once enrolled, trucks are allowed an unlimited number of bypasses.

Lessons Learned

- The most important factor that prompted the establishment of HELP Inc. was that an intermediary organization that could grant a franchisee created a situation where on the one hand states could significantly reduce the administrative burden of inspecting motor carriers and weigh stations and on the other hand motor carriers could avoid the inconvenience and delay.

- Intermediary institutions like HELP Inc. could very well play a powerful role in simultaneously serving the interests of the public and private sectors in deploying various types of ITS. However, prerequisites appear to be a high degree of market exclusivity and being able to generate significant public and private sector cost savings and produce revenues through the sale of products and services. In the case of HELP Inc., a franchise agreement is the contract between the service provider and the intermediary organization, which in turn is under joint management of the public and the private sector. The Board of Directors of HELP Inc., and especially its Executive Committee become the regulatory body for ensuring the franchisee does not use its monopoly power to undue advantage, and to make sure the rates it charges are not unreasonable.

In summary HELP Inc. has proved to be a model for expeditious deployment of a certain class of ITS products and services when multiple jurisdictions are involved.

THE JAPANESE VEHICLE INFORMATION AND COMMUNICATION SYSTEM (VICS) A CASE STUDY[33]

INTRODUCTION

One of the most successful deployments of ITS anywhere in the world is the Japanese Vehicle Information and Communications System (VICS). This project involved a public/private partnership of the government and manufacturers of in-vehicle devices that provide real time information for route guidance throughout much of Japan. The business model was predicated upon people in Japan being willing to purchase in-vehicle devices capable of delivering real time traffic information to the driver regarding the extremely congested highway network in Japan and parking availability in Japan's largest cities. VICS was not only intended to facilitate smoother flowing and safer movement of traffic on the Japanese roadway network but also to harmonize public policy with private sector initiative.[34]

History

The development of VICS began with a feasibility study concluded in 1994 which set out the basic ideas for the program, projections of usage, benefits and costs, and a description of the institutional approach to deployment. The feasibility study projected that in ten years 10 percent of all four-wheel vehicles would be equipped with VICS devices capable of real time route guidance. Market penetration was projected to reach 24 percent in 20 years. During the 20 year time period, the economic value of time and fuel savings was projected to total 5.6 trillion yen. Total expenses including in-vehicle equipment was estimated at 1.3 trillion yen, a benefit cost ratio of about 4-to-1.

Under the technical concept traffic data is pooled in a VICS Center in Tokyo from traffic control centers elsewhere in Japan. Infrared beacons installed along highways provide two-way communication linkages with the in-vehicle devices. Traffic information is also disseminated over an FM carrier signal.

The traveler information service was first deployed in the eight prefectures of Tokyo, Osaka and the Nagoya area where traffic congestion is most severe. The goal is to provide coverage of the entire Japanese highway network.

The VICS was designed by a partnership of the government and the private sector. The government collected contributions from the manufacturers of VICS in-

---

33 *This case study is drawn from information in the ITS America Website, www.itsa.org. and abstracts in the PATH database.*

34 *Mizoguchi, Makoto and Masona Goda, "How the VICS service was successfully started," Proceedings of the World Congress on Intelligent Transportation Systems, Berlin 1997, CD-ROM.*

vehicle equipment and infrastructure based on the level of affinity and investments and fees from participants in the VICS program. Private sector contributions financed the operating cost of the VICS Center in Tokyo, the manufacture of the in-vehicle devices, and it appears the beacons, as well. The private sector was also responsible for development and marketing of the VICS initiative.

Three government agencies were the primary players: (1) the National Police Agency, (2) the Ministry of Posts and Telecommunications and (3) the Ministry of Construction, respectively responsible for traffic control, telecommunications, and highway administration.

In each prefecture the Police Headquarters is legally responsible for traffic regulations and enforcement. Consequently, the National Police Agency developed the traffic regulations digital data base containing restrictions on maneuvers such as left turn prohibitions and U-turns. The Japan Traffic Management Technology Association was nominated as the administrative organization for the development of the digital database, which covers all of Japan.

Other features of the public/private partnership were as follows:

- Standardized communication protocols were developed and applied
- Government agencies installed radio and optical beacons and supplied traffic information to the VICS center without compensation
- Government authorities work with the VICS Center regarding traffic management and the installation of radio and optical beacon systems.[35]

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

Japan has been extremely successful in deploying a nationwide traveler information system capable of providing information for real time route guidance. In spite of the recession in Japan, there has been consistent growth in the sales of car navigation units. Beginning in April 1996 when the VICS Program began offering service, 3,674,454 navigation systems have been sold in Japan. Of these, 896,738 are VICS units. A VICS unit is a receiver of real time traffic and parking information and is capable of calculating and displaying the best route at a moment. The percentage of all navigation units that are VICS units has been rising from 16.14% in 1996 to 51.72 percent in 1998.[36]

[35] *VICS Newsletter, Number 8, Auguest 1994.*

[36] *VICS Sales Center and the Electronic Industry Association of Japan (EIAJ)*

Participants in the VICS program have tried to adhere to the assumptions of the feasibility study in order to realize the market projections and public benefits of travel time and accident savings.

The public and private sector quickly agreed upon what was for the most part a natural division of roles and responsibilities.

The leadership of the national government was a crucial in spearheading the program, developing a national architecture with uniform communication protocols, and developing a nationwide digital database that can support turn-by-turn instructions.

Japanese electronic equipment manufacturers seized on the strategic opportunity this program represented to not only deploy a system within Japan but also to become worldwide market leaders in the manufacture and sales of in-vehicle navigation devices.

Lessons Learned

- The Japanese deployment of VICS has used a public/private partnership business model that relied upon private sector manufacturers to finance key portions of the system. The private sector is able to capture the willingness of the public to pay for equipment that can help save travel time by providing real time route guidance given traffic conditions on the network and by furnishing information on parking availability. The high levels of congestion have contributed to the market success.
- A critical success factor has been installation of beacons along the roadside. The government assumed responsibility for the installation of this equipment. The beacons are able to provide two way communication, on the one hand providing traffic detection and surveillance information, which is channeled to the VICS center, and on the other hand furnishing up-to-date traffic information to the vehicles that comes from the VICS center. In the United States even though there is considerable effort devoted to establishing Dedicated Short Range Communications, there is no institutional program for deploying such communication equipment, certainly not on a national or regional scale.
- Another critical success factor in Japan has been a national level public/private partnership that was able to help achieve scale economies and reasonable unit costs of manufacturing. If VICS had been employed on only a small part of the Japanese highway system, it is unlikely the equipment manufacturers would have found it economically feasible to participate in the project. The lesson learned here is that sufficient geographic coverage is essential, which in the United States would require a multi-state, regional or national approach.

TRAFFICMASTER
A CASE STUDY

INTRODUCTION

Along with VICS in Japan, Trafficmaster in the United Kingdom is one of the world's most successful deployment's of Advanced Traveler Information Systems (ATIS). Trafficmaster's business is based upon a pan-European patent involving the use above ground sensors installed on motorways to measure spot speeds. Traffic surveillance data is transmitted back to the Trafficmaster control center from where traffic information was broadcast (using paging technology) to all Trafficmaster units, typically mounted in vehicles. In-vehicle traffic information consists of a digital map of the motorway network, with icons showing locations where spot speeds are currently below expected thresholds for the time of day. Trafficmaster customers use this real time information on which to base travel decisions.

Trafficmaster was established in 1988. In 1992, it obtained the first (and so far the only) license from the UK government to install privately owned traffic detectors on the UK road network. This license is equivalent to a franchise that grants access to public-rights-of-way that enables a private firm to earn a profit while meeting a public interest obligation.

Subsequently Trafficmaster PLC was formed, giving the company the leverage to raise 10 million UK Pounds (approx. $17 million) in investment funds. This has enabled Trafficmaster to deploy an enhanced sensor network covering 7,500 miles (95%) of the UK Trunk Road network (all motorways and selected primary roads).

Trafficmaster customers payfor the Trafficmaster unit, its installation, and a monthly subscription for the information.

Recognizing that there are limitations to the usefulness of above-ground infrared sensors for measuring spot speeds on roads with traffic interruptions caused by traffic lights, roundabouts (circles), and other obstructions, Trafficmaster has deployed a new patented technology which measures point-to-point journey times using automatic license plate reading to track vehicles between fixed points a known distance apart.

This new system is known as Passive Target Flow Measurement (PTFM). PTFM uses over 7000 sensors at 2 to 4 mile intervals. Other firms must get a license from Trafficmaster.

Trafficmaster is steadily penetrating the UK market, which consists of approximately 25 million cars:

1997 182,000 units sold
1998 600,000 units sold
1999 2,000,000 units sold (projected)

Trafficmaster has been particularly successful in corporate markets, but is increasingly serving the consumer market. Profits were 4 million UK Pounds (approx. $7 million) in 1998, and are projected to double in 1999.

Trafficmaster has broadened its product range through strategic (private sector) partnering:

- Motorist organizations (Automobile Association and Royal Automobile Club)
- Motor Manufacturers (BMW, Citroen, Jaguar, and Vauxhall)
- Cellular Phone Network (BT Cellnet)
- Automotive products retailer (Halfords)
- Insurance Company (Norwich Union)
- Secure Payment Company

In March 1999, Trafficmaster reached agreement with Mannesmann Autocom (DDG is the joint venture between Mannesmann and Tegaron (Deutsche Telekom)), its German Licensee, to jointly market services to motor manufacturers and GSM network operators throughout Europe. The companies have developed a common cell-broadcast protocol to be used in the provision of telematic services by GSM. This new technology will sit side by side in the marketplace with Trafficmaster's UHF beacon technology. Both technologies will be available in Germany and the UK by the end of 1999. In order to develop the German marketplace for Trafficmaster Oracle and Traffic Alert type services, Trafficmaster has granted Mannesmann Autocom an option to acquire 49% of the issued share capital of its newly formed German subsidiary, Trafficmaster GmbH. Trafficmaster has been granted a comparable option over any subsidiary Mannesmann Autocom may set up in the UK. The two companies plan to collaborate closely in other countries in Europe.

Trafficmaster licensed Westinghouse as its partner in the US, but the license lapsed after one year.

SUMMARY AND LESSONS LEARNED

Aside from being profitable, Trafficmaster differs in a number of respects from traveler information systems in the US:

- Trafficmaster collects all its traffic data, with no data feed from public agencies
- Trafficmaster has patented its data collection technologies, requiring competitors using similar technologies to obtain a license from Trafficmaster

- In any event, no competitor has emerged to date in the UK or wider European market

Other lessons and observations are as follows:

- The success of Trafficmaster is predicated upon it obtaining exclusive rights to deploy surveillance equipment on the motorways of the United Kingdom, based upon a pan-European patent, which other firms or countries must license. In effect the United Kingdom by licensing Trafficmaster has granted this company an exclusive franchise.
- Trafficmaster is a profitable company, whose sole business is built around the provision of real time, reliable traffic information to its customers in the UK
- Trafficmaster plans to expand into other European countries, initially Germany (already licensed), The Netherlands, and France
- Trafficmaster's revenue stream comes from sales of in-vehicle Trafficmaster units, subscriptions for traveler information products, and through sponsorship and licensing deals
- Trafficmaster's customer base includes corporate and individual end-users, and its strategic partners
- Trafficmaster has formed strategic partnerships with motorist organizations, motor manufacturers, a cellular phone network, an automotive products retailer, an insurance company, and a secure payment company, to enhance the partners' product offerings
- These partnerships also enable Trafficmaster to strongly influence the 'vertical' market for traveler information, including broadcast media, the availability of Trafficmaster units in-vehicles (OEM and after sales), dissemination of traveler information to a wide range of end-user groups, and facilitation of payment options.
- Trafficmaster is diversifying its product offerings (using its traffic database) to provide security related products.

CABLE TELEVISION FRANCHISING A CASE STUDY[37]

HISTORY

The history of Cable Television offers a variety of lessons applicable to public/private partnerships and institutional arrangements for ITS. Cable Television is an example of technology that was deployed quite rapidly as a result of granting private firms access to public rights of way and allowing them the opportunity to earn a profit in return for sharing of revenues and meeting public service obligations.

Early Deployment of Cable Television

Cable began as a remote rural service in the 1950's. In the mid-1950's television broadcasting had developed in larger metropolitan areas, but there was little or no television service beyond a 50 mile radius of the largest cities. In places like Appalachia, rural New England, and the West, small entrepreneurs began to build tall television reception towers to pick up and amplify weak remote broadcast signals from big cities, and to distribute those signals on a coaxial cable wire to multiple homes in the rural community.

The idea caught on rapidly. Soon most rural and remote communities throughout the Northeast, Southeast, Rocky Mountain and Far West regions were trying to induce local or outside investors to build cable systems.

Typically, investors obtained franchises that were simple rights to occupy the public rights-of-way for the purpose of operating a cable system. The grants usually were for very long terms, often 30 or more years. By allowing free use of the public rights-of-way and by making grants freely transferable over a long period of time, the franchises were a means by which the community reduced the cost of construction and operation and raised the likelihood of profits.

Fearing competition, broadcasters in smaller urban areas outside the major metropolitan zones successfully persuaded the Federal Communication Commission FCC to restrain the growth of cable television. The FCC instituted a series of requirements on the cable operators that made operating in a smaller community with a television station very difficult. Primarily, the FCC refused to license the importation of the television signals from the major cities into these smaller markets by the cable systems. This prevented the cable operators from offering any programming not available from the local broadcaster, effectively killing the cable business except to

[37] *This case study is an update of "Cable Television – A Lesson in Franchising, " originally prepared by Nicholas Miller for inclusion in Hyman et al. (1995). "Overcoming Barriers to ITS – Lessons from other technologies". Final Report. Federal Highway Administration.*

enhance signal reception. The FCC lifted its freeze under pressure from cable operators and consumers in these smaller communities in 1972.

Most smaller cities were unschooled in the esoterica of federal communications law. Residents of these communities wanted television service equivalent to that in the big cities. Eventually consumer pressure forced the FCC to relax the freeze on small market cable operators and the FCC permitted small market cable systems to import television signals from the bigger cities. At the same time, in 1972, the FCC stated publicly that local cable franchises were valuable grants, and encouraged cities to adopt a more sophisticated set of community service requirements and a more rigorous process for selecting cable franchises.

A Model Franchise Develops

The Urban Institute, a policy research organization in Washington D.C., responded to the FCC's call for more guidance to local officials in cable franchising. Under a major ten-year grant from the Ford Foundation, the Urban Institute created the Community Television Information Center (CTIC). The first major project of the CTIC was to prepare a "model cable television franchise." The Center then hired and trained a staff of expert lawyers, planners, and engineers who provided advice on the request to individual communities considering issuing a cable television franchise. Practically all of the franchises issued in the nation from 1974 through 1978 were direct or indirect products of the CTIC and the Urban Institute.

The "Model Franchise" of CTIC immediately produced major changes in the landscape of cable television. Cities began routinely awarding franchises through competitive bid Requests for Proposals (RFP). Successful bidders were selected on the basis of the highest quality service, technology, and lowest prices offered. The Franchises were for much shorter terms, usually no longer than 15 years, which was considered adequate to recover the capital investment. And the franchises contained operator obligations with significant enforcement mechanisms and transfer controls to protect the community.

Major Metropolitan Areas Begin to Franchise

Cable TV moved slowly to the major urban centers. The reason was the nature of the service. Until 1976, cable systems had only one type of programming – retransmitted television signals. In rural areas with no television at all, cable was a great business. In smaller cities with only one or two local television stations, the importation of more signals from the nearest major city was a good business. But in the major urban centers, cable had no business because it had nothing unique to offer.

This all changed in 1976, the year Home Box Office (HBO) went on satellite. Suddenly, cable had unique programming of its own that was not available from any

broadcaster in a major city, and cable television took off as a viable business in the big urban areas.

Franchising changed as well. The larger cities had professional staffs well aware of the complexity and value of rights-of-way grants and communications networks. The business and subscriber community had observed technology in the rural environment and concluded it was capable of more than simple entertainment television. And the Urban Institute model franchise had caused enough anxiety in the cable television industry that the industry was appealing to the FCC for relief from "over-reaching" municipalities.

A few communities were slowed or diverted from charges of official or personal impropriety in franchise awards. Most jurisdictions, however, adhered strictly to their procurement regulations and followed the logic of the RFP process normally used in government procurement to get full value of the franchise for their communities. These "auctions" reached their peak in the 1978 to 1982 period.

Thus began a period of sophisticated negotiations between individual metropolitan jurisdictions and bidding operators over the "cable-related needs and interests" of the communities. CTIC and other consulting and law firms became active in advising individual client jurisdictions and sharing "lessons learned" from earlier negotiations in other communities.

The Federal Communication Commission Preempts

Cable operators were competing intensely for the major urban area franchises, offering more and more community benefits to outbid other operators. Operators turned to their national association to persuade the FCC to stop this bidding process. In response, the FCC first put a ceiling on the franchise fee a city could accept and then prohibited cash bids and non-cable related promises entirely, forcing cities to accept in-kind proposals based on video equipment, community programming channels, and operational support for those channels.

The Cable Act of 1984 and the Current Situation

The cable industry faced a series of franchise renewals from rural communities, just as franchising in major metropolitan areas was winding down in 1982. Also, major urban jurisdictions had generally insisted on the power to regulate cable rates if competition was not present in the market. The industry turned to Congress for relief.

In 1984, Congress passed the Federal Cable Act. The Act represented a compromise between major cities and the cable industry. The industry was freed from rate regulation. The cities were assured that promises made in recently issued franchises would be fully enforceable. The cable industry was given a right to a renewal process

that was so cumbersome it was unrealistic for any but the largest communities to consider non-renewal of the incumbent operator.

Given the opportunity for monopoly profits, the cable built systems throughout the country fast. In 1975, only 9,800,000 television homes of the nation had cable, consisting mostly of rural and a few urban areas. By 1986, 37,500,000 homes had cable! However, cable pricing behavior was causing consumer unrest. Cable prices had increased at three times the rate of inflation from 1984 to 1992. The promise of competition among video providers had not developed. And, with very few exceptions, the cable industry had confined itself to video entertainment, avoiding new service offerings such as security alarm, two way data transmission, and telephony, for which cable technology and consumer demand were not present.

Congress passed a new law in 1992 mandating competition and ordering nation-wide price regulation until competition might emerge. Rate regulation was ineffective and the 1996 Telecommunications Act removed rate regulation on cable programming service, effective in March 1999. The FCC is hoping increased competition will emerge with continued advances in digital technology, the rapid growth in broadband land- and space-based services, and the convergence of broadcasting, telephony and the Internet. Today cable has over 70 percent of video market. Telephone companies have established some cable television offerings in scattered communities; and significant overbuilding in communities which previously had but one cable television provider have just begun.

What the realignment of the telecommunications industry will mean for cable television companies is difficult to predict. Cable television companies, along with other public franchises -- telephone, and gas and electric utilities -- provide the "the last mile" linkage between homes and wireline communication networks. Currently cable television, with optical fiber connections and set-top boxes, offers the prospect of more rapid roll-out of broadband digital services to homes in comparison to telephone and utility companies which are more likely to rely digital subscriber line service.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

- The cable television industry has grown and prospered largely because it is founded upon a franchising business model. This is a type of public/private partnership in which the public sector grants to a private firm access to public rights of way so as to allow a private firm to earn profit in return for meeting a public service obligation and usually the sharing of revenues with the public sector.

- Franchising proved effective in the deployment of cable television in both rural and urban areas. Indeed cable television franchising got its start in rural areas and smaller urban communities.
- The granting of monopoly franchises, whether *de jure* (i.e. by law) or *de facto* (i.e. after the fact), has attracted substantial private investment and resulted in the rapid deployment of cable television.

Issues

Even though the 1984 Cable Television Act prohibits the granting of exclusive franchises, cable television operators for all intents and purposes have had exclusive rights, largely because of first mover advantage, and the high cost of a competitor entering a market already dominated by a service provider. Consequently all the key issues concerning limiting the abuses or the shortcomings of monopoly provision are relevant:

- Unreasonable rates of return on investment
- Excessive rates charged to consumers
- Barriers to market entry on the part of competitors
- Potentially strong favoritism toward the incumbent service provider upon renewal
- Lack of innovation and service improvements in comparison to a more competitive environment.

Franchise agreements or a regulatory framework must explicitly address all these issue areas in a way that protects the public interest for franchising to be a successful business model.

Granting of exclusive franchises runs counter to the general trend of deregulation and fostering competition in industries that got their start under a regime of monopoly franchises. However, this general trend does not eliminate the fact that granting franchises has attracted substantial private investment to new business opportunities where access to public rights-of-way are required.

Lessons Learned

- Franchising holds considerable promise for ITS deployment based on the experience of the cable television industry.
- If government pursues franchising as integral part of enhancing public/private partnerships for ITS, care is required to minimize the undesirable side effects of granting exclusive rights. Government should allow competition to play a role at the appropriate times, during the procurement process, upon expiration and

renewal of a franchise, and when an industry has matured to the point where competition is supportable.

- The creation of a model franchise agreement for cable television helped demystify the franchising process. The model franchise agreements for Advanced Traffic Management Systems and Advanced Traveler Information Systems prepared for FHWA might play a similarly useful role in the deployment of ITS in Wisconsin.
- A franchise is a means of allowing the public and private sector to capture and share the value of public rights-of-way for telecommunications and service offerings. During the history of cable television government managed to capture this value to varying degrees and in different ways. Originally rural communities exchanged access to public rights-of-way for service. Later in the history of cable television there was a period in which franchises were nearly auctioned to the highest bidder. Revenue sharing has occurred and service providers have also offered in-kind payments. The FCC at one point put a ceiling on the franchise fee a city could accept and prohibited cash bids and non-cable related promises.

ELECTRIC UTILITIES
A CASE STUDY[38]

INTRODUCTION

The evolution of the electric utility industry from its inception to the current effort to deregulate the industry offers many lessons for ITS. The richness of the lessons that can be learned stem partly from the fact the electric utility industry can be divided into generation, transmission and distribution. These lessons pertain to such issues as use of public rights of way, how to promote rapid deployment of a technology, regulation of monopolies, and promotion of competition.

History

In the late 1980's shortly after Charles Brush invented the arc light, the New York City Board of Aldermen awarded a franchise to none other than Thomas Edison to develop and implement a central power station and distribution system for New York City. By the mid 1890's power companies in cities across the United States were furnishing electricity for street cars during the days and street lights at night and were seeking additional uses of electricity to exploit the economies of scale of large, centralized generating plants.

Some cities fostered competition, granting franchises to all comers in the belief that by having many electricity service providers, consumer rates would be lowest. Because of the intense competition, potential investors shied away from making the major capital investments, with the result that municipalities launched their own electric systems. By 1902 an industry originally dominated by private companies found that of 3,620 central electric stations in operation, 2805 were privately owned and 815 were owned by municipalities. Competition intensified as Congress allowed hydroelectric dams built with public funds to sell surplus electric power and gave preferences to municipal purposes, a practice that has since been codified in 30 subsequent statutes.

Near the turn of the century, Sam Insull of Chicago Edison and President of the National Electric Light Association argued against competition in the electric power industry and advocated that granting a monopoly to one entity in a territory would result in the best service at the lowest price. A few years later the National Civic Federation issued a report saying that electric utility ownership should be determined by each community. However, before long regulated monopoly franchises were being awarded as advocated by the NELA, and by 1916 public service and utility

[38] *Much of this case study is condensed from Hyman e.t. al. (1995). "Overcoming Barriers to ITS – Lessons from other technologies".Task B Report . Federal Highway Administration.*

commissions responsible for the regulation of electric utility franchises had been established in 33 states. Nonetheless, from the beginning there were doubts that regulatory agencies could protect consumer interests. Historically, customers of privately-owned electric utilities have paid higher rates than customers of publicly owned systems Regulatory agencies are typically responsible for issuing certificates of convenience and necessity to permit entrance into a market, regulating rates and return on investment, making major additions to generating plants, and abandoning facilities or service.

The monopolies prospered, holding companies emerged as mergers and acquisitions occurred, and soon the holding companies had numerous investor-owned utilities under common ownership. Eventually 15 private holding companies produced about 85 percent of the nation's electricity while the number of public systems declined from over 3000 to about 750. Private companies were able to expand by taking advantage of economies of scale whereas municipal systems could only provide service within their boundaries. By 1923 municipal utilities were meeting more than a third of their power requirements by purchasing power from investor owned utilities.

During the depression years the Public Works Administration, the Bonneville Power Administration, and the Rural Electrification Administration were established in order to stimulate employment through construction of infrastructure including the development of public and cooperative power systems. The establishment of the Public Works Administration was significant for establishing a loan and grant program to state and local governments for various public welfare and infrastructure projects and establishing the acceptability of revenue bonds for financing these investments. The 1935 Federal Power Act was enacted to regulate the rates for interstate transmission of bulk (i.e. wholesale) power.

During this period the federal government sought to break up the investor owned utilities. The federal Government enacted the Public Utility Holding Company Act of 1935 and the Federal Power Act of 1935. The first piece of legislation sought to decentralize control of the nation's power supply by breaking up conglomerates and prohibiting banks from having controlling shares in utilities. The effect of the legislation is debatable since Congress granted exemptions that allowed nine major holding companies to remain intact.

Private utilities did well until 1965, when concern was expressed that over-investment was occurring in electric power due the nature of electric utility regulation and that increasing returns to scale might not continue. By 1965 it was apparent that the cost of electric power was no longer declining as demand grew, the industry began to raise rates, demand started to fall off, which started to put upward pressure on rates in order to cover investment costs.

Previously, the Eisenhower Administration adopted a policy of no new starts regarding federal power projects, while at the same time municipalities had begun to organize into power pool arrangements to achieve economies of scale and keep up with the private sector. Indeed there was a period of public/private partnerships developed as a result of power pooling arrangements. During the 1950's and 1960's, especially with the advent of nuclear power, pooling among privately and publicly-owned utilities allowed joint exploitation of resources.

Blackouts in 1965, including one leaving 30 million people without power, raised issues of reliability and resulted in the establishment of the North American Reliability Council to oversee power planning. By the mid 1970's nearly all of the federal, private, public and rural coop power systems were managed by 27 regional power pools.

The 1970s brought severe shocks to the power industry with the oil crisis, the core meltdown at the Three Mile Island nuclear power plant, the default of the Washington Public Power System on its bonds, the clamor for energy conservation, and acute concern expressed over air pollution caused by coal fired fire plants. Orders for 103 nuclear power plants were cancelled and there were virtually no new starts thereafter.

In 1979 Congress enacted the Public Utility Regulatory Act which required state regulatory agencies to consider six rate making and five other standards that would directly affect investor-owned utilities and large public utililities. These included cost of service, declining block rates, time-of-day rates, seasonable rates, load management techniques, master metering, and information to consumers.

In granting utilities permission to add generating capacity, during the 1970's and 1980's regulatory commissions were forced to confront new economic realities, partly resulting from the success of new approaches to pricing energy, conservation and non-traditional power producers such as wind, solar, biomass, and co-generation. Due to the growth in capacity supplied by small or independent power producers, the issue of whether bulk transfer of power (wheeling) should be accessible on demand or be made mandatory was raised repeatedly before the Federal Energy Regulatory Commission.

This and similar debates regarding the feasibility of competition in the delivery of energy to commercial and residential customers set the stage for the deregulation of the electric utilities in the 1990s.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES AND LESSONS LEARNED

Accomplishments

Granting of franchises, which allowed power companies to access public rights of way to install street cars and lighting, ignited the industry. Originally electricity

service was provided to municipalities, but starting in 1935 as a result of the establishment of the Rural Electrification Administration, the rural areas of the country were also soon served.

Publicly owned power companies (over 2000 in 49 states) outnumber privately owned power companies (approximately 200) by more than ten-to-one. Rural electric utilities number over 900 and comprise the second largest group.

By the late 1980's privately owned electric utilities dominated the industry in terms of kilowatt hours of generation and sales and the largest percent of total power, amounting to about 77 percent of the total. Three fourths of the nations 103,000,000 customers are served by private utilities, and only one fourth by public utilities Publicly owned utilities distribute more power than they create and purchase power from privately owned utilities.

Privately owned utilities control the majority of the nation's long distance transmission lines.

The percentage of electricity generated by privately owned utilities varies widely from state to state even though privately owned utilities generate three quarter's of the nation's electricity.

Non-utility electric generating capacity has grown rapidly in the last two decades and provides important alternative sources of power.

The industry has gone through a number of vicissitudes favoring monopoly and competition at various times.

Lessons Learned

Strategies designed to encourage the rapid deployment of ITS need to apply a reasoned approach over the long run to avoid swinging back and forth from an emphasis on competition one day and government control the next.

The establishment and growth of the electric utility industry in its early years has a close relationship to transportation as a result of the direct connection between the development of the electric utility industry, electric trolleys, and street lighting.

Moreover, the granting of access to public rights of way in return for allowing private industry to earn a profit and meet a public service obligations attracted private capital and helped jump start the industry, even though the early years were plagued by excessive competition. The establishment of a regulatory agencies to regulate rates, return on investment, and entry and exit into markets helped temper the monopoly power that investor owned utilities ultimately accumulated.

There are strong parallels between electric utilities and ITS. Central power stations can be seen as an analogue to of traffic management centers, transmission lines the analogue of communication trunk lines and wide area networks, and distribution systems the analogue of the part of ITS that reaches into businesses and homes.

Ownership of one or more portions of the triad of generation, transmission and distribution confers on the owner potential market power regarding other portions of the triad. The same is probably true for ITS. This means, for example that monopoly power over the control of the generation of traffic information potentially can result in undue influence on the price charged to firms of public agencies implementing or selling ATIS systems and user services. It is one thing if a government agency that owns a traffic management center decides that traffic data should be distributed free to all comers. It is another thing if a franchise monpoly is granted to a single firm to set up a traffic management center and the firm charges prices excessive in relationship to the cost of generating traffic information.

As in the middle years of the electric power industry, municipalities and other governmental entities deploying various types of ITS will struggle to achieve the cooperation necessary to achieve economies of scale and system reliability. The challenges of interjurisdictional cooperation are enormous. The electric power industry addressed this problem in part by establishing Public Utility Districts and power pooling arrangements.

In the case of ITS, the question is whether Metropolitan Planning Organizations or various types of public/private partnerships can serve this function and what legal requirements and authority might be necessary in addition to that which exists today. Significant questions remain whether localities will be willing to sacrifice home rule and autonomy to subsume certain transportation responsibilities under the umbrella of a regional agency or some type of public/private partnership.

The electric power industry was slow to address rural needs, resulting in remedial action by Congress. ITS America, the federal government, and the states appear not to have made the same mistake with ITS and have undertaken a rural ITS program.

Even if ITS is rapidly and successfully deployed, it will always be subject to external changes or unexpected structural change that could suddenly arrest its development just as happened in the electric utility industry beginning in the mid-1960's. The ITS community, including those responsible for implementation, needs to continually engage in strategic planning that assesses the threats and opportunities to successful deployment and respond to the threats.

Private utilities fit within an institutional framework that appears to have similar complexities to the framework within which private companies will function in deploying ITS. This institutional framework is characterized by a large number of actors—federal, state, local and private sector.

AUTOMATED VEHICLE IDENTIFICATION (AVI)/SMART CARD YELLOWSTONE NATIONAL PARK A CASE STUDY[39]

INTRODUCTION

The Automated Vehicle Identification (AVI) project at Yellowstone National Park is part of the Greater Yellowstone Rural ITS Priority Corridor project being headed by the Western Transportation Institute. The Greater Yellowstone Rural ITS Priority Corridor is being completed in three phases. Phase One consisted of preparing a rural ITS Deployment Plan emphasizing long term full deployment of ITS technologies. Phase Two is the preparation of a Showcase Program emphasizing a short term demonstration of currently existing rural ITS technology. Phase Three is a limited demonstration of proven rural ITS technologies that can be implemented. The main focus of the ITS Priority Corridor is to make rural travel safe, dependable, and convenient.

The Automated Vehicle Identification project is being showcased in Phase Two of the ITS Priority Corridor. One of the criteria in the selection of the projects to be showcased was "Does the project showcase solutions that may attract increased public or private sector funding from national sponsors?" The Steering Committee, composed of state and local government and private stakeholders, designated five projects with proven rural ITS technologies to be showcased, including AVI. The AVI project is designed to be a new application of an existing technology. The other projects to be showcased include touch screen interactive kiosks, incident reporting hotline signing, dynamic warning variable message signs, and developing a regional incident management plan. The AVI and interactive kiosk projects ranked highest in the potential for public/private partnerships. Current schedules show the five projects will be constructed and operational before the winter of 2001.

Project Description

History

The Automated Vehicle Identification (AVI)/Smart Card system is proposed to be installed at two of the Yellowstone National Park entrance gates (Cooke City and Gardiner) for transit users, employees, concessionaires, and local residents who are

[39] *Information and data utilized in the preparation of this report came from the following sources: "Greater Yellowstone Rural ITS Priority Corridor Project," Western Transportation Institute, October 1998 as well as conversations with Stephen Albert, Western Transportation Institute; Pat McGowen, Western Transportation Institute; and a representative of Amtech, Division of Intermec Corp, A UNOVA Company.*

impacted by tourist congestion. Future phases are planned for the Yellowstone National Park gate in West Yellowstone and other entrances and gates in Grand Teton National Park at Moral and Moose. The ultimate goal is to create an electronic pass that will be the prototype in Yellowstone National Park and then expanded to other Parks. The initial concept will be to provide annual pass holders with an electronic tag to be mounted on the windshield of their vehicles, and they will be allowed to pass through a special gate that reads the electronic tag. This will help to reduce the congestion, by removing these vehicles from the lines of tourists trying to enter the park. The ultimate goal is to have the electronic tags available for everyone's use, although it would not be practical or cost beneficial for a one-time user.

The project was originally scheduled to begin in the summer of 1999, but obstacles in obtaining a signed contract have pushed the schedule for a summer of 2000 implementation.

Issues

One of the main barriers to the implementation of the AVI project is setting up the contract. The public parties, Montana Department of Transportation and the Yellowstone National Park Board, traditionally have procured services with an RFP process, resulting in competitive bids. This project was initiated by Yellowstone National Park sending letters explaining the proposed project to three firms they felt were experienced in the technology needed to develop the AVI project at Yellowstone. These firms were asked to respond if they were interested in developing a partnership to undertake the project. From the interest received, Amtech was selected as the primary private partner.

Although Amtech has had previous experience with public/private partnerships, the public entities, Montana DOT and Yellowstone National Park have not. This barrier has resulted in the public partners learning as they proceed through the project, which caused them to be twice as cautious, taking twice the amount of time. In order to draft an agreement as a sole source contract, functional requirements needed to be established. These functional requirements need to be approved by the Yellowstone National Park Board prior to writing the contract. The requirements are currently being reviewed by both public and private parties and are expected to be approved shortly.

Another issue to be addressed in the implementation of this project is leadership. In order for a new procedure to be undertaken, someone has to take the initiative to keep it going. Montana DOT has found the process of setting up a partnership to be very time consuming, mainly because the "champion" from Yellowstone National Park is completing the leadership duties in addition to his regular responsibilities. In subsequent projects, funding of a portion of the "champion's" salary will be requested

as part of the project so that the responsibilities are incorporated into the leader's job description; not completed as a side effort.

Funding for this project is coming from a Federal Highway Administration grant, which is being given to the Montana Department of Transportation, then being administered by the Western Transportation Institute and passed through to Yellowstone National Park and Amtech. The process for distributing funds, without a lot of added overhead costs, was a new endeavor for this group.

One issue in setting up public/private partnerships, dealing with advanced technology, is the decision to implement quickly, with a less sophisticated system, or taking a longer time to custom design special features applicable to the individual project. Yellowstone National Park is dealing with this issue in both the AVI and interactive kiosk projects. Advanced technology concepts are changing so rapidly that there are risks to be considered either way. Public agencies don't want to have dinosaurs after only two years that are not usable to the general public, yet if they wait to develop new concepts, by the time they are implemented, there will be more new technology. Risks and rewards have to be evaluated in conjunction with the benefits and immediate needs.

Summary

The potential benefits of the AVI system include reduced park delay at gates and reduced staffing requirements at the entrances. Reduced staffing requirements are anticipated because of fewer vehicles requiring staff time to check passes, sell passes, and provide park information. The technology being proposed for the AVI project at Yellowstone is a new application of technology that is currently in use in other areas of the country. The National Park Service is hopeful the concepts will be applicable all across the United States.

CONCEPT HIGHWAY MAINTENANCE VEHICLE A CASE STUDY[40]

INTRODUCTION

In 1995, three states joined together to form a consortium to address the issue of designing a new vehicle to enhance the methods of providing winter maintenance tasks, with advanced technology. The idea was initiated by Leland Smithson, Deputy Director of the Maintenance Division, Iowa Department of Transportation, while on a 1994 trip to Japan, observing the high tech winter maintenance trucks which had been developed in Japan. The goal of the project is to study the feasibility of using advanced technologies from other industries to improve the efficiency and safety of winter highway maintenance vehicle operations. With limited highway maintenance funds, the concept of forming public/private partnerships to complete the research and development and to stretch available funding was a key issue in initiating the project.

PROJECT DESCRIPTION

History

The project to develop an advanced concept highway maintenance vehicle was initiated in 1995 by the Iowa Department of Transportation, and was quickly joined by the Michigan Department of Transportation and the Minnesota Department of Transportation. A consortium of the three DOT's, supported by the Center for Transportation Research and Education (CTRE), an Iowa State University center, with participation by the Federal Highway Administration was formed to define and develop the next generation highway maintenance vehicle. Initially the project was divided into three phases, eventually being expanded to four phases. Phases I and II have been completed, and Phase III is currently underway.

Potential private partners were invited to attend a workshop where the research project was explained and ideas were generated. After attending the workshops, interested private partners were asked to complete a "Partnership Interest Form". Ten initial private sector partners were assigned to one of the state teams. The inclusion of private sector partners into the consortium was a key element of the project. Private sector

[40] *Information and data utilized in preparation of this case study came from the following sources: "Concept Highway Maintenance Vehicle, Final Report: Phase One," Center for Transportation Research and Education (CTRE), April 1997; "Concept Highway Maintenance Vehicle, Final Report: Phase Two," CTRE and Iowa State University, December 1998; "Memorandum of Understanding – Highway Maintenance Concept Vehicle: Phase Three, CTRE, 1999; "Computers Transform Winter Maintenance," Better Roads Magazine, April 1999; "Winter Maintenance for the New Millennium," FHWA FOCUS Newsletter, October 1998; conversations with John Scharffbillig of Minnesota DOT, Larry While of Michigan DOT, Lee Smithson of Iowa DOT, and Bill McCall of CTRE.*

partners brought many assets to the project, including specialized expertise, business connections, manufacturing facilities and the potential to participate in the funding and production of both the prototype and fleet vehicles. The private sector partners participating in this project include:

Boyer Ford, Minneapolis, MN
Bristol Company, Broomfield, CO
Component Technology, Des Moines, IA
Federal Signal Corporation, Tinley Park, IL
Foseen Manufacturing & Development, Radcliffe, IA
Global Sensor Systems, Mississauga, Ontario, Canada
Innovative Warning Systems, Minneapolis, MN
Monroe Truck Equipment, Monroe, WI
Navistar International Corporation, Fort Wayne, IN
O'Halloran International, Des Moines, IA
Raven Industries, Sioux Falls, SD
Roadware Corportation, Paris, Ontario, Canada
Rockwell International, Cedar Rapids, IA
Sprague Controls, Canby, OR
Tyler Ice (Tyler Industries), Benson, MN

Phase I

The focus of Phase I was to determine the desired capabilities for a concept highway maintenance vehicle and predict the feasibility of assembling prototype vehicles.

Phase II

Phase II consisted of the development, operation, and proof of concept of prototype winter maintenance vehicles. Three vehicles (one for each state) were manufactured and tested.

Phase III

Phase III consists of evaluating the results from Phase II and providing direction for a second series of prototype maintenance vehicles in each of the participating states.

Phase IV

Phase IV is planned as the field evaluation of 30 vehicles (10 in each state) which are similarly equipped with the functionality selected in Phase III and to develop a draft vehicle procurement specification.

Issues

One of the first issues addressed in this project was determining funding sources. Funding was necessary for the research, technical support, ongoing expenses, as well as for the equipment to be provided for the prototype vehicles. Different options for funding were explored, with recommendations for the "study" portion of the project to be funded as a pooled fund study with Iowa as the lead, making requests to the Federal Highway Administration for Special Projects and Research Funds, and administering the research contract. Private sector partners were explored for financial participation in the concept vehicle equipment.

The opportunities for private partner participation were facilitated by steering committee members in a workshop. The purpose of the workshop was to explain the project to the private sector and to solicit interest. Potential partners were identified by participating states, the ITS America membership directory and CTRE contacts. Over 200 invitations were sent to the workshop, with 49 people attending. Attendees were divided into three groups – vehicle manufacturers, communication/technology providers and equipment vendors for discussion on the technologies available for the prototype vehicle. The workshop allowed the DOT's to meet with equipment providers and discuss the potential for advanced technologies and allowed the private sector attendees to provide direction to the consortium. At the end of the workshop, the private organizations were given "partnership interest " forms to indicate the level of participation they wanted to supply in terms of time, equipment, technology and funding.

During the workshop to solicit interest from private partners, the issue of obstacles to public/private partnerships was discussed. Most participants had not been involved in public/private partnerships in a formal arrangement, but had worked together on projects in the past. The main obstacle identified was that public agencies do not offer any loyalty in return for the investment made by private companies in partnerships. Public agencies acknowledged the challenges they face in the procurement process due to state statutes and policies. Most participants agreed that a solution to avoid the loyalty issue is for public agencies to pay the private organizations for the development of hardware up front.

Another issue in the Concept Vehicle Maintenance Project was the lack of a formal agreement between the public and private partners. A formal agreement was maintained by the State DOT's involved in the consortium, but the private partners joined the project to learn from the State DOT's, get exposure for their new ideas and products, and to obtain referrals from interested parties that make inquiries. Despite the lack of a formal agreement, the project is working very well. Successful prototype vehicles have been constructed, tested and are in the process of being refined for further evaluation.

Summary

Although this project is not complete, the concepts practiced in the early phases have the potential to provide valuable information on the development of public/private partnerships. This project was completed with a lead agency with funding from the Federal Highway Administration as well as resources from private partners including time, staff, equipment and funding. There is a formal written contract between the public sector partners, but there is no formal agreement or contract between the public and private entities. Yet the project is proceeding ahead, gaining valuable data and completing research which will benefit both the public and private organizations, as well as the maintenance vehicles in the states that will use the advanced technology.

MINNESOTA MAYDAY PLUS
A CASE STUDY[41]

INTRODUCTION

There have been numerous Mayday ITS projects undertaken across the United States. The Minnesota Mayday Plus project is an extension of a public/private partnership project in western New York State which tested an automated collision notification (ACN) system and a crash event timer (CET) device. Minnesota Mayday Plus is addressing some of the operational issues that arose during the testing in New York State.

Minnesota Mayday Plus has been initiated to develop and test automated emergency message reception and routing systems in the Rochester, MN area to help deal with the increasing workload, and to take advantage of the improved information becoming available. It is a $2.5 million public/private partnership to develop and test an integrated emergency response infrastructure capable of accepting data and voice messages from various Mayday systems. It integrates global positioning, in-vehicle sensors, satellite and cellular phone technology, and emergency response systems to provide automatic notification of crash location and severity to 911 professionals.

The main goal of all Mayday systems is to save lives. Early notification of crashes and the ability to estimate its exact location, as well as its severity and extent of injuries can have a significant impact on the provision of prehospital care and treatment. Factors responsible for higher fatality rates in rural areas, where fewer miles are driven, include longer notification and response times. Mayday systems are being designed and tested to reduce the notification times and to provide accurate information as to the location of a crash, even if it occurs when no one has witnessed the crash.

PROJECT DESCRIPTION

History

The Mayday Plus Initiative is a public/private partnership involving the Minnesota Department of Transportation, Minnesota State Patrol, Mayo Clinic, and Calspan, an operating division of Veridian Corp. The Mayday Plus project began in 1997, and is in the process of finalizing the system development. The operational test

[41] *Information and data utilized in preparation of this case study came from the following sources: 'MN Mayday Plus: A First Step Toward an Integrated Public/Private Mayday System," Minnesota DOT & Calspan SRL Corp.; "Mayday Plus Facts and News Release, "Minnesota Guidestar; Satrosielec, Edward A., Douglas J. Funke and Alan J. Blatt,"Automated Crash Notification," TR News 201, March-April 1999; and conversations with Ginny Crowson of Minnesota DOT and Doug Funke of Calspan SRL Corp.*

period will begin in August, 1999. The operational test period is expected to last six months with 120 test vehicles. An independent evaluation of the system will be conducted by Castle Rock Consultants, and will focus on the commercial extent for market penetration; the ability to influence development of national Mayday standards; the level of public and private sector buy-in; the impact on existing highway emergency response systems; and the ability to satisfy end user needs. The Mayday Plus partnership includes organizations that are currently involved in responding to highway emergencies in southeastern Minnesota, and many organizations who are developing, deploying, and integrating technologies for providing more effective crash notification nationwide.

The goals of Mayday Plus are to: (1) demonstrate that automatic crash detection and crash severity/injury estimation infrastructure can work with market-based commercial systems using cellular and satellite phones; (2) demonstrate how automated collision notification can reduce emergency response times; (3) provide a technical and infrastructure foundation to help "jump start" transition to market-driven operation; (4) develop and implement Mayday message reception and routing infrastructure in southeast Minnesota; and (5) build consensus and acceptance for use of open Mayday communication formats and protocols.

Issues

The procurement process to initiate the Minnesota Mayday Plus project was similar to all publicly funded procurements in the State of Minnesota. The vendor was solicited through a Request for Proposal (RFP) process. MnDOT specified that parameters of the project, solicited vendors, reviewed the proposals, and selected the vendor best suited to complete the project. According to the MnDOT, one of the biggest barriers to public/private partnerships was the length and restrictions of Minnesota's RFP and contracting processes. These are different in each state, but can be overcome by involving local stakeholders (DOT, local government, law enforcement, etc.) who will be working on the project and have the local stakeholders clearly define the project parameters, and their needs and expectations. Calspan agreed that the contracting process is a barrier in developing public/private partnerships. They feel the issues of ownership rights and issues of liability are unique to public/private relationships, although they are not an insurmountable barrier. They take some time to negotiate and to find terms that satisfy both the public and private interests, which can be quite different.

Another barrier to public/private partnerships identified by Calspan is that the marketplace is very fluid. They stated that successful companies are those able to adapt their products and strategies to changing market conditions and competitive factors. Public/private partnerships involve contractual agreements between parties based on market factors in place (and projected) at the time of the agreement. It can become difficult to adapt to changing market conditions and still meet contractual

requirements. This barrier was overcome in Mayday Plus by being able to negotiate modifications to the contract when changing conditions require. Also, new products involve development work. It is difficult to know exactly how much effort will be required, especially when new technology is being applied. Contractual arrangements that recognize and can adapt to uncertainties are needed. Some alternatives are allowing flexible cost, schedule, and/or scope within agreed conditions, such as using a cost plus fixed fee contract.

Another issue in projects of this type is moving from operational testing to operational deployment. The ultimate goal of operational tests is to gain information so that the project can be moved to deployment. Moving from operational testing to operational deployment involves factors outside of the control of the test project. For example, communications standards that enable efficient communications between the Mayday Plus system and commercial products have been slow in developing and it is difficult to get buy-in from commercial Mayday vendors. As the pieces fall in place, progress can be made towards operational deployment.

In conjunction with other Mayday projects, Mayday Plus faces the obstacle of lack of awareness of automated crash notification processes. Widespread deployment of automated crash notification technology is becoming more feasible with the growth of wireless communications in the United States. Also the costs of both in-vehicle crash notification elements and airtime decreases, these systems will become more affordable, and the mass market should open up. Currently General Motors is in the process of launching a campaign to demonstrate the features and benefits of its ONSTAR service. Automated crash notification, with its ability to transmit crash severity data and interface directly to the public safety answering post, represents a significant advancement over other crash notification features. As the equipment becomes more available, the interface between the public service answering posts and emergency service providers will become more crucial. Standardization of equipment and protocols, training for dispatchers, and jurisdictional boundaries are just a few of the issues, which will have to be addressed.

Benefits for both public and private parties are received as a result of public/private partnerships. For the Mayday Plus project, it is a cost share project – MnDOT is paying approximately 75% and Calspan (Veridian) is paying 25% of the project costs. The most obvious benefit to this is that neither party is paying for 100% of the development, test, and evaluation costs. Another benefit of public/private partnerships include private sector companies being able to get products to market quicker, with fewer design modifications after introduction to the general public. Public/private partnerships recognize that both parties benefit if products related to public safety, mobility, communication, etc. are successfully introduced. The benefits can be far reaching – better services, improved safety, job creation, saving lives.

Summary

The Minnesota Mayday Plus project is a coordinated effort of public and private organizations in determining solutions to the challenges of providing efficient highway emergency response, particularly in rural environments. There is a great opportunity for emerging computer, database, location, and communication technologies to improve the way emergency services are dispatched and managed. These improvements will allow existing emergency response resources to be used more efficiently and effectively in handling emergencies, and will ultimately save lives. However, because these solutions involve different agencies representing different governmental levels of the public sector, and numerous private sector organizations, the solutions will take time and require dialogue and cooperative involvement of all involved.

THE AURORA PROGRAM – AN EXAMINATION OF INSTITUTIONAL ISSUES RELATED TO ROAD WEATHER INFORMATION SYSTEMS (RWIS) A CASE STUDY[42]

INTRODUCTION

This case study summarizes the institutional issues related to Road Weather Information Systems (RWIS) throughout the world. The majority of the information contained in this case study was obtained from a paper completed by Castle Rock Consultants for the Aurora Program in August of 1998. The study was completed in two phases – a review of existing documentation on RWIS institutional issues and a survey of Aurora Program members.

History

A Road Weather Information System (RWIS) can be defined as a combination of technologies that uses historic and current climatological data to develop road and weather information to aid in roadway related decision making to improve the efficiency of highway maintenance operations. The data can also be used to distribute effective real-time information to travelers. RWIS contains three main elements:

- Environmental Sensor System (ESS) technology to collect data
- Models and other advanced processing systems to develop forecasts and portray the information into an easily understood format
- Dissemination platforms on which to display the information

Data, such as weather data (air temperature, amount and type of precipitation, visibility, dew point, relative humidity, wind speed) and surface data (pavement temperature, subsurface temperature, surface condition, amount of deicing chemical on the roadway, and freezing point of the road surface) are collected by sensors placed at the roadside or in the roadway itself. Remote processing units (RPUs) contain some or all of the road and weather sensors, some RPUs have several sensors connected to them. RPUs have limited capabilities so data is transmitted to a central server (CPU) which is usually located in a highway maintenance facility and provides communication, collection, archiving, and distribution of information. The data is used to provide forecasts, which then can be used to predict site-specific weather and pavement conditions. Maintenance personnel use the information to monitor and plan operations such as scheduling personnel, timing operations, selecting roadway control materials and deploying equipment cost-effectively. Also, this information can be used by the traveling public through various media such as the Internet, television, kiosks,

[42] *Castle Rock Consultants, Review of the Institutional Issues Relating to Road Weather Information Systems (RWIS), Final Report, prepared for the Aurora Program, August 1998.*

telephone information centers, and truck stops, to provide travelers with effective real-time information and forecasts on surface conditions.

The Aurora Program, which began in 1996, is an international partnership of public agencies who work together to perform joint research activities, development and deployment in the area of RWIS. Their vision is to "deploy RWIS to integrate state-of-the-art road and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures". The following agencies are Aurora members:

- Iowa DOT
- Federal Highway Administration
- Ministere des Transports du Quebec
- Minnesota DOT
- New York State DOT
- Ontario Ministry of Transportation
- Pennsylvania DOT
- South Dakota DOT
- Swedish National Road Administration
- Virginia DOT
- Wisconsin DOT

Funding for the Aurora Program comes from contributions from its member agencies and in-kind contributions. Future funding from private sector contributions and federal grants are being pursued.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES, AND LESSONS LEARNED

The first phase of the study included a review of existing documentation of RWIS institutional issues and the second phase consisted of gathering information from Aurora Program members regarding the identified institutional issues. The four categories of frequently encountered issues related to RWIS are:

- Funding
- Staffing
- Partnerships
- Expandability, transferability, and compatibility of RWIS

Funding Issues

The first issue identified concerned the source of funding. This was of particular concern when more than one agency, state, or other entity is involved in funding a system. A resolution to this issue is to clearly define and agree upon the financial responsibilities for the participating agencies prior to the start of a project. The other issue identified in this category is the competition for funds. It is generally perceived that there is a lack of funding for RWIS projects, thereby creating more competition for the limited resources. Proposed resolutions to this issue included creating new tax laws which would support funding of RWIS and to develop creative funding schemes. Creative finance options could include using a state infrastructure bank, industrial revenue bonds, lease arrangements with payments tied to financial performance of private sector partners, and the profit sharing on the sale of value-added products and services. Another suggestion, with recognized limitations, was to have initial costs Federally funded to help promote a nationwide system. In all areas, it was noted that the benefits of any system must be quantifiable and well documented to justify funding.

Staffing Issues

The issues related to personnel involved the acceptance of RWIS by maintenance operators and the fear of losing jobs. Issues regarding maintenance operators included resistance to change and hesitation in learning how to use new technology. It was also noted that there was a belief that the current system for maintenance of snow and ice conditions was sufficient to meet the needs and working fine so there is no need to fix something that isn't broken.

Another issue regarding staffing is attitude, including general feelings of cynicism, a lack of knowledge on what RWIS can accomplish, and lack of appreciation for the benefits of RWIS. In RWIS research led by The Matrix Management Group, decision-makers at lower levels deemed RWIS implementation to be an "upper-management directed" initiative. In general, maintenance personnel were found to have pride and dedication to their existing ways of performing tasks. Winter storms were found to be an opportunity to work overtime and increase their wages.

Upper management raised the issue that it was too expensive to access RWIS data remotely by portable computers on the road or at home. Consequently decision making could not occur at the proper level. Upper management also identified an issue involving personnel rules and labor agreements. They felt such rules and agreements were too restrictive and stifled creativity.

Most of these issues could be addressed by initiating proper training at all levels and education of both management and maintenance workers on differing levels of RWIS implementations and benefits to create more understanding and support. Systems should be user friendly and flexible to gain more widespread user acceptance.

Partnership Issues

Partnership issues were broad and overlapped other issues such as funding, liability, and ownership. Between public agencies most of the concerns dealt with funding and cost sharing, and timing of implementation. The public sector was concerned over private sector monopolization of data; the private sector had concerns over giving data away. The role of each of the partners was also an issue and needs to be clearly defined and agreed to before initiating partnerships.

Some of the barriers that were of concern involved the private sector profit-driven market, namely maintaining competition and how to make money with RWIS. Another issue concerned the legal and liability aspects of freely disseminating information to the public. Vendors were worried about the liability due the improper use of data. Several private sector companies voiced a need for government agencies to provide indemnification. Forecasts of road conditions can be perceived as constructive knowledge, requiring agencies to take action to correct deficiencies. If an accident were to occur in an area where RWIS sensors detected ice and the DOT did not take adequate measures to control the situation, the DOT could be at fault. Another twist is that RWIS technologies are on the forefront of snow and ice control and by not implementing them, DOT's could be put in a situation of liability.

The resolution to the majority of the partnering issues is good communication and mutual understanding, regardless of the types of parties involved in the partnership.

Expandability, Transferability, and Compatibility of RWIS Issues

An important issue is the compatibility of systems within a state and between states. There was also concern over data accessibility issues such as the centralization of data into an information hub and determining who should have access to the information.

Compatibility issues must be addressed with specifications and protocol formats. In order for RWIS to be compatible, transferable and expandable, the standards, architecture, and protocols must be agreed upon prior to any other implementation activities. The acceleration of standards will create competition and lower the cost per unit of RWIS and may resolve other issues. Technology is also an issue for RWIS. With the rapid change in technology it is hard to stay abreast of the changing times and keep current. Developing systems that can be upgraded may help solve these concerns.

Summary

Members of the Aurora consortium were surveyed regarding four categories of institutional issues. The four main conclusions included:

- Finding sources of funding for RWIS, especially in the initial stages of implementation, is a major issue.
- There is a general reluctance of personnel to accept RWIS innovations.
- Public/private partnerships to implement RWIS have not been widely attempted.
- Standardization of system protocols and specifications are a major issue to agencies.

Recommendations from the Aurora study included the following:

- Draw on previous experiences;
- Enhance the use of RWIS by allocating sufficient resources and time to train personnel;
- Promote standardization of system protocols and specifications by adopting NTCIP protocols; and
- Partner with other national efforts to enhance implementation, use, partnerships, and standardization.

PROCUREMENT FOR MNDOT ROAD WEATHER INFORMATION SYSTEM A CASE STUDY[43]

INTRODUCTION

This case study summarizes the procurement process undertaken by the Minnesota Department of Transportation in 1996 to provide the Department with Road/Weather Information System services. The procurement process was unique in several aspects; and although it was not brought to completion, the ideas and features can be used as a model for consideration on future procurements.

History

The procurement process was set up as an open solicitation as a "Request for Proposals for Partners" (RFPP) and was sent to prospective partners in August of 1996. The services MnDOT were trying to obtain was establishing a Road/Weather Information System which is a specialized computer network which collects, processes, and disseminates information about road and weather conditions relating to highway transportation. The goal of the Department was to improve the safety and efficiency of maintenance operations and travelers. The objective of the solicitation was to seek a new and innovative partnership agreement between the Department and the private sector to deploy a self sustaining collection and information dissemination system capable of relaying road condition and weather information to a variety of public and private sector agencies and to members of the general public.

INSTITUTIONAL ACCOMPLISHMENTS, ISSUES, AND LESSONS LEARNED

As stated in the RFPP, the Department acknowledged the innovative skills and ability of the private sector to develop creative and novel ways to provide information services, which are mutually beneficial to all parties, including the general public as well as the public and private sectors. Responders to the RFPP were provided the minimum amount of information necessary to describe the deployment Partnership. It was meant to be brief and non-limiting in order to solicit innovative proposals. Firms responding were encouraged to propose additional tasks or activities if they would substantially improve the results of the Minnesota R/WIS Program. Basically, the firms were given the opportunity to be creative and propose an innovative business entity that met the minimum requirements, yet had the flexibility to do other activities which could be profitable for the private sector.

The objectives of the project were as follows:

[43] *Information and data utilized in preparing this case study came from a conversation with Ed Fleege of Minnesota DOT and "Mn/DOT Open Solicitation, Request for Proposals for Partners, Deployment Program, Road Weather Information System, MN DOT, August 21, 1996.*

- System ownership would reside in the private domain.
- The system must utilize state-of-the-art data collection, modeling, and presentation methodologies and techniques, and be flexible and adaptable. The system should utilize commonly accepted communication standards and protocols for data exchange.
- The system must be integrated; i.e. receive/obtain information from all appropriate sources and must share/disseminate road and weather information with all appropriate users. The system must comply with all developments of the National ITS Architecture and the statewide architecture.
- Road and weather condition information shall be provided for Department operations and traveler information to the public.
- The system must be capable of providing both present road and weather conditions as well as short-term (1-6 hours) forecasts. Long term forecasts (6-48 hours) and extended forecasts (48 hours and beyond) were required for weather conditions.
- One unique aspect of this RFPP was the requirement that the proposers submit a Business Plan. The Department required detailed information to adequately evaluate the potential to fulfill the goals and objectives of the R/WIS Program. The Department wanted to assess the viability of the proposed product or service; the ability of the private sector partner to deliver the product or service during the agreement period; the nature and level of investment required of all parties; and the risk and exposure to the Department by making the proposed investment. This was unique because a Business Plan is not a typical request in proposals, and radically changed the type of information that was required. Preparing business plans is not something that most engineering firms do on a daily basis. Most engineering firms establish a business plan when the business is set up and update the plan as part of their strategic or long range planning processes. Often these business plans take a significant amount of time to prepare. The requirements of the Business Plan to be submitted with the proposal included:
  - Summary
  - Description of the responder and its industry
  - Features and advantages of products and services
  - Market research and analysis
  - Estimated market share and sales
  - Design and development plans
  - Operations plan
  - Overall schedule
  - Training plan

- Critical risks and problems
- Financial plan

These requirements were very extensive and may have been overwhelming to some potential responders, especially in the time frame established for the submittals. The requirement of a Business Plan, although unique to the RFPP process, is a good idea. If the public/private partnership is premised on a business venture, as this project was, the preparation of a business plan would be essential in the solicitation of business partners and the viability of the venture. One of the critical aspects of business plans, and most time consuming, is the preparation of realistic estimates of costs and investment recovery. These are needed to do a complete financial analysis. As it turns out, this may have been one of the downfalls of this procurement process.

MnDOT received two proposals as a result of this procurement process. One from GTE with Surface Systems Inc. (SSI) as a subpartner, and one from Pan Am Systems. Upon evaluation of the proposals, it was determined that the proposal from Pan Am Systems could not meet the needs of the project. Therefore GTE was the first choice, and the negotiation process was initiated. The negotiation process was long and arduous, with the main problem being a multi-million dollar gap in expectations by GTE regarding the fund the State of Minnesota would contribute to the project. As a result of the inability to overcome the monetary issue, the procurement process was aborted.

Subsequently, the State of Minnesota issued a different RFP for a simplified project, utilizing the standard contracting model. In trying to determine why the process failed, an analysis of the cost figures estimated by Minnesota and GTE would have to be made. Was Minnesota unrealistic about the cost or did they omit some task or activity that would have made the project viable? Or were the time requirements to prepare the proposal too short in order for the private sector to adequately address the financial aspects of the project?

Summary

Although the procurement process was aborted and the services were eventually obtained through a more traditional RFP process, the State of Minnesota deserves a tremendous amount of credit for trying a unique and innovative approach to establishing public/private partnerships. This was a complicated process, with MnDOT completing a preliminary study and devoting full-time, experienced personnel to the implementation of the project. An evaluation of the reasons for the failed process could provide some answers and leave the door open for applying the same process to other ITS procurements in the future.

MINNESOTA SMART WORK ZONE A CASE STUDY[44]

INTRODUCTION

The Minnesota Smart Workzone project was completed from the spring of 1995 to the fall of 1996. The project was conducted through Minnesota Guidestar, which is Minnesota's statewide Intelligent Transportation System (ITS) program. Smart Workzone (SWZ) was a Guidestar operational test that evolved from an earlier Guidestar operational test for a Portable Traffic Management System (PTMS) for congestion resulting from major events. The main partners in the SWZ project included the Minnesota Department of Transportation and the Federal Highway Administration as public partners and ADDCO, a Minnesota based sign manufacturer, as a private partner. The SWZ project produced benefits to both the public and private parties involved.

PROJECT DESCRIPTION

History

The Smart Workzone project began as an extension of the Portable Traffic Management System project which was a partnership between MnDOT and ADDCO to address the growing concerns over event congestion. The PTMS became the premise for a more advanced operational test to be conducted in construction work zones rather than for major events. At a FHWA Workzone safety conference in early 1995, representatives from MnDOT and ADDCO met and brainstormed on how to increase workzone safety utilizing the PTMS concepts. ADDCO engineers generated advanced technology ideas including the concept of spread spectrum radio being the wireless communication technique that they felt could be applicable to a workzone environment. One of the key technical enhancements necessary for the success of the operational test in construction workzones is the ability to collect and disseminate real-time information.

MnDOT and ADDCO agreed to pursue a Smart Workzone operational test project through a public/private partnership. The result was a SWZ operational test project that featured a next-generation, portable, wireless, real-time traffic detection/management system designed to withstand the challenges of the typical Minnesota workzone. SWZ was divided into four areas: vehicle detection/surveillance, communications, driver information systems, and a traffic

[44] *Information and data used in preparing this case study came from the following sources: "Portable Traffic Management System, Smart Work Zone Applications," SRF Consulting Group, May 1997; "Minnesota Smart Work Zone Case Study," Booz·Allen & Hamilton, June 1998; and conversations with Sam Boyd of Booz·Allen and Hamilton, Marthand Nookala of Minnesota DOT, and Gordon Melby of ADDCO.*

control center. The operational test began in the spring of 1995 and continued through the fall of 1996, and was conducted on Minnesota freeways I-94 and I-35W.

Issues

In order for the partnership to be established and successful, prior to signing the agreement there needed to be a clear understanding between the partners regarding the project's goals and objectives, each party's roles and responsibilities, the project's overall costs, and the nature of FHWA's approval and participation. Prior to the official agreement, the three major parties, MnDOT, ADDCO, and FHWA, agreed to the goals and mission for the project. They also determined a complete understanding and concurrence of each other's roles and responsibilities. It was agreed that MnDOT would be the lead partner and would serve as the project manager. MnDOT also provided funding, staff, and access to its Traffic Management Center where a computer and operator were provided during peak hour traffic periods. In addition, they helped to define the equipment required and the design of the variable sign messages, and reviewed and approved the traffic control plan. ADDCO provided the equipment for the operational test and retained ownership; provided technical expertise on equipment, software, and integration of the communication, vehicle surveillance, and driver information portions of the system; and was available to assist in equipment modification. ADDCO contributed to the overall funding with cash, equipment, and personnel hours. ADDCO also organized and hired all additional private companies involved in the operational test. FHWA approved the use of Federal aid funding and participated in the oversight to ensure compliance with National ITS goals and objectives.

Establishing the official agreement and funding sources was facilitated in the State of Minnesota by the support and encouragement of the Transportation Research & Investment Management Division of MnDOT, (TRIM), of which Guidestar is a part, and the legislative approval of State Statute section 174.02 subd.6 (1994). This state statute expands the Commissioner of Transportation's powers and duties to include:

"to facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation, and to promote and encourage economic and technological developments in transportation matters within and between governmental and non-governmental entities."

In conjunction with this 1994 legislation, TRIM has promoted an environment for partnership development and operational test enhancement. Guidestar is supported by the State at every level to establish partnerships mutually beneficial to both public and private parties.

With this support from the State, and the full endorsement of each of the partners, the actual agreement was prepared. The agreement was brief and straightforward and included all the basic elements of a standard MnDOT contractor agreement, with a definition of the term "partnership". This definition stated that a partnership was "a cooperative program that promotes efficiencies in providing governmental services; 'partnership' is not intended to define a joint venture or separate legal entity." The unique characteristics of the agreement included a clear definition of both MnDOT's and ADDCO's roles; impartial sections on personnel and termination; shared responsibility in the liability section; and termination by either party for breach of contract. The partnership agreement represented shared responsibilities and risks, and served to join the complimenting needs and services for the benefit of both a private business and the State of Minnesota.

Another key element to the success of the project was the project management structure. A team environment was established to facilitate all the issues concerning the SWZ operational test project. Independent system integrators were hired by Guidestar and relationships were established with local public agencies with an interest in the project. The team was divided into Steering and Technical Committees, each with defined roles. The team concept provided the ability to be sensitive to the needs and concerns of the public entities affected while effectively modifying and implementing the technical aspects of the project.

Although there were some technical and logistic problems with the SWZ operational test, such as problems with radio reception, which caused the test to be moved to a new location to improve reception, the partnership succeeded. The problems were worked out between all the parties, for the good of the project. The parties also remained focused on maintaining the mission by meeting the goals and objectives.

ADDCO's involvement represented an investment in the future of its transportation business. The company had no guarantee that the products and technology they developed would be used elsewhere, yet they invested over $500,000 into product development before the partnership agreement was signed. ADDCO perceived that the partnership agreement removed the adversarial relationship that typically exists between a vendor and client. ADDCO and MnDOT shared ownership expectations for the project. As a result of the SWZ operational test, ADDCO invented and received patents for three products: the precision Pan/Tilt/Zoom unit (PTZ), the Triangular Work Tower unit, and the Workzone Variable Message Signs (WZVMS).

The benefits obtained by MnDOT included the use of cutting edge technology to test the concept of portable workzone traffic management, thereby helping to increase the safety and efficiency of workzones to both the traveling public and the construction workers, both in the present and in the future. ADDCO benefited by being able to tests

its products in an "real world" environment, thereby saving time and money when the product is put on the market by reducing down time.

Summary

Smart Workzone is an innovative application of video, signing and traffic technologies that is designed to make travel through roadway construction and maintenance areas safer and more efficient. Surveys completed after the operational test completed in 1996 showed that 66% of the motorists surveyed who traveled through the work zone saw the changeable message signs and 80% of these travelers remembered the messages. The travelers also stated they felt the information was accurate and timely.

The success of this project can be attributed to the efforts and cooperation of the parties involved through the partnering agreement. The parties had shared, unique interests; discussed issues and planned prior to beginning the project; maintained a team effort; committed capable management staff; and worked through problems together. The Minnesota Legislature and Department of Transportation had a key role in fostering an environment conducive to setting up partnering arrangements, and committing the necessary resources to encourage public/private partnerships, which benefit all parties.

The benefits to the State of Minnesota include stretching available funding, having access to high technology resources, and providing a safer environment for its traveling public. The benefits to ADDCO include testing new products in a "true" environment saving time and money in the research and development process and having a usable final product; seeing the needs from the State's perspective; and getting input from actual people who will be using the system such as truck drivers, maintenance personnel, and law enforcement personnel. Gordon Melby, Vice-President at ADDCO stated that one of the overall benefits to partnership agreements is to promote economic development and create new jobs. He feels the State of Minnesota has been instrumental in utilizing innovative concepts which fosters an environment for new and existing firms to grow and develop.

The Minnesota Guidestar program anticipates future applications of the Smart Workzone to include expanding the distance at which traffic data can be transmitted using satellite technology. This will allow for rural applications and the transmission of traveler information from region-to region.

SECTION B

SUMMARY OF FOCUS GROUP

SUMMARY OF FOCUS GROUP

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

November 4, 1999

Attendees

Frank Tobin, MFS Technologies
Connie Li, Transmart Technologies
Lisa Lynch, WisDOT
Phil DeCabooter, WisDOT
Joe Stertz, FHWA
John Berg, FHWA
Joe Maassen, WisDOT
Durga Panda, Image Sensing Systems
Lisa Dumke, ADDCO
Matt Ames, Miller & Van Eaton
Bill Hyman, BoozAllen & Hamilton
Steve Bahler, MnDOT
MG&E Representative

Phil DeCabooter began the meeting by welcoming the attendees and walking through housekeeping issues.

He then quickly turned to explaining the focus of ITS in Wisconsin with its emphasis on enhancing safety and efficiency, through incident management (surveillance, detection, and verification), congestion reduction, rapid response, and traveler information for tourists and truckers. He spoke about truck movements draining freight from Canada to the north and from the west. He mentioned the goal of establishing databases in order to deliver information for decision support to truckers that would be accessible in terms of video, CMS, VAR, and on-board Internet. Phil also emphasized the importance of rural ITS products and services.

Bill Hyman next described the objective of the focus group: explore with a group of mainly private sector representatives ways to make public/private partnerships for ITS in Wisconsin attractive business opportunities.

The group then turned to a roundtable discussion of barriers, resistance to participation, and "War Stories." However, much of the conversation was focused on opportunities for public/private partnerships.

Key points made were as follows:

Steve Bahler (Mn/DOT)

- Mn/DOT has many things useful to offer the private sector such as information and data, access to public rights-of-way, and opportunities to test products.

- Mn/DOT has traffic management data for the Twin Cities. The Department decided to make the information free. The Twin Cities has a number of Information Service Providers.
- Mn/DOT has granted access to public rights-of-way to telecommunications companies and in return it receives a portion of the communication capacity.
- Mn/DOT has granted a five year franchise to a firm to install logo signs according to standards.
- Under TRIP USA, Castle Rock Services is integrating National Weather Service Information with road information. Once private companies plug in at a cost of $2000, then information is free; ISPs earn revenues through various means including advertising.
- Mn/DOT recently issued a request for Partnership Proposals to install a RWIS and generate information for travelers and for construction and maintenance management. However, the department did not fully understand the market and neither did the private sector. The department had prior expectations about the cost of the system and missed the mark. The department also had a different view of revenue opportunities in comparison to the bidders. The department assumed travelers, truckers, farmers, construction contractors and others would be willing to pay enough for information to cover all the implementation costs. However, the private sector sought a substantial subsidy, and the procurement was aborted.
- Because of Mn/DOT's version of the Freedom of Information Act, the state cannot grant exclusive rights to its information.
- Recently Mn/DOT was sued for granting exclusive rights for a shared resources project. AT&T sued the state and the FCC to stop it; but Mn/DOT expects to win the case.
- Mn/DOT is not in the privatization business; culture does not allow it and unions are against it.
- State employees are not able to provide information on alternative routes; this is left to the private sector. Noted that Metro Traffic is profitable but SmartRoute Systems is not yet in the Twin Cities.
- Mn/DOT has an approach to funding PPPs that allows for widely varying state contributions and net outlays. These include zero cost to state, prorated declining support and then no support after a point in time; coverage of startup costs only, on-going support, and shared profit.
- By the constitution Mn/DOT can use the gas tax only on state trunk highways; Mn/DOT gets a general fund match for other types of projects.
- In Mn/DOT the ITS budget is administered by headquarters rather than divided among Districts and then allocated to projects.

Durga Panda (Image Sensing Systems)

- Infrastructure does not just consist of what lies in the ground
- Castle Rock is installing kiosks which cost $300 per month and are able to recover their costs
- Orion is now monitoring arterial travel times
- Virtual TMC's can be used in lieu of traditional TMCs
- Key question is how do you provide infrastructure in a way that provides sufficient value to warrant private investment
- Major barrier to ITS PPP is implementation time; need a streamlined/rapid business process for implementation
- There needs to be a culture supportive of ITS PPPs
- The key reason for success of ITS in Minnesota has been the vision of Mn/DOT staff not the statutes.
- Durga Panda read portions of and passed out a copy of the statutory authority under which Mn/DOT has carried out its public private partnerships:

Subd. 6 Agreements, receipts, appropriation. To facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation, and to promote and encourage technological development in transportation matters within and between governmental and nongovernmental entities:

(a) the commissioner may enter into agreements with other governmental or nongovernmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for benefit of the citizens of Minnesota.

(b) In addition to funds otherwise appropriated by the legislature, the commissioner may accept and spend funds received under any agreement authorized in paragraph (a) for the purposes set forth in that paragraph, subject to a report of receipts to the commissioner of finance at the end of each year and, if receipts from the agreements exceed $100,000 in a fiscal year, the commissioner shall also notify the governor and the committee on finance of the senate

and the committee on ways and means of the house of representatives.

(c) funds received under this subdivisionn must be deposited in the special revenue fund and are appropriated to the commissioner for the purposes set forth in this subdivision.

- This statutory authority permits ITS and other types of public/private partnerships for both operational tests and deployment.
- Mn/DOT has been challenged on its authority to carry out only one of the large number of ITS public/private partnerships it has undertaken over the years; the challenger has had no luck so far on the project it has sought to stop.
- The public sector can easily proceed to do PPPs, but the private sector cannot propose PPPs easily. There should be symmetry regarding PPPs. (Bill Hyman at this juncture noted that Commonwealth of Virginia has a statute that allows a private entity to submit an unsolicited proposal to any responsible road entity in the state; VDOT has received numerous proposals under this statute and local entity has received a proposal. Upon receipt of the proposal the governmental unit has to advertise the prospective award and if no competitive proposal is received within 30 days, it can proceed to make an award; Steve Bahler said unsolicited proposals are seeking financial support and the Mn/DOT can make sole source awards if contract value is less than $100,000.

Connie Li (Transmart)

- Agreement is emerging between the public and private sector that ATIS is a real opportunity
- There is a need have both a short term and long term outlook
- Noted that it is a fact of life that the public sector owns the majority of data
- Transmart would not mind sharing, say, 10% of revenues for reinvestment in ITS, particularly to improve traffic surveillance.
- In the short term, Transmart and most other firms cannot afford to buy data.

- She has a problem with exclusivity and does not think it is good public policy to limit access to data.
- Data from the public sector is not enough; the private sector needs access to public rights-of-way to install surveillance and other equipment.
- She raised the question of how much does WisDOT want to compete with the private sector.

Frank Tobin (MFS Technologies)

- Suggested it is important to clearly understand the nature of the infrastructure foundation the state intends to build upon
- Procurement processes need to be flexible. Can you be creative? Can you negotiate? Can you do a BAFO? Can you share ownership in ROW; can you be equity partners?
- Can you bring the right people to the table or are there statutory barriers?
- Broad agency agreements sometimes provide latitude to enter into all kinds of arrangements

Lisa Dumke (ADDCO)

- Primary reason public/private partnerships are working in Minnesota is the state and the private sector are partners
- Need to treat people as partners
- Important to have a common vision
- Need good working relationships
- Gave example of 3M testing snow plow guidance system using magnetic tape.

Joe Maassen (WisDOT)

- Department of Tourism can sell data to hotels/motels probably because there exists an exception to public records law. WisDOT would need statutory authority to do similarly.
- DOT GIS data must be sold at "ordinary, reasonable and necessary cost of production."

Before breaking for lunch Matt Ames passed out a presentation and discussed key constitutional and other statutory issues affecting WisDOT authority to do ITS public/private partnerships. Among the points he made were the following:

- The state cannot contract debt for a private purpose
- Legislature cannot pass a special law that benefits a specific party

- A commercial entity cannot do business in ROW or put signs in ROW; the State Building Commissioner must review proposals to put any facilities in ROW
- Procurement must be low-bid
- Any exclusive contract must be approved
- If authorization for an activity is not explicit, then it is not authorized
- There exists a restriction on reinvestment; money that comes in must go in the general fund
- WisDOT can sell land that is acquired for highway purposes but is not needed
- WisDOT can delegate its authority
- WisDOT has authority to enter into build-operate-lease agreements
- There exists a statute that prohibits use of cameras for capturing license plate numbers (it was noted by others that in Minnesota, cameras do not have enough resolution to read license plates in specific operational tests where license plate reading has occurred, only the last 3 digits have been recorded; character matching and not letter matching has been used, and the data erased after data is collected for purposes intended; the Minnesota legislature would look dimly on intrusions into privacy)
- WisDOT has specific authority to sell certain types of data
- In Wisconsin there exists a strong public records law
- Towns, counties, cities have direct responsibility for their own roads; agencies can enter into cooperative agreements, but it is unclear whether the cooperative agreements can be extended to the private sector.

The group broke for lunch. When it reconvened, Bill Hyman summarized a side discussion that had occurred with Joe Maassen and others during the lunch hour regarding a recommended approach to drafting of statutory language that supports ITS PPPs. Bill asked Joe Maassen to confirm, and as appropriate, elaborate on the recommended approach. The elements were as follows:

1. List what should be accomplished by the statutory changes
2. Provide 3 or four options, but do it in a way that emphasizes the importance of providing WisDOT flexibility and without being overly prescriptive. Among the options should be the following:
   - Open-ended, general approach to providing statutory authority such as Minnesota's
   - Detailed enumeration of statutory authority to do all the things desired to effectively implement ITS PPPs
   - Hybrid
   - Commonwealth of Virginia approach to PPPs or an approach that builds upon the economic development benefits of innovation, experimentation and the need to incubate new technology.

1. Give authority WisDOT to write administrative law to provide detailed procedures for ITS PPPs if needed
2. Include a sunset provision.

Joe Maassen reiterated the desirability of getting the legislature to approve the recommend statutory change as a part of the next biennial budget bill.

Lisa Lynch concluded by saying that state does not have statutory authority to undertake procurements for ITS public/private partnerships. She said the Department currently procures under Chapter 84 of the statutes which addresses Engineering and Consultant Services and under Chapter 16, State Department of Administration acquisition of goods. She said the qualification basis for transportation procurements is "responsible low bid." As long as the RFP has included the evaluation criteria, then the award does not have to be low bid. When you get out of the Chapter 84 track, then you need to go into the Chapter 16 track for procurement.

During the Focus Group a number of ideas for ITS Public/Private Partnerships were mentioned that have merit for possible inclusion in the Task 4 Report:

1. Multistate corporation for RDBS
2. Piggybacking upon the University of North Dakota abbreviated road condition reports being made available on cell phones (#SAFE). This is a 3-state program
3. Automated anti-icing equipment on structures, funded through sale of anti-icing chemicals/transaction charges
4. National summit on franchising – follow up on previous conversation between Bill Hyman and Jim Wright of Mn/DOT
5. Look for opportunities to emulate a Chapter 16 sole source award to develop new technology for general aviation; WisDOT paid for cost of original deployment; private sector got intellectual property rights but upon sale of systems to others gradually paid back Wisconsin until it recovered its investment costs.

Other points that were made during the Focus Group Session were:

- WisDOT should be more involved in ITS America Committees
- Achieving economies of scale can enhance feasibility of ITS PPPs.
- If you use federal dollars for ITS PPPs you may be forced to give non-exclusive intellectual property rights to the federal government, which may diminish the attractiveness of private participation; however, the feds say they will not exercise their rights

- It was suggested that intellectual property rights be kept in the private sector; intellectual property should be the designated private contribution to a PPP; the state might get a fully paid up license for development of new technology and new intellectual property.
- Internal training within WisDOT is more important than statutes
- The "Not Invented Here Syndrome" is a major problem in adopting new technology
- It is important to do market research in many instances as a prelude to ITS PPPs
- For multi-state involvement in PPPs, having consistent policies is highly desirable. This is certainly true for neighboring states like Minnesota and Wisconsin
- It is important to give people an opportunity to protect their privacy by giving them the option to decline the use of an ITS technology that could erode their privacy.
- WisDOT should build alliances with privacy advocates (e.g. ACLU); how do you get informed consent, if not buy-in regarding ITS technologies that provide public benefits but pose a risk to privacy?
- One needs to foster a culture of risk-taking; people need to be rewarded and not penalized for taking risks.
- Currently WisDOT has a set of statutes and administrative rules regarding what it can or cannot do. In addition federal laws and regulations govern where federal funds are involved. But there is also silence on many matters.
- The question was raised whether under certain circumstances it might make sense to do ITS PPPs without a procurement, contract, or agreement between the public and private sector participants as Iowa DOT has done for the Advanced Maintenance Concept Vehicle project. However, the sentiment of the group was against not having a written agreement between the public and private sector participants.

AGENDA

9:00 A.M. Welcome and Housekeeping

9:15 A.M. Objectives of Focus Group Meeting

9:30 A.M. Discussion of Barriers, Resistance to Participation, "War Stories"

10:00 A.M. Break

10:15 A.M. Continuation of Discussion of Barriers, Resistance to Participation, etc.

11:15 A.M. Presentation on Existing Wisconsin Statutes (Matt Ames)

11:45 A.M. Lunch

1:00 P.M. Discussion of Possible Policy and Statutory Changes

2:00 P.M. Suggested input for Guidelines on Public/Private Partnerships for ITS

3:00 P.M. Adjourn

SECTION C

SUMMARY OF INTERVIEWS

SUMMARY OF INTERVIEWS WITH ELECTRIC UTILITIES AND STATE AGENCIES

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

November, 1999

SUMMARY OF INTERVIEWS WITH ELECTRIC UTILITIES AND STATE AGENCIES

On November 2 and 3, 1999, Matt Ames of Miller & Van Eaton conducted interviews with the following individuals:[45]

- Gary R. Mathis, Senior Director – Electric Policy, Madison Gas and Electric Co.
- David Shutes and Terry Nicholai, Alliant Energy
- Brian Solomon, Transportation Coordinator, Division of Work Force Excellence, Wisconsin Department of Workforce Development
- D.J. Klauser, Administrator, Division of Marketing, Advocacy and Technology Development, Wisconsin Department of Commerce
- Bill Zillmer, Information Services Manager, Business Development Assistance Center, Wisconsin Department of Commerce
- H. Hampton Rothwell, Deputy Administrator, Division of Marketing Advocacy & Technology Development, Wisconsin Department of Commerce
- Todd Pierce, Budget & Policy, Wisconsin Department of Tourism
- Renea Dettman, Director, Office of Customer Service, Wisconsin Department of Tourism
- Robert M. Garvin, Executive Assistant to the Chairperson, Public Service Commission of Wisconsin
- Kevin Cronin, Attorney, Public Service Commission of Wisconsin

The purpose of the interviews was to discuss opportunities for public-private partnerships; identify potential barriers to public-private partnerships; identify possible changes to statutes, regulations and policies; discuss need for coordination among different organizations; and discuss frameworks in which the company or agency might be a key stakeholder.

Madison Gas and Electric (Gary Mathis)

The primary topic of discussion was whether the franchising model for public-private partnerships makes sense in a deregulated environment. Mr. Mathis said that his immediate reaction was that ITS would not fit the same model as the electric industry, because there is no distribution component. Franchising works in the electric industry because of the need for a distribution network, which by its very nature is tied to a geographic area. He felt that ITS uses might fall outside this model.

[45] *Bill Hyman of Booz-Allen also participated in the interview with Gary Mathis.*

We then asked whether he felt that Madison Gas & Electric might be interested in providing ITS services of some kind. Specifically, we asked whether they might allow other entities to use their electric distribution infrastructure as a distribution system for other services. He responded that Wisconsin state law presents an obstacle to this. Electric companies are only permitted to engage in activities for which there is a public necessity. The state Public Service Commission requires that regulated utilities only provide services that cannot be provided effectively by the unregulated competitive market, and services that cannot be provided on a competitive basis must be regulated to protect the public interest. If a utility wishes to provide such a service, it must either set up a separate subsidiary and conduct all transactions with that affiliate on an arms'-length basis, or it must agree to internal accounting safeguards to ensure that customers of regulated utility services are not subsidizing the unregulated services.

Because of this requirement, there is no incentive for a company like Madison Gas & Electric to provide unregulated services. If the company did receive any revenue from those services, the PSC would require that it be used to offset its rates for electric service. Larger companies with a holding company structure, however, do have unregulated affiliates and they might be more interested in such arrangements.

Mr. Mathis mentioned that the pole attachment rules, governing the rates at which the company must make its poles and conduit available to cable and telecommunications companies, might have some bearing on ITS partnerships. He also mentioned a regulatory decision related to Norlight, a joint venture of several Wisconsin utilities that dealt with what services they might provide on an unregulated basis.

Some gas utilities in Wisconsin are apparently providing electricity generators to businesses and residences, and the PSC has required that this be done through an unregulated non-utility company.

Mr. Mathis also said that under electric deregulation, a number of existing services would probably be outsourced by the utilities. Billing is already often contracted out, and remote meter reading is a likely candidate as well. There might be a market for information related to meter reading or that could be bundled with it, such as products that lower a person's electric bill.

At the end of the interview, Mr. Mathis said that he believed that during the early years of development of a new technology, it might need protection from competition, and some kind of exclusivity or other protective regulatory arrangement might be necessary. At the very least, a fair bidding process needs to be established to allow new entrants to begin to offer the service; Mr. Mathis felt that many ITAS services would probably be provided on a competitive basis by the market and that contracting could be done in traditional ways.

Alliant (David Shutes and Terry Nicholai)

David Shutes is an economist with Alliant. Terry Nicholai handles regulatory matters, and is a former PSC staff member.

Both participants were intrigued by the possibility of getting access to state highway right-of-way in some sort of shared resource arrangement, because there is great public opposition to installing new long distance transmission facilities in Wisconsin.

In discussing the value or applicability of a franchising model to ITS, Mr. Shutes observed that the dynamics of network industries that have been largely deregulated or privatized from the beginning appear to be different from those of newly deregulated industries. The railroad industry, for example tends to be driven by budget and cost considerations, rather than how it can add value. This has led them to be boxed in to delivering large-volume, cheap commodities. The trucking industry, on the other hand, is much more specialized and flexible. It is interesting to note that nobody ships fruits or vegetables from California by rail, even though it would seem that a train could get across country faster than a truck. For whatever reason, the railroad industry is not interested in adding additional cars to trains or improving service. The railroad industry argues that it must pay for all of its own infrastructure, while the trucking industry is effectively subsidized by public investment in roads in excess of gasoline taxes and other fees paid by truckers. This may be true and it may be the determining factor. If so, it says much about the need for public-private partnerships for any new network-based technology.

Mr. Shutes feels that the problem with franchising is that the government entity responsible for supervising the franchise will have an incentive to keep the service provider's rates low. This is done by extending the write-off period for assets, which in turn creates an incentive not to make additional investments. The key question in his mind is therefore whether it really is necessary to have an established market area, such as is provided by a franchise. (Note, however, that in the case of ITS, the franchise area would probably be related to the gathering of data, not the provision of service; this is a key distinction that we did not discuss.)

When asked whether Alliant would be interested in providing a bundle of services including, perhaps, nonelectrical services, Mr. Shutes raised the concept of the "virtual utility." Electric deregulation will probably take the form of splitting companies into three entities: one for generating power, another for transmitting it, and a third for distributing it at the end user level. But customers would not buy their power from the distributing company – they would buy it from the generating company under its brand name, and that generating company would compensate the distributor for the use of its facilities. The "virtual utility" would be the entire combination of entities, even though the customer would only deal with the generating

company. Indeed, as noted earlier, the generating company might even contract out its billing services.

In any case, on the subject of bundled services, Mr. Shutes observed that there is a limit to the number of services consumers are willing to buy from any particular company. At some point, brand names get stretched in the consumer's mind, to the point that they become almost generic and have no value. This indicates that there may no value to the electric company in bundling substantially different services.

Mr. Shutes prefers a patent model to the franchising model. In the ITS context, this might be analogous to a toll road, in which the private sector provider has the exclusive right to the revenue stream for a certain period of time, at the end of which title is transferred to the state. Mr. Shutes believes that after a certain period of time the ITS infrastructure and related technology should enter the public domain. In practice, a franchise could perform this function, by providing exclusivity during the initial franchise term, and removing exclusivity at the end of the term.

Mr. Shutes's key concern is the length of the exclusivity period. At some point the technology becomes obsolete, which raises two concerns: first, to encourage innovation, the technology must be available to third parties before it becomes obsolete; second, the exclusivity period must be long enough to encourage development and deployment in the first place.

Finally, Mr. Shutes stated that he prefers a contractual approach because it offers more flexibility; a traditional franchise implies a regulatory approach, which tends to be self-perpetuating. Again, a franchise mechanism can accommodate this concern, if structured properly.

Department of Workforce Development (Brian Solomon)

As the Transportation Coordinator for the Department of Workforce Development, Brian Solomon acts as the liaison between his department and the Department of Transportation, and is responsible for finding solutions to transportation problems that affect the mission of the Department of Workforce Development. Mr. Solomon has already undertaken several projects and has many ideas for addressing transportation issues that could involve both ITS and partnerships between the public and private sector, as well as partnerships between different public sector agencies.

The principle underlying Mr. Solomon's work is that lack of transportation is one of the two or three biggest problems facing unemployed and underemployed residents of Wisconsin and the Department of Workforce Development. Anything that increases the transportation options of the labor force, and particularly those who are currently unemployed, is a benefit to the state and its residents. Transportation is also a critical issue for private sector employers. Because the unemployment rate is so low, both

nationally and in Wisconsin, many employers face a severe labor shortage. This means that at least in some instances employers are willing to help defray the cost of new transportation services.

One of Mr. Solomon's key projects has been a study in which the locations of low income residents and employers in six Wisconsin counties were plotted on a map using GIS technology. The map also showed the locations of technical colleges and child care centers, and the routes of existing public transit services. This project was an expanded version of one that was done earlier for Milwaukee. This study has allowed the state to identify areas in which existing mass transit should either be expanded to serve additional areas, or supplemented with private sector resources. This does not cover the entire cost of program; the difference is made up by the state and private employers. Mr. Solomon would like to expand the study to include which employers are actually hiring, and at what times of day or days of the week they need new employees. This information would provide more precise information on where new bus routes may be needed and how often those buses should run.

For example, one Milwaukee employer is now paying 50% of the cost of a new bus route so that inner city residents can get to jobs outside the city. The state is also working with other employers to run the Job Ride program in Milwaukee. Job Ride is a van pool that carries workers from central Milwaukee to the suburbs for $1.00 each way, half of which is paid by the employer and half by the worker. The State of Wisconsin pays the rest of the cost. The program has been contracted out to the Milwaukee Private Industry Council, which has subcontracted with five vendors who operate small vans and buses. Individuals are eligible for up to six months, at which point they are expected to have made other arrangements.

The Department of Workforce Development has also established the Wisconsin Employment Transportation Assistance Program ("WETAP") by combining different sources of federal funding. This program makes funding available to counties and other contract agencies to develop plans for addressing local transportation needs. Approximately $7 - 8 million is available.

The state also sponsors the Rideshare program, which helps commuters find car or van pools. Mr. Solomon believes this could be better promoted. For example, state job centers and employers could be asked to have their applicants and employees fill out the cards used to match participants.

Mr. Solomon pointed out that in traditional transportation terms, ridership of a particular service is often used to measure its value. In fact, however, because both the state and the private sector have an interest in providing all residents with the opportunity to get, keep, and advance in their jobs, even a route or service with low ridership may be of great value. One way to get this information is to survey riders and ask whether the route helped them get, keep, or advance in employment.

Another project Mr. Solomon has been involved with is an Internet trip planner funded by the University of Wisconsin – Milwaukee. This trip planner allows a user to specify the points of origin and destination of a trip and the desired arrival time using the Milwaukee public transit system. The program then provides precise directions for where to catch the bus, at what time, where to get off, and how to get to the final destination from that point. This program will be very useful in the state's job centers, because counselors will be able to instantly assess whether a particular job opening will present transportation problems to applicants who rely on public transportation.

Mr. Solomon noted that the problem of matching public transportation capabilities to needs is sometimes addressed in an *ad hoc* and uncoordinated fashion. For example, in the Milwuakee area, Washington, Ozaukee and Waukesha counties all have their own public transit systems, but these are often not coordinated with each other or with the older Milwaukee system. Mr. Solomon also believes that his own department does not do enough to address transportation issues. Job placement personnel, for example often do not consider transportation issues, or do not do enough to address them. This is partly a matter of emphasis and partly a matter of lack of knowledge. They tend to emphasize applying for openings, without considering how the applicant will travel to an interview or commute to the job if he or she is hired. The new trip planner will be of some help, but because job growth is greatest in the suburbs, more must be done to simplify reverse commuting from the city to the suburbs.

Mr. Solomon believes that interagency coordination is working very well between his department and the Department of Transportation. They have held joint statewide employment transportation conferences, and the existing interagency task force recently won an AASHTO award. One area where more needs to be done is with the Department of Health and Family Services. For example, there are many specialized transit services funded under different types of grants for Headstart, the elderly and the disabled that largely duplicate services. The vans and buses used or those services could be used for employment related transportation programs either as part of their current activities, or during periods when they are not being used for the originally-intended purpose.

Department of Commerce (D.J. Klauser, Bill Zillmer, Hampton Rothwell, Kirk Rossi)

The meeting with the Department of Commerce raised a number of interesting points.

First, the participants noted that because southeastern Wisconsin is an air quality nonattainment area, they felt that it would be useful to involve the Department of Natural Resources. Furthermore, because of the air quality issue, any project that would reduce congestion would be beneficial from that perspective. One example that

was raised was a Phoenix flex-time project that was adopted to deal with air quality problems there.

Second, I learned that Schneider National, a large trucking firm based in Green Bay, was a pioneer in introducing GPS technology in its trucks. GPS is used to track the location of both trucks and tractors. One important need is for GPS information capabilities to be updated and expanded so that the trucking firms can get real-time traffic information to their drivers. This is important not only for the drivers, but for the dispatchers, because they often dictate the routes truckers use, rather than allowing drivers to select their own routes.

Third, the Commerce participants shared DOT's concern with incident management, because one large accident can cause long delays that disrupt the operations of Wisconsin firms that depend on timely arrival of shipments.

Fourth, the Department of Commerce believes that traffic management throughout the state is important, because the state wants to discourage businesses from concentrating in the southeastern part of the state. They believe that the state as a whole benefits from having industry spread throughout the state, and the smooth flow of traffic is critical for preserving that situation. Because of the distance among population center in the state, the participants support approaches that will deploy technology to minimize the effects of distance on travel time and conditions.

Fifth, the state would benefit greatly from an improved customs information system. Wisconsin manufacturers rely heavily on shipments from overseas that must go through customs. A two-week delay from the time of arrival in port to the time a shipment is released by the Customs Service is not unusual. Not only is the delay a problem, but even more important is the lack of advance notice of when shipments will be released. This lack of information makes advance planning more difficult.

Another transportation-related need is the lack of direct flights from Wisconsin to Germany. For example, there are already strong ties between Wisconsin and Germany, where much of the important research in biotechnology is being done. The Department believes that Wisconsin could become a center of biotechnology production, but the lack of direct flights might cause German firms to consider setting up their U.S. operations elsewhere. Similarly, there is a need for high-speed rail connections from Milwaukee and Madison to the Twin Cities.

Finally, we had an extensive discussion of the need for changes in the approach to public transit. The Commerce participants felt that traditional mass transit policies have essentially provided a lowest common denominator type of service that meets the needs of people who cannot afford to provide their own transportation. The result has been that the vast majority of the population is not interested in using it. Instead, they believe there should be more emphasis on delivering high quality services, including

both reliability and comfort as key criteria. There may be a market for such services that would reduce congestion, even if they were more expensive than traditional transit services. This type of service might be best provided by the private sector, and might require examining and changing both state and local licensing policies that might otherwise discourage entry.

Department of Tourism (Todd Pierce and Renea Dettman)

As expected, the Department of Tourism is very interested in finding ways to apply ITS technology, both with respect to traveler information and traffic management. Their biggest concern is with providing travelers real time information describing road, traffic and weather conditions, and suggesting alternate routes. Accurate information, particularly regarding the length of potential delays is very important. Not only does this benefit travelers, but it benefits businesses and communities located along the alternate routes, so the Department is very interested in finding ways to direct tourists to those areas when major highways are blocked or congested.

Ideally, they would like this information to be available on board, but until that is feasible, electronic message boards are an adequate substitute, so long as the information is accurate. Currently, the Department of Tourism relies on the DTN weather satellite information system, which is downloaded and displayed at highway rest stops that have tourist information centers. The Department also relies heavily on ROADWIS for information on the latest snow and ice conditions, but they would like better access and more up-to-date information. The Department of Transportation has a 1-800 number that provides traveler information, but it needs to be upgraded. The information is often not up-to-date, callers sometimes cannot get through, and people do not know about the service. The Department of Tourism believes it would be used more if it were more widely promoted and more readily available.

One problem the Department has in dealing with the private sector is that most of its Industry "partners" are relatively small businesses that individually see little benefit to investments in this type of technology.

The Department has developed the Travel Buddy Web site, which gives users a broad range of information about activities, events and places to stay in Wisconsin. Ways to make that information available in vehicles while they are on the road should be invaluable. We also discussed whether the Department of Transportation has additional information that could be made available on the Travel Buddy site, either directly or through links between sites.

Travel Buddy also provides an example of a public-private partnership. The Department of Tourism works with the private sector through Destination Marketing

Organizations throughout the state; these are typically the local Chamber of Commerce or other local business groups. The DMO's have access to the Department's Web site and are responsible for inputting and updating information about their areas.

The Department is very pleased with its relationship with the Department of Transportation. Although there is no formal liaison between the departments. The Deputy Secretary of Transportation recently met with top-level officials in the Department of Tourism. The Department of Transportation has been very helpful in assisting with the Rustic Roads program and the Tourism Oriented Directional signage program. The two departments have established a form of public-public partnership to deal with maintenance of rest areas and waysides. The Department of Tourism pays part of the cost of a contract let by the Department of Transportation with Rehabilitation of Wisconsin, a nonprofit group. The Department of Tourism is also involved with the Department of Transportation's 20-year ITS study.

Five years from now, the Department of Tourism would like to be able to give travellers real time information on delays without leaving their cars, ideally using wireless telecommunications technology with access to the Internet. They would like vehicles to have GPS capability on board, so they know where they are and where they are going and how to get there. Travelers should be able to pass a travel information center and know what services are available inside and when it is open, again without stopping. Information on hotels and restaurants should be available through these technologies as well. Finally, they would like the ability to engage in "one-to-one marketing" where visitors to Wisconsin receive regular information about what activities and events that past experience indicates they may be interested in.

The last point raises the question of confidential or personal information. The Department recently successfully sought an exemption to the state open records law permitting them to refuse to provide information about people who have used their services in the past. The Department does sell its lists at cost to private sector entities in Wisconsin, but does not make it available out of state. The Department is also concerned about a federal child support enforcement requirement that would have the state obtain the social security number of every person who requests a hunting or fishing license. The state may ask for a waiver of that provision.

Public Service Commission (Robert Garvin and Kevin Cronin)

This meeting was originally to be with Edward Marion, the General Counsel of the PSC, but he was unable to attend. Mr. Garvin and Mr. Cronin knew nothing about ITS and had little to say about public-private partnerships. They confirmed, however, that if an electric company or other regulated utility in Wisconsin wished to provide unregulated services, it would have to do so through an unregulated affiliate. This would effectively make it impossible to bundle different types of services. Mr. Garvin

and Mr. Cronin also informed me that the PSC recently began a proceeding regarding local regulation of rights-of-way. Currently, the PSC only addresses right-of-way matters on a case by case basis. If a utility files a complaint regarding conditions or restrictions on its ability to use the right-of-way, the PSC will examine the issue. Because of the increase in requests by providers to install new facilities in the right-of-way, however, the PSC decided to establish guidelines, setting forth what is reasonable for both the local governments in the state, and the providers with respect to access to rights-of-way and conditions on use of the right-of-way. This proceeding could possibly affect the Department of Transportation, although it appears to be aimed at local governments only. It could also affect any potential public-private partnership that relies on access local rights-of-way.

SECTION D

RESULTS OF SURVEY OF PUBLIC PRIVATE PARTNERSHIPS

SURVEY RESULTS FOR

"LEGAL AND INSTITUTIONAL BARRIERS TO FORMING EFFECTIVE PUBLIC/PRIVATE PARTNERSHIPS FOR INTELLIGENT TRANSPORTATION SYSTEMS"

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

November, 1999

TECHNICAL MEMORANDUM

This document summarizes the findings of a survey sent out in conjunction with WISDOT and Booz Allen & Hamilton's project on Methods to Enhance Public/Private Partnerships. The survey was titled "Legal and Institutional Barriers to Forming Effective Public/Private Partnerships for Intelligent Transportation Systems." Ninety surveys were distributed; nine responses were received – seven completed the survey form, one sent a letter summarizing their comments, and one returned the survey with no comment. Most of the responses came from the private sector, with one response from the public sector. Copies of the survey responses are available for review upon request from Booz Allen & Hamilton.

The first half of the survey asked the respondent to list the three most serious institutional/legal barriers or challenges to ITS public/private partnerships and to list the three most effective actions that a state could take to foster successful ITS public/private partnerships. There were several issues that were mentioned more than once, and there was one that was mentioned by almost everyone. Following is a breakdown of the responses to the open ended questions portion of the survey.

The one challenge that was mentioned most frequently was the issue of the lengthy procurement process involved in public/private partnerships. This process puts a greater time and money burden on the private sector compared to when a private business contracts with another private entity. A suggestion concerning this barrier was that the state establish special units to partner with the private sector such as fast track procurement and contracting ability and practices that resemble the private sector's way of doing business. Most respondents felt that the state would be well served by making some changes in the contracting/procurement department.

Another barrier was a general lack of understanding about how public/private partnerships work and what the benefits, risks, and costs are. Because of this lack of understanding, the public sector may view the private sector as merely a source of capital, and not as a true partner. It was suggested that a joint public/private executive and advisory committee be established to provide guidance and information. Along this same line was the suggestion that the public sector establish a department with the necessary funding and authority to take actions to establish public/private partnerships. This department should train public personnel in the procedures of public/private partnerships, obtain proposals from the private sector, and help guarantee continuity for promising and successful projects.

The current state codes and a lack of legislation that would allow state agencies to barter things of value for service from the private sector, was also stated as a challenge to public/private partnerships. This also ties into the challenge of the state's ability to transfer ownership (permanently or temporarily) of publicly owned or

controlled assets to the private sector in public/private partnerships. A majority of the respondents perceived this to be a moderately to highly serious barrier which would require a state statutory authority to effectively address the issue.

One suggestion for an action that a state could take to foster successful ITS public/private partnerships was to take a risk and enter into some public/private partnerships. The respondent used Minnesota DOT as an example. Minnesota has had much success but there have been significant failures along the way. It was also suggested that the state consult with Minnesota Guidestar to gain insight in the area of public/private partnerships.

Other institutional/legal barriers or challenges to ITS public/private partnerships:

- Tradition.
- A greater concern for the rules and procedures, than for the project objective or end user benefit.
- A distrust for consultants or contractors within the public sector.
- The tendency of public sector participants to halt their participation or support abruptly due to political reasons rather than technical, fiscal, or business reasons.
- A lack of price/value buying (i.e. the low bid mentality).
- Insufficient funding.
- An unfair distribution of costs and/or risks.

Other suggestions for effective actions that a state could take to foster successful ITS public/private partnerships:

- Use both open competition and sole source partnerships if possible to learn differences in each.
- Try to measure benefits of partnership efforts (e.g. savings to taxpayers, new services available etc.)
- Encourage private industry to propose ITS projects to the state.
- Increase state participation in industry activities, such as major industry meetings, standards committees, etc.
- Create a "model deployment" to ensure that the legal foundations, contracting procedures, and departmental management attitudes are supportive and coordinated.
- Involve the private sector early on in project development.

The last half of the survey stated thirty-six different issues/barriers regarding public/private partnerships for ITS and asked the respondent to rate the seriousness of each issue, and to indicate whether or not state statutory language would be necessary to effectively address each issue.

The following table restates those issues and shows a tabulation of the responses given regarding each issue.

Issue or Barrier	**Rate Seriousness of Barrier 0 = No Barrier 1 = Small 2 = Moderate 3 = High**				**State Statutory Authority Needed? Yes, No, or No response**		
	Total number of each response				**Total number of each response**		
	0	*1*	*2*	*3*	*Yes*	*No*	*No Response*
1. Ability to clearly establish rationale for a public/private partnership, namely the public purpose, attraction of private capital to augment public sector resources, and the opportunity for the private sector to earn a profit.	0	2	2	3	2	4	1
2. Ability to enter a broad range of public/private partnerships for sharing risks, costs, and rewards (e.g. Cooperative Agreements, Cooperative Research and Development Agreements, Memorandum of Understanding, Open Solicitation (e.g. call for projects), Design-Build-Operate, System Manager, Intermediary, Franchise, Competitive Joint Venture.)	0	0	5	2	5	1	1
3. Ability to enter into various types of multi-jurisdictional cooperation (joint powers, public/public partnerships, pooled-funded projects, lead contracting agency representing multiple jurisdictions, preemption of home rule.)	0	1	3	3	5	1	1
4. Ability to form special districts (similar to redevelopment agencies, housing finance authorities, transportation corridor agencies, and other special purpose authorities) which would have authority to issue tax-exempt bonds to assist in ITS financing.	0	1	4	2	3	2	1
5. Ability to delegate to implementing agencies (whether a state or local agency, or special purpose district) to negotiate or enter into agreements with private entities containing financial incentive arrangements.	0	0	3	4	1	2	4
6. Ability to enter into experimental public/private relationships.	0	3	2	2	1	2	4
7. Ability of government agency to maintain sufficient control over the use of publicly owned assets (e.g. highways, traffic signal systems) when such assets are involved in public/private partnership.	2	4	1	0	1	3	3

Issue or Barrier	Rate Seriousness of Barrier 0 = No Barrier 1 = Small 2 = Moderate 3 = High				State Statutory Authority Needed? Yes, No, or No response		
	Total number of each response				Total number of each response		
	0	*1*	*2*	*3*	*Yes*	*No*	*No Response*
8. Ability to contract out or privatize responsibility for various phases of deployment over the ITS lifecycle (planning, design, build, operate, maintain, disposal)	2	1	3	1	4	1	2
9. Ability to sell, lease or transfer ownership of publicly owned ITS components for suitable compensation (e.g. Traffic Operations Center, traffic detection and surveillance equipment.)	1	1	3	2	5	0	2
10. Ability to use a broad range of procurement procedures conducive to public/private partnerships (e.g. Performance Based Contracting, Request for Partnership Proposals, Open Solicitation (e.g. Call for Projects), Fixed Price, Cost Plus Fixed Fee, Design-Bid-Build, Design-Build-Operate-Maintain).	1	2	2	2	3	1	3
11. Ability to request analysis of business feasibility, including market research, business plan, and evaluation by financial institutions such as a bond rating agency.	3	3	1	0	0	5	2
12. Ability of public agency to offer a subsidy or to pay for complimentary services provided by the private sector for a limited time period or the duration of the agreement when the public/private partnership is not expected to earn a profit.	1	2	1	3	3	1	3
13. Ability to receive competitive bids based on creative ideas and overall net value versus low bid contracting.	1	2	1	3	2	2	3
14. Ability to phase public/private partnership procurements in a variety of ways (Notification of Interest, Request for Qualifications, Request for Preliminary Business Plan, Request for Partnership Proposals, Design Phase, Build in Phases, Operation and Maintenance Phase, other phasing.)	1	3	2	1	0	4	3
15. Ability to receive and/or commingle funds from public and private organizations and use for ITS.	3	0	4	0	0	4	3
16. Ability to share revenues and to use a variety of revenue sharing formulas (e.g. percentage of gross revenues or share revenues to the point of public and/or private sector cost recovery).	2	1	4	0	3	2	2
17. Ability to reinvest revenues received by public/private partnerships in ITS.	2	1	2	1	3	1	3
18. Ability to share risks (financial, technical, liability).	0	1	5	1	5	0	2
19. Ability to share costs (funds, in-kind contributions).	1	2	0	4	2	2	3
20. Ability to match and use federal aid.	1	3	1	2	1	4	2
21. Ability to take advantage of various federal programs of Innovative Finance.	1	2	2	1	1	4	2

Issue or Barrier	Rate Seriousness of Barrier 0 = No Barrier 1 = Small 2 = Moderate 3 = High				State Statutory Authority Needed? Yes, No, or No response		
	Total number of each response				Total number of each response		
	0	*1*	*2*	*3*	*Yes*	*No*	*No Response*
22. Ability to establish a revolving fund, state infrastructure bank, local infrastructure bank, escrow accounts, and other financial repositories that permit leveraging and effective management of funds.	1	2	1	3	3	2	2
23. Ability to grant to the private sector access to or use of public property (rights-of-way, communication towers, other facilities, equipment, hardware).	1	0	3	3	5	0	2
24. Ability to sell publicly generated information or data according to a variety of fee policies (e.g. cost recovery, marginal cost pricing, average cost pricing, basic service vs. value added pricing, flat fees, volume rates.)	1	2	4	0	3	1	3
25. Ability to grant various degrees of exclusivity (i.e. competition) to increase the economic feasibility and profitability of public/private partnerships.	1	1	4	1	4	1	2
26. Ability to control or regulate rate of return, return on investment, market entry, and market exit of public/private partnerships granted monopoly or partial monopoly privileges.	0	2	5	0	4	1	2
27. Ability to delegate to other state or local agencies, especially a Public Service Commission or Public Utility Commission, responsibility for regulation of a monopoly or partially exclusive business enterprises.	0	2	3	2	3	1	3
28. Ability to safeguard the public interest including public health and welfare.	3	3	1	0	0	5	2
29. Ability to impose public interest obligations in return for economically valuable rights or concessions granted to private firms participating in a public/private partnership.	1	4	0	1	1	3	3
30. Ability to balance market viability of public/private partnerships versus issues of equity, universal access, and social justice.	1	3	2	1	0	5	2
31. Ability to safeguard intellectual property rights (copyrights, patents, trademarks).	1	1	2	3	2	2	3
32. Ability of government to safeguard proprietary information received from private firms (especially from Freedom of Information (FOI) requests).	1	1	3	2	3	1	3
33. Ability to allow private sector participants of public/private partnerships to establish separate cost centers, separate business units or other organizational structures to facilitate any audit requirements and safeguard proprietary information.	1	3	2	1	1	4	2

Issue or Barrier	Rate Seriousness of Barrier 0 = No Barrier 1 = Small 2 = Moderate 3 = High				State Statutory Authority Needed? Yes, No, or No response		
	Total number of each response				Total number of each response		
	0	*1*	*2*	*3*	*Yes*	*No*	*No Response*
34. Ability to limit the liability of the state and the private sector participating in public/private partnerships while safeguarding the public's health and welfare.	0	3	2	2	4	1	2
35. Ability to protect privacy.	1	3	1	1	4	1	2
36. Ability to adequately safeguard against antitrust violations while effectively fostering public/private partnerships.	1	3	1	2	3	1	3
37. Other (Conflict of Interest)			1		1		
37. Other (International League Issues)		1			1		
38. Other (International Currency Exchange)		1				1	
39. Other							

DATA ANALYSIS

The issues/barriers which most respondents noted as moderate/high include:

- Ability to enter a broad range of public/private partnerships for sharing risks, costs, and rewards.
- Ability to enter into various types of multi-jurisdictional cooperation.
- Ability to form special districts which would have authority to issue tax-exempt bonds.
- Ability to delegate to implementing agencies to negotiate or enter in agreements with private entities containing financial incentive arrangements.
- Ability to share risks.
- Ability to grant private sector access to or use of public property.

The two issues/barriers which most respondents noted as no barrier or small barrier include:

- Ability of government agency to maintain sufficient control over the use of publicly owned assets.
- Ability to request analysis of business feasibility by financial institutions.

Eight of the thirty-six issues received a high number of responses either in favor of, or in opposition to the question of whether or not a state statutory authority should

be created to address the issue. A majority of respondents (five out of seven) felt that the following issues would require state statutory language.

- Issue #2 – The ability to enter a broad range of public/private partnerships for sharing risks, costs, and rewards.

All of the respondents rated this issue as a moderately/highly serious issue. One person suggested that legislative language and the proper training on how to enter and execute such partnerships would help to lower the barrier.

- Issue #3 – The ability to enter into various types of multi-jurisdictional cooperation.

Six of seven people rated this as a moderately/highly serious issue. It was suggested that this barrier may not be the result of a lack of statutory language, but that it may stem from a lack of communication/cooperation between jurisdictions.

- Issue #9 – The ability to sell, lease, or transfer ownership of publicly owned ITS components for suitable compensation.

Five out of seven respondents thought this was a moderately/highly serious barrier. It was suggested that this barrier must be broken down in order for both parties to be successful and achieve their goals in the public private partnership.

- Issue #18 – The ability to share risks.

Six of the seven respondents view this as a moderately/highly serious issue. One person thought that even more important than an equal sharing of risks is the issue of understanding what the risk/benefit ratio is.

- Issue #23 – The ability to grant the private sector access to or use of public property.

Six out of seven people said this was a moderately/highly serious issue. As with issue #9, it was said that this may be a key to successful partnerships, since state right-of-way is a valuable asset that could be bartered for service. One suggestion was that non-exclusive arrangements should be used in most cases, in order to promote competition.

The following three issues stood out from the others because five out of seven people thought that the issue did not require state statutory language to effectively address the issue.

- Issue #11 – The ability to request analysis of business feasibility.

Six out of seven respondents said that this issue was either not a barrier or only a small barrier. One person commented that the private sector will figure this out.

- Issue #28 – The ability to safeguard the public interest, including public health and welfare.

Six of the respondents rated this as being either not a barrier or only a small barrier. Two people commented that this was clearly an important issue, but not a barrier.

- Issue #30 – Ability to balance market viability of public/private partnerships versus issues of equity, universal access, and social justice.

Four people thought that this issue was either no barrier at all or a small barrier. Three people thought that this was a moderately/highly serious barrier. One person commented that this issue is the public sector's job.

SECTION E

KICKOFF MEETING

KICKOFF MEETING

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for

Wisconsin Department of Transportation

by

Booz·Allen & Hamilton Inc.

with

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

December 16, 1999

VALUE CHAIN EXERCISE

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS WISCONSIN DEPARTMENT OF TRANSPORTATION

What are the objectives of the value chain exercise?

1. Identify sources of value in ITS implementation that can lead to public/private partnerships.
2. Promote a fruitful way of thinking about public/private partnerships for ITS.
3. Begin to identify where opportunities for public/private partnerships exist.

What is a value chain? It describes the value added in each step of a business process resulting in a product or a service.

What is the significance of a value chain for ITS? By understanding where value is added in each step in the process of providing an ITS user service, it is possible to identify where in the overall business process the private sector might earn revenue and where there is a potential for public/private partnerships.

How does value arise? Value arises from a number of sources. One source consists of scarce resources such as people's time, public rights-of-way suitable for installing infrastructure, and electromagnetic spectrum used for telecommunications. Another source of value arises from benefits of networks. The more links, nodes, and spatial coverage the greater the benefits. Networks support transportation, communications, and the interaction of communities with common interests. A third source of value is information, for example traveler information or data useful for assessing and managing risks covered by insurance companies. A fourth source of value arises from the ability to exert various types of control. One can try to control access, speed, pollution, and safety or security.

What are key determinants of economic value of an ITS service? The most important is the degree to which the next best substitute can provide the same value to the customers of the service. For example, free broadcast information about rush hour traffic often provides nearly as much value to commuters about traffic conditions on urban freeways as Advanced Traveler Information Systems. Consequently few people are willing to pay for a Traveler Information service if it only covers travel conditions on urban freeways already addressed by radio and television.

What is the precondition for converting the economic value of a part of a business process into a revenue stream that can support private sector provision? The answer is it must be feasible to exclude usage based on price.

Under what circumstances will the private sector provide the service or participate in a public/private partnership? The revenue the private sector earns must exceed its investment cost plus a reasonable return on investment.

What are we going to do in the value chain exercise? For various ITS user services, first we are going to identify the steps in the business process. Then we are going to identify the steps where significant value may arise. We will then identify which steps must necessarily involve the public sector. Finally we will assess in qualitative terms the feasibility of the private sector capturing value where the public sector must be involved.

Scarce Resources as Sources Value	Networks (links, nodes, coverage) as Source of Value	Type of Information Having Value	Types of Control That Affect Value	ITS Market Packages	Value Added = Total Value – Value of Best Substitute
• Spectrum • Telecom Capacity • Facility Capacity • Rights-of-Way • Other Public Property • Public Commons (clear air, clean water) • Restricted Information • Intellectual Property Rights (patents, copyrights) • Permission to use the roads (licenses, registration) • Ownership titles • Time • Factors of Production (capital, labor) • Products • Services	• Transportation • Telecom • Common communities of interest	• Traveler information --Travel time --Delay --Congestion --ETA --Location --Pollution --Parking --Lodging --Food --Places of interest --Weather • Commercial transport information --Location --Supply chain --Credential data • Risk information (e.g. for insurance) • Arbitrage	• Access • Speed • Regulation of externalities (e.g. pollution) • Protection of public safety and security	• Network Surveillance • Probe Surveillance • Surface Street Control • HOV & Reversible Lane Mgmt. • Traffic Info Dissemination • Regional Traffic Control • Incident Management System • Traffic Network Performance System • Dynamic Toll/Parking Mgmt System • Emissions & Env. Hazards • Virtual TMC & Smart Probe Data • Transit Vehicle Tracking • Transit Fixed-Route Operations • Demand Response Transit • Transit Pass. and Fare Mgmt. • Transit Security • Transit Maintenance • Trav. Info (Brdcast, Interact., Auton.) • Dynamic Route Sharing • In-vehicle signing • Vehicle Safety Monitoring • Driver Safety Monitoring • Longitudinal/Lateral Safety Warning • Longitudinal/Lateral Collision Avoid. • Automated Highway Systems • Intersection Collision Avoidance • Fleet Administration • Freight Administration • CVO Electronic Clearance • CVO Border Clearance • Roadside CVO Safety • On-board CVO Safety • CVO Fleet Maintenance • HAZMAT Mgmt • Emergency Response • Emergency Routing • Mayday Support	• Public Benefits in terms of: --Travel time --Accidents -- Op. Costs -- LCC -- Pollution -- Admin. Costs Induced Travel • Private Benefits -- Revenues -- Cost reduction

IS THE CHANGE IN COST < CHANGE IN TOTAL VALUE – VALUE OF BEST SUBSTITUTE?
IS EXCLUSION BASED ON PRICE POSSIBLE?
IS THE PRICE * USAGE > INVESTMENT COST + RETURN ON INVESTMENT?
IS THE RETURN ON INVESTMENT > OPPORTUNITY COST

TABLE OF CONTENTS

FINAL

TASK 2 REPORT

LEGAL AND PROCUREMENT BARRIERS TO PUBLIC-PRIVATE PARTNERSHIPS IN WISCONSIN

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for:

Wisconsin Department of Transportation

Prepared by:

BOOZ·ALLEN & HAMILTON

With

Miller & Van Eaton, P.L.L.C

September 1, 1999

TABLE OF CONTENTS

EXECUTIVE SUMMARY

The Wisconsin Department of Transportation ("WisDOT" or the "Department") is responsible for the safety and the efficient management of state highways and other transportation facilities in the state of Wisconsin. The deployment of Intelligent Transportation Systems ("ITS") promises many benefits to the travelling public and commercial enterprises in Wisconsin. Consequently, as part of its efforts to serve the public interest in a cost-effective manner, WisDOT wishes to determine whether and under what conditions private sector participation in WisDOT projects may benefit the deployment of ITS. Such "public-private partnerships" may reduce costs and increase the range of services available to the public. WisDOT intends to develop a set of guidelines to assist it in determining whether a particular project is suitable to a public-private partnership arrangement, and, if so, how the arrangement should be structured. This Report will assist in preparation of the guidelines by identifying barriers to the creation of public-private partnerships under existing law.

The term "public-private partnership" does not necessarily refer to a separate legal entity that is created by complying with state law requirements for the formation of a business or simply arises by operation of law. Instead, a public-private partnership may take a wide variety of forms, from a partnership or joint venture in the strictest legal sense, to projects in which the parties simply agree to pool specific resources and to share the profits and benefits arising from a particular project. In most general terms, a public-private partnership is an activity in which the public and private sectors share the risks, costs, and rewards of an undertaking. In the ITS context, public-private partnerships are generally intended to provide such significant public benefits as more improved highway safety, efficient highway usage, reduced environmental degradation, and reduced traffic congestion. ITS-related public-private partnerships may involve the use of or access to publicly-owned transportation facilities by private entities, a combination of publicly-owned highway facilities and privately-owned facilities, or the use of public rights-of-way adjacent to a state, county, or municipal highway. They may also take other forms, but in general, ITS public-private partnerships will give a private entity special rights in public property in return for a service or other benefit that it would otherwise be inefficient or too costly for the public sector to provide or obtain by other means.

Under the statutory and legal framework as it exists in Wisconsin today, the major issues with which both private and public parties attempting to form public-private partnerships to deploy ITS must contend are:

- Constitutional and common law restrictions on the use of public property. Specifically, property acquired by the state must be used for a public purpose.

- Constitutional restrictions on the expenditure of public funds. The Wisconsin Constitution prohibits the contracting of public debt or expenditure of public funds for private purposes.

- Statutory restrictions on the use of public property. For example, a prohibition on the conducting of commercial enterprises on controlled-access highways which, depending upon the particular ITS project, could prohibit the placement of facilities on or in controlled access highways.

- Authority of the Department to enter into certain types of arrangements. State officials and agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. Therefore, in order for the Department to enter into partnerships or other arrangements with private entities the Department must have clear authority.

- Disposition of project revenues. The Wisconsin Code provides that "[a]ll moneys in the state treasury not specifically designated in any statute as belonging to any other funds constitute the general fund." Absent a statute which designates the revenue derived from a public-private partnership as belonging to a specific fund, any funds received by the Department will be deposited in the general fund rather than available for reinvestment in the public-private partnership or in another ITS project.

Even those agreements that meet the public purpose requirements for use of public property and public funds and that are within the statutory authority of the Department will be subject to other limitations under federal and state law. These requirements could make such an agreement less attractive to private entities, could restrict or prevent certain projects entirely, or could affect the manner in which a project is organized. For example, certain state and federal statutes would require the approval of several different state and federal officials for the expenditure of funds and for the execution of construction contracts. These statutes would also dictate the manner in which certain services and materials are acquired (e.g. procurement procedures and the competitive bidding process). In addition, both federal and state statutes, as they currently exist, would require that the Department retain the authority to supervise the construction and maintenance of highway projects.

Wisconsin law already permits certain types of public-private partnerships that may be applied to ITS projects. Build-operate-lease agreements, for example, are expressly permitted. In addition, the Department and municipal governments may lease their property to private entities. This authority, however, may not be sufficient in many cases. It is also too limited to allow much flexibility in how projects are organized. WisDOT's inability to enter into compensation agreements with private sector entities other than public entities, for example, is an important limitation.

Some of the limitations discussed above may be addressed by simply structuring the public-private partnerships in a particular way. In many cases, however, this may not be possible. Specific legislation therefore may be required to authorize certain projects or to amend those specific provisions that would otherwise bar a potential ITS project that meets the public purpose requirements.

The feasibility of a particular ITS public-private partnership – and the optimal structure of the partnership – will vary from case to case. Each potential project will have to be evaluated in light of the guidelines to be developed later in this project. The Report does not attempt to identify projects or partnership structures, nor does it single out statutes to be amended. The Report simply describes the current state of the law and the possible effects of various provisions. Specific recommendations will be prepared as a subsequent task under this project.

I. INTRODUCTION

The Wisconsin Department of Transportation ("WisDOT" or the "Department") is responsible for the safety and the efficient management of state highways and other transportation facilities in the state of Wisconsin. The deployment of Intelligent Transportation Systems ("ITS") promises many benefits to the travelling public and commercial enterprises in Wisconsin. Consequently, as part of its efforts to serve the public interest in a cost-effective manner, WisDOT wishes to determine whether and under what conditions private sector participation in WisDOT projects may benefit the deployment of ITS. Such "public-private partnerships" may reduce costs and increase the range of services available to the public. WisDOT intends to develop a set of guidelines to assist it in determining whether a particular project is suitable to a public-private partnership arrangement, and, if so, how the arrangement should be structured. This Report will assist in preparation of the guidelines by identifying barriers to the creation of public-private partnerships under existing law.

The term "public-private partnership" does not necessarily refer to a separate legal entity that is created by complying with state law requirements for the formation of a business or simply arises by operation of law. Instead, a public-private partnership may take a wide variety of forms, from a partnership or joint venture in the strictest legal sense, to projects in which the parties simply agree to pool specific resources and to share the profits and benefits arising from a particular project. In most general terms, a public-private partnership is an activity in which the public and private sectors share the risks, costs, and rewards of an undertaking. In the ITS context, public-private partnerships are generally intended to provide such significant public benefits as more improved highway safety, efficient highway usage, reduced environmental degradation, and reduced traffic congestion. ITS-related public-private partnerships may involve the use of or access to publicly-owned transportation facilities by private entities, a combination of publicly-owned highway facilities and privately-owned facilities, or the use of public rights-of-way adjacent to a state, county, or municipal highway. They may also take other forms, but in general, ITS public-private partnerships will give a private entity special rights in public property in return for a service or other benefit that it would otherwise be inefficient or too costly for the public sector to provide or obtain by other means.

Under the statutory and legal framework as it exists in Wisconsin today, WisDOT must contend with four major issues if it attempts to form a public private partnership to deploy ITS. These issues are: restrictions on the use of public property; restrictions on the expenditure of public funds; the authority of the Department to enter into certain types of arrangements; and the inability to reinvest revenues generated by a particular ITS project.

This Report will address each of these issues in the context of specific provisions.[1] The Report first examines provisions of existing law that may prohibit or restrict WisDOT's ability to establish a public-private partnership. The Report then examines provisions that may authorize certain types of public-private partnerships. The Report also examines the use of public records and the applicability of cooperative agreements. Finally, the Report notes that federal law and a range of miscellaneous state law provisions may affect the viability of a particular project.

II. PROVISIONS THAT MAY RESTRICT THE DEPARTMENT OF TRANSPORTATION'S AUTHORITY TO ENTER INTO PUBLIC-PRIVATE PARTNERSHIPS

Perhaps the most important restrictions or limitations that the Department will face when attempting to implement an ITS project are the statutory, constitutional and common law limitations that apply to the use of public property. Property acquired by the state, which could only be acquired for a public purpose, must be used for a public purpose. *See Lakeside Lumber Co. v. Jacobs*, 1134 Wis. 188, 114 N.W. 446 (1908). The Wisconsin Supreme Court has held that "[a] taking for a use that is not public is unconstitutional and beyond the right of the legislature to accomplish." *Falkner v. Northern States Power Co.*, 75 Wis.2d 116, 125, 248 N.W.2d 885 (1977). In addition, certain statutes further restrict the uses for which such property may be employed. The most important of these restrictions on use is a prohibition on conducting a commercial enterprise on state-owned controlled access highways. Wis. Code. § 84.25(11)(1997).[2] This statute could effectively bar potential ITS projects that require (as many presumably will) the use of controlled access highways. While the public purpose requirements of the Wisconsin Constitution may be addressed by making sure that ITS projects in which the Department is involved have a clearly articulable public purpose, legislation may be required to amend those specific use provisions that would prevent implementation of potential ITS projects that meet the public purpose requirements.

The Wisconsin Constitution prohibits the contracting of public debt or expenditure of public funds for private purposes. As with the public purpose requirement for use of property, the Department may address this issue simply by making sure that ITS projects have a clearly articulable public purpose.

[1] Telephone interviews with Wisconsin attorneys who have had experience working with the Wisconsin Department of Transportation and with executives working for companies involved in ITS projects in other states confirmed that the provisions discussed in this Report can be an impediment to such public-private partnerships. Those conversations failed to reveal any additional issues or concerns raised by current Wisconsin law.

[2] This section does contain one exception for vending machines that are provided by the blind.

An examination of the relevant Wisconsin statutes reveals that there are currently no constitutional, statutory or regulatory provisions that would expressly prohibit the Department of Transportation ("Department") from entering into a partnership or joint venture with a private entity for the purpose of ITS deployment. However, Wisconsin common law provides that state officials and agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. *American Brass Co. v. State Board of Health*, 245 Wis. 440, 448, 15 N.W.2d 27 (1944). With the exception of one provision, Section 84.01(30) of the Wisconsin Code,[3] there is no express grant of power to the Department to enter into partnerships or other arrangements with private entities; therefore, any agreement that does not fit within Section 84.01(30) would have to be based on the Department's statutory authority over Wisconsin's state highways. This particular requirement will undoubtedly inject a degree of uncertainty (on the part of both the private investor and the Department) in each project that does not fall within Section 84.01(30). This could substantially inhibit the Department's ability to attract private investors or partners to an ITS project.

Even those agreements that are within the authority of the Department because they meet the public purpose requirements for use of public property and public funds may be subject to other limitations under federal and state law. These requirements could make such an agreement less attractive to private entities, could restrict or prevent certain projects entirely or could affect the manner in which a project is organized. For example, certain state and federal statutes would require the approval of several different state and federal officials for the expenditure of funds and for the execution of construction contracts. These statutes would also dictate the manner in which certain services and materials are acquired (e.g. procurement procedures and the competitive bidding process). Finally, both federal and state statutes, as they currently exist, would require that the Department retain the authority to supervise the construction[4] and maintenance of highway projects. *See* Wis. Code §§ 84.01, 84.07; 23 U.S.C. § 114(a); 23 C.F.R. §§ 1.11, 1.27 (1998).

A. Constitutional Provisions Limiting the Authority of the Department

There are no provisions of the Wisconsin Constitution that would expressly prohibit a state agency, such as the Wisconsin Department of Transportation, from

[3] Section 84.01(30) permits the Department to enter into build-operate-lease or transfer agreements with private entities for transportation projects.

[4] Construction that must be supervised would most likely include construction of highway and transportation-related facilities as well as construction of the highway itself.

entering into a partnership or joint venture with a private entity.[5] Conversely, there are no provisions that would expressly authorize these types of partnerships.[6] The Wisconsin Constitution, however, contains three provisions that, while not prohibiting public-private partnerships, may affect them. The first two, Sections 3 and 4 of Article VIII of the Constitution, prohibit the extension of credit or the incurring of public debt in aid of a private entity. These prohibitions could, in some cases, restrict the methods of financing of a potential project by limiting the ability of the Department to provide direct financial support to a project. The third provision, Section 31 of Article IV, prohibits the legislature from enacting special or private laws; this may prevent specific legislation that could be needed to authorize a project.

1. Use of Public Funds.

Wisconsin Constitution Article VIII, §3

Credit of state.
Except as provided in s. 7 (2) (a)[7], the credit of the state shall never be given, or loaned, in aid of any individual, association or corporation.

Wisconsin Constitution Article VIII, § 4

Contracting state debts
The state shall never contract any public debt except in the cases and manner herein provided.

The Wisconsin Constitution prohibits the state from extending the credit of the state in order to aid or benefit a private entity. Read broadly, these prohibitions could make it extremely difficult to establish a public-private partnership that called for any

[5] There are also no constitutional provisions that would expressly prohibit the private operation of highways or highway-related facilities by a private entity.

[6] Here, another constitutional limitation which must be considered when planning a ITS project is the Wisconsin Supreme Court holding that "A taking for a use that is not public is unconstitutional and beyond the right of the legislature to accomplish." *Falkner v. Northern States Power Co.*, 75 Wis.2d 116, 125, 248 N.W.2d 885 (1977).

[7] **Article VIII §7**
Public debt for public defense; bonding for public purposes.

* * *

(2) Any other provision of this constitution to the contrary notwithstanding:

(a) The state may contract public debt and pledges to the payment thereof its full faith, credit and taxing power:

1. To acquire, construct, develop, extend, enlarge or improve land, waters, property, highways, railways, buildings, equipment or facilities for public purposes.

form of public funding. In practice, however, these provisions have been construed more favorably.

The Constitution provides an exception to the general prohibition on extension of the credit of the state in Section 7(2)(a) of Article VIII. Section 7(2)(a) permits the state to extend the credit of the state in order to "acquire, construct, develop, extend, enlarge or improve" highways.[8] This exception is limited to those projects that have a "public purpose." In addition, the state may contract public debt[9] only for public purposes. S*ee* Wis. Const., Article VIII, §7. The public purpose doctrine has been held to govern the expenditure of public funds as well as the extension of state credit and the contracting of state debt. [10]

While it is clear that the extension of credit of the state, contracting of public debt and expenditure of public funds must be for a project that will serve a public purpose, the public purpose doctrine does not require that the public be the sole beneficiary. *Hopper v. Madison*, 79 Wis. 2d 120, 129, 256 N.W.2d 139 (1977). The fact that an expenditure of public funds benefits certain individuals or one class more immediately than it does other individuals or another class does not necessarily deprive the expenditure of its public character. *State ex rel. Wisconsin Dev. Authority v. Dammann*, 228 Wis. 147, 178, 182, 183, 277 N.W. 278, 280 N.W.2d 698 (1938); *State ex rel. American Legion 1941 Conv. Corp. v. Smith*, 235 Wis. 443, 451, 293 N.W. 161 (1940). More recently, the Supreme Court of Wisconsin has concluded that '[i]f an appropriation is designed in its principle parts to promote a public purpose so that its accomplishment is a reasonable probability, private benefits which are necessary and reasonable to the main

[8] Even if a proposed project for which the Department wishes to contract public debt meets these criteria, however, the Department is not simply free to contract such debt. The Building Commission, subject to certain conditions and limitations, "shall have supervision over all matters relating to the contracting of public debt and the issuance of evidences of indebtedness therefor." Wis. Code § 18.03(1). However, "the [building] commission shall authorize public debt to be contracted and evidences of indebtedness to be issued therefor up to the amounts specified by the legislature to acquire, construct, develop, extend, enlarge or improve land, waters, property, highways... for the classes of public purposes specified by the legislature as the funds are required. Said requirements for funds shall be established by that department or agency head having program responsibilities for which public debt has been authorized by the legislature." Wis. Code § 18.04(2)

[9] The Wisconsin Supreme Court in *State ex rel. La Follette v. Stitt*, 338 N.W.2d 684, 114 Wis.2d 358 (1983), has held that ""public debt" includes absolute obligations to pay money or its equivalent; and public debt is further defined in terms of when and how it is payable. If the state's obligation to pay money, even if absolute, is an obligation to pay from money "presently available or in the process of collection," it is not public debt within the meaning of the constitutional prohibition."

[10] The Court in *State ex rel. Bowman v. Barczak* 34 Wis.2d 57, 62, 148 N.W.2d 683, 687 (1967), stated that "although there is no specific clause in the state constitution establishing the public purpose doctrine, nevertheless such doctrine is firmly accepted as a basic constitutional tenet mandating that public appropriations may not be used for other than public purposes." S*ee also Libertarian Party of Wisconsin v. State of Wisconsin*, 1999 Wis.2d 790, 546 N.W.2d 424 (1996).

purpose are permissible.' *Hopper*, 256 N.W.2d at 147. Thus, an ITS project that provides significant public benefits such as promoting more efficient highway usage and reducing traffic congestion could be held to be "for a public purpose" even if the project was operated or owned by a private entity which received profit from such ownership or operation.

While the public purpose doctrine as a whole is well-established, the question of just what constitutes a "public purpose" is much less settled. "[T]the concept of public purpose doctrine is a fluid one and varies from time to time, from age to age, as the government and its people change…[it] depends upon what the people expect and want their government to do for the society as a whole…" *State ex rel. Warren v. Reuter*, 44 Wis.2d 201, 213, 170 N.W.2d 790, 795 (1969) *quoting State ex rel. Wisconsin Dev. Authority v. Dammann*, 228 Wis. 171, 182, 280 N.W. 698 ,709 (1938). The Supreme Court of Wisconsin, however, has provided some guidance for determining whether a purpose is a 'public purpose'. The Court in *Warren* set out two points that must be considered when determining if a purpose is a 'public purpose.' The first point addresses the subject matter of the use; it "must be one of public necessity, convenience or welfare." *Id.* The second point addresses the "difficulty which individuals have in providing it for themselves." *Id.*

In practice, this standard is not difficult to meet. The Supreme Court has said it will find that no public purpose exists for an enactment only if it is clear and palpable that there can be no benefit to the public. *See State ex rel. Hammermill Paper Co. et al. v. La Plante*, 58 Wis.2d 32, 205 N.w.2d 784 (1973). Despite this degree of deference, the Wisconsin Constitution still restricts the use of public credit to support a private endeavor. Therefore, the Department must, when extending credit, contracting public debt, or expending state funds for the financial support of a public-private partnership, be able to clearly articulate the public purpose of a proposed ITS project.

2. Prohibition on Special Laws

Wisconsin Constitution Article IV, §31.

Special and private laws prohibited

The legislature is prohibited from enacting any special or private laws in the following cases:

* * *

(2) For laying out, opening or altering highways, except in cases of state roads extending into more than one county, and military roads to aid in the construction of which lands may be granted by congress.

* * *

(7) For granting corporate powers or privileges, except to cities.

This section bans nine categories of "special or private laws."[11] Two of these categories might be relevant to an ITS project.

Paragraph 2 of Section 31, Article IV bans private laws for laying out highways. This could affect highways included in a project, or prohibit a legislative attempt to authorize a project that would include construction of a private road. Because this provision appears to specifically prohibit the actual construction or laying out of a private highway, it may not prohibit a project that simply requires placement of equipment, such as traffic sensors or cameras for example, on a private highway.

In addition, paragraph 7 would prohibit the granting of corporate powers or privileges to any form of partnership or joint venture. This provision might ban the creation of specific entities established to build or operate an ITS project. Private toll roads, for example, might be prohibited under this section. Section 31, however, has been held to include a public purpose doctrine allowing the granting of limited corporate powers to entities created to promote a public and state purpose. *Brookfield v. Milw. Sewerage Dist.*, 171 W. 2d 400, 491 N.W. 2d 484 (1992); see also, *State ex rel. Warren v. Nusbaum*, 59 W (2d) 391, 208 NW (2d) 780 (housing authority, designated as a corporation, does not violate the prohibition against granting of corporate powers by the legislature). Therefore, if a project clearly promotes a state or public purpose, it may be permissible -- but, again, it is important to bear this issue in mind.

In addition, even if a legislative enactment appears to be a "special or private" law, it may not be. Special or private laws are generally considered to be laws that are specific to any person, place, or thing. *See City of Brookfield v. Milwaukee Metropolitan Sewerage District*, 144 Wis. 2d 896, 426 N.W.2d 591 (1988). At first glance, as noted above, this requirement might appear to invalidate laws intended to authorize particular public-private partnerships. A law will not automatically be considered a private or special law simply because it appears to be specific to a person, place or thing, however, if the law addresses an issue of statewide concern. *See Milwaukee Brewers v. DH & SS*, 130 Wis.2d 79, 107-108, 387 N.W.2d 254, 266 (1986); *Shoreline Park*

[11] These nine are: (1) For changing the names of persons, constituting one person the heir at law of another or granting any divorce; (2) For laying out, opening or altering highways, except in cases of state roads extending into more than one county, and military roads to aid in the construction of which lands may be granted by congress; **(3)** For authorizing persons to keep ferries across streams at points wholly within this state; (4) For authorizing the sale or mortgage of real or personal property of minors or others under disability; (5) For locating or changing any county seat; (6) For assessment or collection of taxes or for extending the time for the collection thereof; (7) For granting corporate powers or privileges, except to cities; (8) For authorizing the apportionment of any part of the school fund; (9) For incorporating any city, town or village, or to amend the charter thereof.

Preservation, Inc. v. Wisconsin Department of Administration, 195 Wis.2d 750, 764, 537 N.W.2d 388, 393 (Ct. App. 1995). One possible example of a seemingly "specific" law would be a statute authorizing a private entity to place sensors or cameras on a highway in order to gather information on road conditions for sale to the public. In this case, while a particular entity would have the right to place the sensors and sell the information, there is a strong argument for the proposition that the efficient use of the highway, reduced traffic congestion, reduced environmental degradation, and improved highway safety that may result from the project are issues of statewide concern. Most ITS projects would probably satisfy this requirement, but the Department will need to bear the issue in mind if it seeks specific authorization for a project from the legislature.

In many instances, specific legislation authorizing an ITS project will be desirable to remove doubts about the authority to engage in the planned activity. It appears that this will be permissible if the project has a clear public purpose or addresses an issue of statewide concern. Nevertheless, in order to avoid a challenge on the grounds that it is a special or private law prohibited by the Wisconsin Constitution, where possible, WisDOT should seek general legislative authority that has the effect of permitting the specific project, rather than specific authority.

B. Statutes that Might Limit the Authority of the Department of Transportation.

There is no section of the Wisconsin Code that expressly prohibits the Department from entering into a partnership or joint venture with a private entity. On the other hand, with one limited exception, there are no provisions of the Wisconsin Code that expressly grant the Department such authority.[12] This lack of express language granting the Department the authority to enter into partnerships with private entities is significant because Wisconsin common law prohibits a state agency from exercising any power that is not expressly granted by statute. In Wisconsin, state officials and agencies have only those powers that are expressly granted to them or that are necessarily implied from the statutory authority. *American Brass Co. v. State Board of Health*, 245 Wis. 440, 448, 15 N.W.2d 27 (1944). A power that is not expressed must be reasonably implied from the express terms of the statute; it must be included in the authority expressly conferred. Furthermore, any doubt as to whether an agency has authority is resolved against the existence of authority. *State ex rel. Farrell v. Schubert*, 52 Wis.2d 351, 358, 190 N.W.2d 529 (1971). Thus, with the exception of build-operate-lease agreements under Section 84.01(30),[13] authority for the Department to enter into public-

[12] *See* Wis. Code § 84.01(30).

[13] Discussed below at Section III (F).

private partnership arrangements must be necessarily implied from the express terms of a statute. In order to avoid the uncertainty that would be created by such a situation, it may be necessary for the legislature to expressly grant the Department the necessary authority.[14]

C. Statutes that Might Restrict the Operations or Organizational Structure of Public-Private Partnerships.

Even if the Department has the authority to enter into a public-private partnership, various statutes may dictate how the public-private partnership is organized and how it conducts its operations. For example, projects constructed by a partnership would have to meet the Department's standard specifications for road and bridge construction, and might also have to comply with certain statutory contracting, purchasing and competitive bidding requirements set forth in the Department's regulations. Under the existing code, all construction[15] must be carried out under the direct supervision of the Department. S*ee* Wis. Code §84.40(2)(d) (relationships with non-profit sharing corporations); S*ee also* Wis. Code. §84.40(2)(f)(requiring approval of the governor). This section of the Report addresses specific statutes that will likely affect many public-private partnerships.

1. Use of state highway right-of-ways.

a. Wisconsin Code Section 84.25: Controlled-access highways.

> (11) Commercial enterprises. No commercial enterprise, except a vending facility which is licensed by the department of workforce development and operated by blind or visually impaired persons, shall be authorized or conducted within or on property acquired for or designated as a controlled-access highway.

Read literally, this provision may bar potential ITS projects that require (as many presumably will) the use of controlled access highways.[16] Depending upon the particular ITS project, this provision could prohibit the placement of facilities on or in

[14] While the passage of such legislation would authorize the Department to enter into public-private partnerships for ITS projects, the specific issue of the uses for which a state highway right-of-way may be engaged would still need to be addressed.

[15] Construction in this case would most likely include construction or major modifications of facilities.

[16] Wis. Code § 84.25 (2) Controlled-access highway defined. For the purposes of this section, a controlled-access highway is a highway on which the traffic is such that the department has found, determined and declared it to be necessary, in the interest of the public safety, convenience and the general welfare to prohibit entrance upon and departure from the highway or street except at places specially designated and provided for such purposes, and to exercise special controls over traffic on such highway or street.

controlled access highways. The Code does not define the term "commercial enterprise"; one could argue that if a project meets the "public purpose" test it should not fall within this definition.[17] One could also argue that the mere placement of wires, cables, or other equipment within the state highway right-of-way necessary for a particular project is not conducting a "commercial enterprise" within the right-of-way. But without a judicial interpretation, the meaning of the statute is sufficiently unclear to present a potential problem. In fact, this section is probably intended to ban road-side stands and other retail businesses from locating their facilities in the right-of-way. Consequently, it probably should not apply to public-private partnerships. Nevertheless, by its terms, it would seem to apply to many potential ITS projects.

b. Wisconsin Code Section 86.19: Highway signs, regulation, prohibition.

(1) Except as provided in sub. (1m), ***no sign shall be placed within the limits of any street or highway except such as are necessary for the guidance or warning of traffic or as provided by ss. 60.23 (17m) and 66.046.*** The authorities charged with the maintenance of streets or highways shall cause the removal therefrom and the disposal of all other signs.

Wisconsin Code Section 84.03: Federal aid; state and local funds.

(1) State and federal aid.

(a) All moneys granted or allotted to the state of Wisconsin as federal aid for highways and all state appropriations and other funds available to match or supplement such federal aid funds and so utilized by the department shall be expended by the department in accordance with the act of congress relating to such federal aid funds.

*** * ***

(c) On any highway, street or bridge hereafter constructed, reconstructed or improved with state or federal aid under this chapter, ***the location, form and character of informational, regulatory and warning signs, curb and pavement or other markings, and traffic signals installed or placed by any public authority or other agency shall be subject to the approval of the department; and the department is directed to approve***

[17] We understand that recent appropriations legislation adopted by the Wisconsin Legislature amended this provision to specifically permit the operation of build-operate-lease or transfer projects on controlled access highways. The Department is now authorized, as part of a build-operate-lease or transfer agreement for the construction or operation of a transportation facility, to exempt a private entity from the prohibition against (a) conducting a commercial enterprise within or on property acquired for, or designated as, a controlled access highway; and (b) placing a sign, other than a sign necessary for the guidance or warning of traffic, within the limits of any street or highway. The Department may only exempt a private entity from these restrictions if the Department (a) determines that such an exemption advances the public interest; and (b) specifies any requirements, as part of the build-operate-lease agreement, that the Department determines will practicably advance the purposes of those restrictions.

only such installations as will promote the safe and efficient utilization of the highways, streets and bridges.

Section 86.19, depending upon the particular ITS project, may affect a public-private partnership's ability to place signs on the highway. While this provision limits the placement of signs on all highways, there is no indication in the case law that this provision has been extended to limit the placement of other equipment such as cameras or other traffic tracking devices. Section 84.03 applies to all signs, traffic signals, or other markings, but only governs the placement of these on those highways that have been improved with federal or state aid. In addition, Section 84.03 permits the Department a certain degree of discretion in approving such installations. Equipment to be installed on highways improved with state or federal aid for such a project would be approved pursuant to this section only if it promotes the safe and efficient utilization of the highway, street, or bridge upon which it is placed. Signs that may be installed will only be permitted if they are necessary for guidance or warning or certain other specific uses.

ITS projects are unlikely to involve installation of non-traffic related signs, but the section would restrict a private entity's ability to advertise. Traveler advisory boards are one specific example of a particular project to which this section would apply. These boards, which could contain such things as traffic congestion information, road conditions, or alternate route information, may clearly be considered "necessary for the guidance or warning of traffic." However, inclusion of advertisements on the board, which could be an efficient method of recovering some of the costs associated with deploying and maintaining the boards, may arguably be prohibited under this section. Such a prohibition may depend upon the extent to which the board is used for advertising and the extent to which it is devoted to traveler information. The argument may be made that as long as advertising is not included to such an extent that it detracts from the primary purpose of the board -- the guidance and warning of traffic-- then advertising on such boards would be permitted under this section. Therefore, while this section would not prohibit the use of travel advisory boards, it would restrict the Department's ability to obtain revenue by offering space on such boards to the private sector for non-traffic uses.

2. Wisconsin Code Section 84.07: Maintenance of state trunk highways.

(1) State expense; when done by county or municipality. The state trunk highway system shall be maintained by the state at state expense. The department shall prescribe by rule specifications for such maintenance and may contract with any county highway committee or municipality to have all or certain parts of the work of maintaining the state trunk highways within or beyond the limits of the county or municipality, including interstate bridges, performed by the county or municipality, and any county or municipality may enter into such contract. General maintenance activities include the

application of protective coatings, the removal and control of snow, the removal, treatment and sanding of ice, interim repair of highway surfaces and adjacent structures, and all other operations, activities and processes required on a continuing basis for the preservation of the highways on the state trunk system, and including the care and protection of trees and other roadside vegetation and suitable planting to prevent soil erosion or to beautify highways pursuant to s. 80.01 (3), and all measures deemed necessary to provide adequate traffic service. Special maintenance activities include the restoration, reinforcement, complete repair or other activities which the department deems are necessary on an individual basis for specified portions of the state trunk system.

This provision permits the Department to delegate its duties in regard to maintaining state highways and enumerates those entities that the Department may contract with to do the work. In so doing, this provision appears to limit the parties that may be engaged to perform such work to county highway committees or municipalities. In addition, Section 84.07(1b) permits the use of private contractors in the case of emergency "repair, protection, or preservation." While the omission of private entities as parties with which the Department may contract for maintenance in Section 84.07 (1) does not necessarily exclude private entities altogether, given the express grant of permission to use private contractors in Section 84.07(1b), the omission of private entities from Section 84.07(1) may be construed as intentional. If this is the case, a public-private partnership or the private sector member of a partnership may not be permitted to contract with private sector parties for work that would constitute maintenance of state trunk highways.

Section 84.07 also requires that the State continue to bear the expense for maintaining state highways. While this provision may not affect the formation of a public-private partnership it may affect the manner in which the parties distribute the duties and liabilities of the partnership. For example, it is not clear that the private entity could be required to bear the burden of maintenance costs as its 'contribution' to the partnership, even if it chose to do so.

3. Wisconsin Code Section 13.48: Long-range public building program.

* * *

(10) Approval by building commission.

(a) No state board, agency, officer, department, commission or body corporate may enter into a contract for the construction, reconstruction, remodeling of or addition to any building, structure, or facility, which involves a cost in excess of $100,000, without completion of final plans and arrangement for supervision of construction and prior approval by the building commission. The building commission may not approve a contract for the construction, reconstruction, renovation or remodeling of

or an addition to a state building as defined in s. 44.51 (2) unless it determines that s. 44.57 has been complied with or does not apply. ***This section applies to the department of transportation only in respect to buildings, structures and facilities to be used for administrative or operating functions, including buildings, land and equipment to be used for the motor vehicle emission inspection and maintenance program under s. 110.20***.

* * *

(12) Privately owned or operated facilities.

(a) Except as provided in par. (b), no state board, agency, officer, department, commission or body corporate which has authority to permit a privately owned or operated facility to be constructed on state-owned land may permit a facility that would be privately owned or operated to be constructed on state-owned land without prior approval of the building commission.

(b) This subsection does not apply to any of the following:

1. A facility constructed by or for corporations having condemnation authority under s. 32.02 (3)[18] to (10)[19] and (13)[20] for purposes for which the corporation would have condemnation authority.

* * *

3. A facility constructed pursuant to a build-operate-lease or transfer agreement under s. 84.01 (30).

[18] Any railroad corporation, any grantee of a permit to construct a dam to develop hydroelectric energy for sale to the public, any Wisconsin plank or turnpike road corporation, any drainage corporation, any interstate bridge corporation, or any corporation formed under chapter 288, laws of 1899, for any public purpose authorized by its articles of incorporation. Wis. Code § 32.02 (3).

[19] Any rural electric cooperative association organized under ch. 185which operates a rural electrification project to:

(a) Generate, distribute or furnish at cost electric energy at retail to 500 or more members of said association in accordance with standard rules for extension of its service and facilities as provided in the bylaws of said association and whose bylaws also provide for the acceptance into membership of all applicants therefor who may reside within the territory in which such association undertakes to furnish its service, without discrimination as to such applicants; or

(b) Generate, transmit and furnish electric energy at wholesale to 3 or more rural electric cooperative associations furnishing electric energy under the conditions set forth in par. (a), for the construction and location of its lines, substation or generating plants, ponds or reservoirs, any dam, dam site, flowage rights or undeveloped water power, or for additions or extension of its plant and for the purpose of conducting tests or studies to determine the suitability of a site for the placement of a facility. Wis. Code §32.02 (10).

[20] Any corporation licensed to do business in Wisconsin that shall transmit oil or related products including all hydrocarbons which are in a liquid form at the temperature and pressure under which they are transported in pipelines in Wisconsin, and shall maintain terminal or product delivery facilities in Wisconsin, and shall be engaged in interstate or international commerce, subject to the approval of the public service commission upon a finding by it that the proposed real estate interests sought to be acquired are in the public interest. Wis. Code. §32.02 (13).

While this provision would exempt a potential project that could be classified as a build-operate-lease arrangement, all other projects in which a private entity would build or operate a facility on a public highway would have to receive prior approval of the building commission. While this would not necessarily prohibit such a project, each additional approval that is required in such a process will increase administrative costs and increase the uncertainty associated with the project from the standpoint of private investors.

4. Wisconsin Code Section 84.06: Highway construction.

* * *

(2) Bids, contracts.

(a) All such highway improvements shall be executed by contract based on bids unless the department finds that another method as provided in sub. (3) [Contracts with county or municipality; direct labor; materials] or (4) [Special contracts with railroads and utilities] would be more feasible and advantageous. Bids shall be advertised for in the manner determined by the department. ***Except as provided in s. 84.075 [contracting with minority businesses], the contract shall be awarded to the lowest competent and responsible bidder as determined by the department.*** If the bid of the lowest competent bidder is determined by the department to be in excess of the estimated reasonable value of the work or not in the public interest, all bids may be rejected. The department shall, so far as reasonable, follow uniform methods of advertising for bids and may prescribe and require uniform forms of bids and contracts. Except as provided in par. (b), the secretary shall enter into the contract on behalf of the state. Every such contract is exempted from ss. 16.70 to 16.75 [Department of Administration purchasing rules], 16.755 [review by council on small business] to 16.82 [powers of the Department of Administration], 16.87 [approval of contracts by the secretary and governor] and 16.89 [construction controlled by the Department of Administration], but ss**.** 16.528[interest on late payments], 16.752 [procurement from work centers of the severely handicapped] and 16.754 ["buy American" preference] apply to the contract. *Any such contract involving an expenditure of $1,000 or more shall not be valid until approved by the governor*. The secretary may require the attorney general to examine any contract and any bond submitted in connection with the contract and report on its sufficiency of form and execution. The bond required by s. 779.14 (1m) (b) for any such contract involving an expenditure of less than $1,000 is exempt from approval by the governor and shall be subject to approval by the secretary. *This subsection also applies to contracts with private contractors based on bids for maintenance under s. 84.07 [**Maintenance of state trunk highways]***

This section, which also applies to contracts with private contractors based on bids for maintenance of state trunk highways, requires the Department to award construction contracts for "highway improvements"[21] based on bids. Contracts

[21] Wis. Code § 84.06 Highway construction.

covered by this section "shall be awarded to the lowest competent and responsible bidder as determined by the department."[22] Although the Department may use other methods for contracting with municipalities or utilities, this section may create a situation in which the Department would be required to open for competitive bidding construction contracts for an ITS project that was developed by a particular private entity or public-private partnership, rather than negotiate with the particular private entity that proposed the project. One possible solution to this problem would be to amend this section to include an exception permitting the solicitation of proposals for contracts for the design, construction and operation of facilities where negotiation rather than competitive bidding is made desirable by technological and management complexities. One example of this type of exemption from competitive bidding can be found in Section 499.20(1) of the Wisconsin Code. This section, which governs the letting of construction contracts by the state's waste management authority, permits the authority to "negotiate and enter into contracts with a single source" for contracts that contain specified professional services. Wis. Code §499.20(1) (1997).[23]

5. Wisconsin Code Section 16.71: Purchasing; powers [Department of Administration]

> (1) Except as authorized in s. 16.74, the department [of Administration] shall purchase and may delegate to special designated agents the authority to purchase, all necessary materials, supplies, equipment, all other permanent personal property and miscellaneous capital, and contractual services and all other expense of a consumable nature for ***all agencies***. In making any delegation, the department [of Administration] shall require the agent to adhere to all requirements imposed on the department [of Administration] in making purchases under this subchapter.
>
> * * *

While this provision will not directly limit the Department's ability to enter into a public-private partnership, it could do so indirectly by limiting the Department's ability to contract for services and to purchase materials, supplies and equipment

(1) Definitions. In this section, "improvement" or "highway improvement" includes construction, reconstruction and the activities, operations and processes incidental to building, fabricating or bettering a highway, public mass transportation system or street, but not maintenance.

[22] The Wisconsin Supreme Court has held that an authority that purchases or contracts under Wis. Code §16.75 has discretion in awarding purchase and construction contracts such that it could award a particular contract to a contractor that was not the lowest bidder. *see Automatic Merchandising Corp. v. Nusbaum*, 60 Wis.2d 362, 210 N.W.2d 745 (1973), *see also State ex rel. Hron Bros., Inc. v. Port Washington*, 265 Wis. 507, 62 N.W.2d 1 (1953) (upholding city council award of construction contract to contractor not the lowest bidder). However, it appears that the Department has no such discretion for contracts governed by this section, because contracts under this section are exempted from the requirements of Wis. Code §16.75.

[23] *See Waste Management, Inc. v. Wisconsin Solid Waste Recycling Authority*, 84 Wis.2d 462, 267 N.W.2d 659 (1978).

necessary for its operation. For the most part,[24] the functions enumerated in Section 16.71 have been delegated by statute to WisDOT. In the absence of a delegation of the authority to contract for the purchase of supplies, materials or other products necessary in the operation of a potential public-private ITS project, the Department may not have the authority to contract for such items. In addition, to the extent that a member of a public-private partnership were to contract for systems, materials, equipment and other property for the benefit of the Department, this section might be read as requiring that such purchases be made by the Department of Administration. It will be necessary to enact legislation that will authorize WisDOT to make purchases that may be required in the ordinary course of operation of a public-private partnership, or to find an implied authority to do so from the express powers and duties of WisDOT enumerated in the Wisconsin Code. *See* 16 *Op.Atty.Gen.* 672 (1927) (Highway commission had power to enter into contract with oil company for discount on gasoline needed by commission to perform its statutory duties.)

D. Antitrust Issues.

1. Wisconsin Code Section 133.03: Unlawful contracts; conspiracies.

> (1) Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce is illegal. Every person[25] who makes any contract or engages in any combination or conspiracy in restraint of trade or commerce may be fined not more than $100,000 if a corporation, or, if any other person, $50,000, or be imprisoned for not more than 5 years, or both.[26]

[24] Section 84.06 exempts construction contracts and contracts for the maintenance of highways. Section 84.01(13) exempts " such engineering, consulting, surveying or other specialized services as it deems advisable."

[25] "Person" includes individuals, the state and all its political subdivisions, all counties, cities, villages, towns, school districts, governmental agencies and bodies politic and corporate, and all corporations, limited liability companies, partnerships, associations, companies, firms, joint ventures, joint stock companies, trusts, business trusts, estates and other legal or commercial entities existing under or authorized by the laws of this or any other state, the United States or any of its territories or any foreign country. Nothing in this definition may be construed to affect labor unions or any other association of laborers organized to promote the welfare of its members, nor associations or organizations intended to legitimately promote the interests of trade, commerce or manufacturing in this state, nor associations, corporate or otherwise, of farmers, gardeners or dairy workers or owners, including livestock farmers and fruit growers engaged in making collective sales or marketing for its members or shareholders of farm, orchard or dairy products produced by its members or shareholders if such activities are exempted under s. 133.07, 133.08 or 133.09 or are otherwise lawful under this chapter. Wis. Code. § 133.02(3).

[26] Effective Dec. 31, 1999, this subsection is amended to read:

(1) Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce is illegal. Every person who makes any contract or engages in any combination or conspiracy in restraint of trade or commerce may be fined not more than $100,000 if a corporation, or, if any other person, may be fined not more than $50,000 or imprisoned for not more than 7 years and 6 months or both.

> (2) Every person who monopolizes, or attempts to monopolize, or combines or conspires with any other person or persons to monopolize any part of trade or commerce may be fined not more than $100,000 if a corporation, or, if any other person, $50,000, or be imprisoned for not more than 5 years, or both.[27]
>
> (3) As an alternative to the criminal penalties for violation of this section, the department of justice or district attorney may bring an action for a civil forfeiture. In an action for a civil forfeiture under this subsection a corporation may be required to forfeit not more than $100,000 and any other person may be required to forfeit not more than $50,000.
>
> * * * *

Granting an exclusive franchise or license for use of its highway rights-of-way to a public-private partnership or a private entity with which the Department has some sort of affiliation is not expressly prohibited by the Wisconsin Code. Such an arrangement could be found to violate Section 133.03, however, which prohibits the monopolization or restraint of trade. This provision has been held to apply to state agencies as well as to private entities. *Town of Hallie v. City of Chippewa Falls*, 105 Wis.2d 533, 314 N.W. 2d 321, 324 (1982). Although the Wisconsin Supreme Court has applied the state action doctrine to limit a state agency's liability for conduct that would otherwise be illegal, it has done so only when the challenged restraint is clearly articulated and affirmatively expressed as a state policy, and the state actively supervises the policy. *See Prentice v. Title Insurance Company of Minnesota*, 176 Wis.2d 714, 500 N. W.2d 658 (1993). Therefore, to the extent that the Department was to grant an exclusive contract without legislative authorization or other proof of state policy[28], this section might be violated.

[27] Effective Dec. 31, 1999, this subsection is amended to read:

(2) Every person who monopolizes, or attempts to monopolize, or combines or conspires with any other person or persons to monopolize any part of trade or commerce may be fined not more than $100,000 if a corporation, or, if any other person, may be fined not more than $50,000 or imprisoned for not more than 7 years and 6 months or both.

[28] The Wisconsin Supreme Court has characterized the issue of state action immunity from state antitrust claims as "the reconciliation of two obstensibly conflicting enactments of a single sovereign…. The job quite simply is to ascertain, as best as can be, the intent of the legislators." 105 Wis.2d at 538, 314 N.W. 2d 321. Noting that the Wisconsin antitrust law is legislation of statewide concern the Wisconsin Supreme Court found that unless there is evidence that it was the intent of the legislature to make the antitrust law not applicable to a particular party or conduct the antitrust law controls. *American Medical Transport of Wisconsin, Inc. v. Curtis-Universal, Inc.* 154 Wis.2d 135, 148, 452 N.W.2d 575, 580 (1990). Thus, an expression of "state policy" that is not implied by the Legislature through the enactment of a particular statute, such as the expression of a particular policy in the Department's Regulations, is not likely to constitute a clearly articulated and affirmatively expressed state policy sufficient to invoke the "state action" immunity.

2. Wisconsin Code Section 133.07: Certain organizations and activities not forbidden

* * * *

(2) This chapter does not prohibit activities of any public utility, as defined in s. 196.01 (5)[29], or telecommunications carrier, as defined in s. 196.01 (8m)[30], which are required by ch. 196 or rules or orders under ch. 196, [Regulation of Public Utilities] activities necessary to comply with that chapter or those rules or orders or activities that are actively supervised by the public service commission. This subsection does not apply to activities of a public utility or telecommunications carrier that are exempt from public service commission regulation under s. 196.195 [Partial deregulation of competitive telecommunications services], 196.196 [Telecommunications utility price regulation], 196.202 [Exemption of commercial mobile radio service providers], 196.203 [Exemption of alternative telecommunications utilities], 196.219 [Protection of telecommunications consumers] or 196.499 [Regulation of telecommunications carriers] or by other action by the commission.

This section exempts certain public utility activities and organizations, including telecommunications carriers, from the prohibitions of Section 133.03. A careful reading of this section, however, indicates that the exemption for telecommunications carriers applies only in those areas in which carriers are regulated by the Public Service Commission. This particular language may indicate that the intent of the legislature was to exempt from state antitrust provisions only those activities that are already regulated by another state agency. Since most ITS projects probably would not fall within this exception, the Department or the public-private partnership could be prohibited from engaging in exclusive arrangements that may constitute anti-competitive arrangements. Whether such an exclusive arrangement reaches the level of a monopoly or restraint of trade will depend upon the project itself.

---

[29] "Public utility" means, except as provided in par. (b), every corporation, company, individual, association, their lessees, trustees or receivers appointed by any court, and every sanitary district, town, village or city that may own, operate, manage or control any toll bridge or all or any part of a plant or equipment, within the state, for the production, transmission, delivery or furnishing of heat, light, water or power either directly or indirectly to or for the public. "Public utility" includes all of the following:

1. Any person engaged in the transmission or delivery of natural gas for compensation within this state by means of pipes or mains and any person, except a governmental unit, who furnishes services by means of a sewerage system either directly or indirectly to or for the public.

2. A telecommunications utility [commercial service provider].
Wis. Code § 196.01(5)(a).

[30] "Telecommunications carrier" means any person that owns, operates, manages or controls any plant or equipment used to furnish telecommunications services within the state directly or indirectly to the public but does not provide basic local exchange service, except on a resale basis. "Telecommunications carrier" does not include an alternative telecommunications utility or a commercial mobile radio service provider. Wis. Code § 196.01(8m).

E. Restrictions on Reinvestment of Project Revenues

While there are no specific provisions in the Wisconsin Code or Constitution that would prohibit the Department from reinvesting revenues that it may derive from a public-private partnership for deployment of ITS, Section 25.02 of the Wisconsin Code does provide that "[a]ll moneys in the state treasury not specifically designated in any statute as belonging to any other funds constitute the general fund." Wis. Code §25.02. Thus, absent a statute that designates the revenue derived from a public-private partnership as belonging to a specific fund[31], any funds received by the Department will be deposited in the general fund. The Wisconsin Code, however, does designate as belonging to certain other funds revenue that may be received by the Department in certain circumstances. Each of these funds has different purposes for which money may be withdrawn. The statutory provisions governing these funds are set forth below.

Consequently the Department cannot receive funds from a public-private partnership and direct those funds back into the project or into a different ITS project. This means that the Department has little incentive to enter into any potentially revenue-producing projects unless it offers other substantive benefits.

1. Wisconsin Code Section 25.40: Transportation fund.

> (1) The separate nonlapsible trust fund designated as the transportation fund shall consist of the following:
>
> (a) All collections of the department of transportation and all moneys transferred under s. 84.59 (3) except all of the following:
>
> > 15. Moneys received under s. 85.52 [Transportation infrastructure loan program[32]]that are deposited in the transportation infrastructure loan fund.
>
> * * * *

[31] Note that in addition to creating such a fund, the rules for appropriation of the revenues in the fund in must also be promulgated. This may be the appropriate place to insert a provision permitting reinvestment of the revenues in the partnership.

[32] "The department shall administer a transportation infrastructure loan program to make loans, and to provide other assistance, to eligible applicants for highway projects or transit capital projects. The department of transportation may not make a loan or provide other assistance under the program unless the secretary of administration approves of the loan or other assistance and determines that the amounts in the fund, together with anticipated receipts, will be sufficient to fully pay principal and interest costs incurred on the revenue obligations issued under sub. (5). Loans or other assistance under the program for highway projects shall be credited to the highway account. Loans or other assistance under the program for transit capital projects shall be credited to the transit account." Wis. Code §85.52 (3)(a) (1997). However, "eligible applicant" does not include private entities. "eligible applicant" means a county, city, village, town or combination thereof, Amtrak, as defined in s. 85.061 (1), a railroad, as defined in s. 85.01 (5), a private nonprofit organization that is an eligible applicant under s. 85.22 (2) (am), or a transit commission created under s. 59.58 (2) or 66.943. Wis. Code. § 85.52(1)(ag) (1997).

(e) All moneys paid into the state treasury by any local unit of government or other sources for transportation purposes.

(f) All federal aid for aeronautics, highways and other transportation purposes made available by any act of congress, subject to applicable federal regulations, except all of the following:

* * *

(2)

(a) Payments from the transportation fund shall be made only on the order of the secretary of transportation, from which order the secretary of administration shall draw a warrant in favor of the payee and charge the same to the transportation fund.

2. Wisconsin Code Section 18.08: Capital improvement fund.

(1)

(a) All moneys resulting from the contracting of public debt shall be credited to a separate and distinct fund, established in the state treasury, designated as the capital improvement fund, except that such moneys which represent premium and accrued interest on bonds or notes issued, or are for purposes of funding or refunding bonds pursuant to s. 18.06 (5) shall be credited to one or more of the sinking funds of the bond security and redemption fund or to the state building trust fund.

(b) Moneys within the capital improvement fund shall be segregated into separate and distinct accounts according to the program purposes defined under ch. 20 for which public debt has been authorized by the legislature.

(2) The capital improvement fund may be expended, pursuant to appropriations, only for the purposes and in the amounts for which the debts have been contracted, for the payment of principal and interest on loans or on notes, for the purposes identified under s. 20.867 (2) (v) and (4) (q) and for expenses incurred in contracting debt.

3. Wisconsin Code Section 18.57: Enterprise and program capital funds.

(1) A separate and distinct fund shall be established in the state treasury or in an account maintained by a trustee under s. 18.56 (9) (j) with respect to each revenue-producing enterprise or program the income from which is to be applied to the payment of any revenue obligation. All moneys resulting from the issuance of evidences of revenue obligation shall be credited to the appropriate fund or applied for refunding or note renewal purposes, except that moneys which represent premium or accrued interest received on the issuance of evidences shall be credited to the appropriate redemption fund.

(2) Moneys in such funds may be expended, pursuant to appropriations, only for the purposes and in the amounts for which borrowed, for the payment of the principal of and interest on related revenue obligations and for expenses incurred in issuing such obligations.

(3) Moneys in such funds may be commingled only for the purpose of investment with other public funds, but they shall be invested only in investment instruments permitted in s. 25.17 (3) (dg) or in environmental improvement fund investment instruments permitted in s. 281.59 (2m). All such investments shall be the exclusive property of such fund and all earnings on or income from investments shall be credited to such fund and shall become available for any of the purposes under sub.
(2) and for the payment of interest on related revenue obligations.

(4) If, after all outstanding related revenue obligations have been paid or payment provided for, moneys remain in any such fund, they shall be paid over to the treasury and the fund shall be closed.

4. Wisconsin Code Section 85.15: Property management.

* * * *

(2***) The department shall credit to the appropriation account under s. 20.395 (4) (ew) the amount, if any, by which moneys received in any year from the sale or lease of property acquired by the department exceeds $2,750,000. The department shall use 50% of any proceeds credited to this appropriation account from the sale or lease of any property to supplement the costs of management and operations of the district office of the department that initiated the sale or lease of that property.***

5. Wisconsin Code Section 84.01: Department powers and duties

* * *

(8) Donations. The department shall receive gifts, appropriations and bequests made to it or to the state for highway purposes, pay all moneys received by it into the state treasury, and, as far as practicable, expend the same in accordance with the wishes of the donor, such expenditures to be audited and paid as other disbursements of the department are audited and paid, and shall apportion the allotments of state highway funds among the counties and municipalities as provided by law

III. CONSTITUTIONAL PROVISIONS AND WISCONSIN STATUTES THAT MAY ENCOURAGE CREATION OF PUBLIC-PRIVATE PARTNERSHIPS.

A. Wisconsin Constitution Article XI §3(a).

The state or any of its counties, cities, towns or villages may acquire by gift, dedication, purchase, or condemnation lands for establishing, laying out, widening, enlarging, extending, and maintaining memorial grounds, streets, highways, squares, parkways, boulevards, parks, playgrounds, sites for public buildings, and reservations in and about and along and leading to any or all of the same; and after the establishment, layout, and completion of such improvements, may convey any such real estate thus acquired and not necessary for such improvements, with reservations concerning the future use and occupation of such real estate, so as to protect such

public works and improvements, and their environs, and to preserve the view, appearance, light, air, and usefulness of such public works.

This provision authorizes the state and municipalities to acquire land for constructing streets and highways. This provision also indicates that the state has the power to convey any real property that is acquired for highway purposes, if the property is not necessary for those purposes. The real estate must be conveyed "with reservations concerning the future use and occupation of such real estate, so as to protect such public works and improvements, and their environs, and to preserve the view, appearance, light, air, and usefulness of such public works." This provision would permit the State to sell land adjacent to the highway that was acquired for highway purposes, but not used, to private entities for use in potential ITS projects.

B. General Authority of the Department.

The Department has control over and responsibility for state highways within the state, as well as responsibilities pertaining to the expenditure of both state and federal highway funds.

1. Power to Delegate Responsibilities.

Wisconsin Code Section 84.01 Department powers and duties.

* * *

(2) Powers and duties; general provision. The department *shall have charge* of all matters pertaining to the expenditure of state and federal aid for the improvement of highways[33], and ***shall do all things necessary and expedient in the exercise of such supervision.***

* * *

(6) Surveys and plans. The department shall make provision for and direct the surveys, plans, construction, inspection and maintenance of all highways, whenever the construction or maintenance is under its jurisdiction.

Wisconsin Code Section 84.07 Maintenance of state trunk highways.

[33] "Highway" means all public ways and thoroughfares and bridges on the same. It includes the entire width between the boundary lines of every way open to the use of the public as a matter of right for the purposes of vehicular travel. It includes those roads or driveways in the state, county or municipal parks and in state forests which have been opened to the use of the public for the purpose of vehicular travel and roads or driveways upon the grounds of public schools, as defined in s. 115.01 (1), and institutions under the jurisdiction of the county board of supervisors, but does not include private roads or driveways as defined in sub. (46). Wis. Code § 340.01 (22).

> (1) State expense; when done by county or municipality. The state trunk highway system shall be maintained by the state at state expense. The department shall prescribe by rule specifications for such maintenance and ***may contract with any county highway committee or municipality to have all or certain parts of the work of maintaining the state trunk highways within or beyond the limits of the county or municipality, including interstate bridges, performed by the county or municipality, and any county or municipality may enter into such contract…..***

Section 84.01 permits the Department to delegate its duties. The power to "do all things necessary and expedient" appears to allow the Department a great deal of latitude in determining how its performs its functions. This authority would appear to include the ability enter into a wide range of agreements with private sector entities related to highway maintenance and construction. Section 84.07, however, appears to limit the Department's ability to delegate its maintenance duties to contracting with a county highway committee or municipality. Thus, this section could be read to prohibit certain ITS arrangements that would shift the responsibility for maintenance of a particular portion of a state highway to a private entity. For example, while it may be more efficient for a private entity or an ITS public-private partnership that places and maintains sensors or cameras on traffic signals to also conduct routine maintenance on the signals themselves, § 84.07 may not permit the private entity to do so.

In addition, the inclusion of the word "shall" when setting forth the Department's responsibilities under this Section may indicate that the Department must retain the power to supervise construction and maintenance of any potential highway-related projects. A narrow reading of this provision could limit the cost-sharing arrangements of some public-private partnerships, since it could prevent arrangements where a private entity assumes the maintenance (and costs for maintenance) for a portion of a state highway involved in an ITS project in exchange for the Department granting the private entity the right to place certain equipment on the highway.

2. Authority to Engage Consultants.

> **Wisconsin Code Section 84.01 Department powers and duties.**
>
> * * *
>
> (13) Engineering services. The department may engage such engineering, consulting, surveying or other specialized services as it deems advisable. Any engagement of services under this subsection is exempt from ss. 16.70 to 16.75[Department of Administration purchasing rules], 16.755 [review by council on small business] to 16.82 [powers of the Department of Administration] and 16.85 to 16.89 [construction controlled by the Department of Administration], but ss. 16.528[interest on late payments], 16.752 [procurement from work centers of the severely handicapped] and 16.754 ["buy American" preference] apply to such engagement. Any engagement involving an expenditure of $3,000 or more shall be by formal contract approved by the governor.

This section of the Code exempts the engagement of " such engineering, consulting, surveying or other specialized services as [the Department] deems advisable" from the Department of Administration's purchasing rules (Section 16.70 *et seq.)* It is likely that nearly all ITS projects will involve "engineering, consulting, surveying or other specialized services." This section expressly grants the Department the authority to contract for these types of engagements, which may be necessary for the implementation of certain ITS projects. In addition, the Department is not subject to the requirement that it make its purchasing selections using specifications prescribed by the Department of Administration. This section does however, require approval of the governor for expenditures of $3,000 or more, which will increase the time required for expenditures to be authorized.

C. Build-Operate-Lease Agreements.

Wisconsin Code Section 84.01 Department powers and duties.

(30) Build-operate-lease or transfer agreements. The department may enter into build-operate-lease or transfer agreements with private entities for the ***construction of transportation projects[34]***, including any projects to be financed under s. 84.59 for transportation administrative facilities under s. 84.01 (28) and, for projects that are not purchased by the state upon their completion, ***for the maintenance and operation of such projects***. A project under this subsection may be constructed on state-owned land. ***An agreement under this subsection may not be entered into unless the department determines that the agreement advances the public interest, and the private entity has prior experience in design, construction, site development and environmental impact analysis and, for a project that is not expected to be purchased by the state upon its completion, has the capability of maintaining and operating the facility upon completion of the project. The following provisions shall be contained in any build-operate-lease or transfer agreement under this subsection:***

(a) A provision specifying that title is held by the private entity until title is transferred to the department pursuant to a lease with option to purchase at fair market value or purchase at fair market value of the constructed project upon its completion.

(b) If the agreement contains a lease that provides for payments to be made by the state from moneys that have not been appropriated at the time that the agreement is entered into, a provision containing the statement required under s. 16.75 (3).

(c) A provision specifying that the project shall be constructed in accordance with requirements and specifications approved by the department of administration or, if the project is not a transportation administrative facility, approved by the department of transportation.

[34] "Project" means a public transportation or transportation-related improvement project. Wis. Code § 84.095(1)(d).

(d) A provision permitting inspection by agents of the department of transportation until title transfers as provided under par. (a) or by agents of the department of administration during construction.

(e) If applicable, a provision specifying that any operation and maintenance under the agreement by the private entity shall be conducted in accordance with requirements and specifications approved by the department.

(f) A provision establishing a mechanism for the resolution of disputes.

Section 84.01(30) is the one provision of the Wisconsin Code that expressly authorizes WisDOT to establish a form of public-private partnership. This provision authorizes the Department to enter into agreements with privatizations that can be structured as build-operate-lease projects, which could include ITS projects. The build-operate-lease agreements must be for the construction of transportation projects and for the maintenance and operation of such projects. As in the provisions of the Wisconsin Constitution regarding contracting public debt, however, the Department may only enter into agreements for transportation projects that have a public purpose. The Department may enter into such agreements only with those private entities that have "prior experience in design, construction, site development and environmental impact analysis and, for a project that is not expected to be purchased by the state upon its completion, has the capability of maintaining and operating the facility upon completion of the project." This section does not limit the "private entities" with which the Department may enter into such agreements to non-profit corporations, as do other provisions of the Code.

D. Liability of the Department and Sovereign Immunity.

Article IV, §27

Suits against state. Section 27. The legislature shall direct by law in what manner and in what courts suits may be brought against the state.

The Wisconsin courts have construed this provision of the State Constitution to mean that the legislature has the exclusive right to consent to a suit brought against the state and its various agencies. *See, e.g., State v. P.G. Miron Const. Co., Inc., 181 Wis. 2d 1045, 1052, 512 N.W.2d 499, 503 (1994); Fiala v. Voight, 93 Wis. 2d 337, 342, 286 N.W.2d 824, 827 (1980); Metzger v. Department of Taxation, 35 Wis. 2d 119, 132, 150 N.W.2d 431, 438 (1967).* Therefore, the state cannot be sued without express consent of the legislature.[35] The state's "immunity from suit extends to its arms or agencies." *See Lister v. Board of Regents, 72 Wis. 2d 282, 291, 240 N.W.2d 610, 617 (1976).* There is one exception to this rule, however, under which certain public-private partnerships may

[35] The effect of a defense based on the state's sovereign immunity from suit is to deprive the trial court of personal jurisdiction over the state. *See Lister v. Board of Regents, 72 Wis. 2d 282, 291, 240 N.W.2d 610, 617 (1976).*

fall: "The legislature may create an agency with independent proprietary powers or functions and sufficiently independent of the state to be sued as such. When the state so creates an agency, it waives its sovereign immunity in that respect." *Townsend v. Wisconsin Desert Horse Asso., 42 Wis.2d 414, 423, 167 N.W.2d 425 (1969). See also Majerus v. Milwaukee County, 39 Wis.2d 311, 159 N.W.2d 86 (1968); Sullivan v. Board of Regents of Normal Schools, 209 Wis. 242, 244 N.W. 563 (1932); Metzger v. Department of Taxation, 35 Wis.2d 119, 150 N.W.2d 431 (1967).* If the Department wishes to maintain the availability of the sovereign immunity defense for a particular ITS project, it must ensure that any public-private partnership created for that purpose does not constitute "an agency with independent proprietary powers or functions." Whether this is practical will depend on the purposes of a particular public-private partnership. In many cases, no new entity will be necessary, but it will not be possible to extend the state's sovereign immunity to any private sector partners.

E. Wisconsin Code Section 85.15: Property management.

> (1) The department may improve, use, maintain or lease any property acquired for highway, airport or any other transportation purpose until the property is actually needed for any such purpose and may permit use of the property for purposes and upon such terms and conditions as the department deems in the public interest.

This section authorizes the Department to lease or use property acquired for highways or other transportation purposes for any other purpose so long as the Department deems that purpose in the public interest. The Department's authority is limited to lease or use of property that has been acquired for transportation purposes but is not yet being used for these purposes. This section would permit the Department to lease or contribute the use of such property to a private entity or perhaps a public-private partnership for use in an ITS project, subject to both the statutory public interest requirement and the common law rule that public property be used for public purposes. This provision apparently does not authorize the Department to permit concurrent uses of the same property, i.e. for transportation purposes and for use in an unrelated project. Presumably, an ITS project would have a transpiration purpose, so this may not be an issue. The question might arise if a private sector entity were using WisDOT property for some use -- such as operation of a retail concession -- sufficiently removed from transportation uses, even if the arrangement were part of a larger ITS project.

F. Wisconsin Code Section 24.40: Easements; annexation.

> (1) Every board, commission, department and agency of the state having real estate belonging to the state under its control may grant easements in said property for public utility[36] service

[36] See note 30 above for the definition of "public utility."

through, over, along or to said property, including without limitation by enumeration the necessary poles, wires, structures, lines, conduits, pipes or pipe lines for heat, light, water, gas, sewer, power, telecommunications, telegraph and transmission of messages.

This general provision permits the Department to grant easements in property under its control for public utility service. A telecommunications utility[37] will be considered a public utility if it furnishes, directly to the public, telecommunications service.[38] Wis. Code § 196.01(5)(b)3 (1997). Therefore, an ITS project that offers some kind of "telecommunications service" to the public could qualify for the grant of an easement to install its facilities. ITS projects that involve the selling data or information transmitted over a part of the electromagnetic spectrum may be considered providers of telecommunications services. In that case, such projects may be considered public utilities under this section. It is also possible, however, that those applications would not be deemed to meet the statutory definition of "telecommunications services," because the definition refers to sale of the "conveyance" -- that is, the carriage -- of the information, rather than merely the provision of the information. So an ITS provider who makes specific information available to the public might not meet the definition. Even if a partner or an ITS partnership provided service which met the definition, the possibility of subjecting itself to the increased regulation by the state that might accompany classification as a telecommunications utility could outweigh the benefits. This statute could be revised to expressly include ITS- related services, but any revision made to this provision in order to permit the Department to grant easements for service that is not generally deemed a public utility service would still have to meet the constitutional public purpose requirement.

G. Construction planning and maintenance.

Wisconsin Code Section 85.02 Planning, promotion and protection.

The department may direct, undertake and expend state and federal aid for planning, promotion and protection activities in the areas of highways, motor vehicles, traffic law enforcement, aeronautics, railroads, waterways, specialized transportation services, mass transit systems and for any other transportation mode. All state, regional and municipal agencies and commissions created under authority of law shall to the extent practicable, when dealing with transportation, follow the recommendations made by the secretary.

[37] "Telecommunications utility" means any person, corporation, company, cooperative, partnership, association and lessees, trustees or receivers appointed by any court that owns, operates, manages or controls any plant or equipment used to furnish telecommunications services within the state directly or indirectly to the public. "Telecommunications utility" does not include a telecommunications carrier. Wis. Code § 196.01(10)(10).

[38] "'Telecommunications service' means the offering for sale of the conveyance of voice, data or other information at any frequency over any part of the electromagnetic spectrum, including the sale of service for collection, storage, forwarding, switching and delivery incidental to such communication and including the regulated sale of customer premises equipment. 'Telecommunications service' does not include cable television service or broadcast service." Wis. Code § 196.01(9m).

Wisconsin Code Section 84.01 Department powers and duties.

(2) Powers and duties; general provision. The department shall have charge of all matters pertaining to the expenditure of state and federal aid for the improvement of highways, and ***shall do all things necessary and expedient in the exercise of such supervision.***

* * *

(6) Surveys and plans. The department shall make provision for and direct the surveys, plans, construction, inspection and maintenance of all highways, whenever the construction or maintenance is under its jurisdiction.

(7) Experiments, meetings, conventions. The department shall conduct such investigations and experiments, hold such public meetings and attend or be represented at such meetings and conventions inside or outside of the state as may, in its judgment, tend to promote improved highways, and shall cooperate with state and national organizations in experiments and work for the advancement of improved highways.

* * *

(13) Engineering services. The department may engage such engineering, consulting, surveying or other specialized services as it deems advisable. Any engagement of services under this subsection is exempt from ss. 16.70 to 16.75, 16.755 to 16.82 and 16.85 to 16.89, but ss. 16.528[interest on late payments], 16.752 [procurement from work centers of the severely handicapped] and 16.754 ["buy American" preference] apply to such engagement. Any engagement involving an expenditure of $3,000 or more shall be by formal contract approved by the governor.

* * *

(26) Cooperative agreements. The department may, by agreement with the appropriate authority of an adjoining state, arrange for performing, financing and sharing of cost of construction, maintenance and operation of any bridge or other transportation project over or upon interstate boundary waters and approaches thereto under joint jurisdiction of the department and a governmental agency of the adjoining state.

* * *

(28) Transportation administrative facilities. The department may acquire, construct, develop, enlarge or improve administrative or operating facilities for its use under s. 13.48 (10)[long-range public building] or 84.01 (30) [build-operate-lease].

* * *

(30) Build-operate-lease or transfer agreements. The department may enter into build-operate-lease or transfer agreements with private entities for the construction of transportation projects, including any projects to be financed under s. 84.59 for transportation administrative facilities under s. 84.01 (28) and, for projects that are not purchased by the state upon their completion, for the maintenance and operation of such projects. A project under this subsection may be constructed on state-owned land. An agreement under this subsection may not be entered into unless the department determines that the agreement advances the public interest, and the

private entity has prior experience in design, construction, site development and environmental impact analysis and, for a project that is not expected to be purchased by the state upon its completion, has the capability of maintaining and operating the facility upon completion of the project. The following provisions shall be contained in any build-operate-lease or transfer agreement under this subsection:

(a) A provision specifying that title is held by the private entity until title is transferred to the department pursuant to a lease with option to purchase at fair market value or purchase at fair market value of the constructed project upon its completion.

(b) If the agreement contains a lease that provides for payments to be made by the state from moneys that have not been appropriated at the time that the agreement is entered into, a provision containing the statement required under s. 16.75 (3).

(c) A provision specifying that the project shall be constructed in accordance with requirements and specifications approved by the department of administration or, if the project is not a transportation administrative facility, approved by the department of transportation.

(d) A provision permitting inspection by agents of the department of transportation until title transfers as provided under par. (a) or by agents of the department of administration during construction.

(e) If applicable, a provision specifying that any operation and maintenance under the agreement by the private entity shall be conducted in accordance with requirements and specifications approved by the department.

(f) A provision establishing a mechanism for the resolution of disputes.

Wisconsin Code Section 84.07 Maintenance of state trunk highways.

(1) State expense; when done by county or municipality. The state trunk highway system shall be maintained by the state at state expense. The department shall prescribe by rule specifications for such maintenance and may contract with any county highway committee or municipality to have all or certain parts of the work of maintaining the state trunk highways within or beyond the limits of the county or municipality, including interstate bridges, performed by the county or municipality, and any county or municipality may enter into such contract. General maintenance activities include the application of protective coatings, the removal and control of snow, the removal, treatment and sanding of ice, interim repair of highway surfaces and adjacent structures, and all other operations, activities and processes required on a continuing basis for the preservation of the highways on the state trunk system, and including the care and protection of trees and other roadside vegetation and suitable planting to prevent soil erosion or to beautify highways pursuant to s. 80.01 (3), and all measures deemed necessary to provide adequate traffic service. Special maintenance activities include the restoration, reinforcement, complete repair or other activities ***which the department deems are necessary on an individual basis for specified portions of the state trunk system.***

These provisions indicate that the Department of Transportation controls nearly all aspects of state highway use and management. These provisions authorize the

Department to, among other things, enter into certain types of agreements and contracts for services in order to fulfill its responsibilities for the construction, maintenance and improvement of state highways as well as the regulation (subject to certain limited restrictions) of the use of state highways by the public and by private entities. Although as discussed above these provisions do not expressly, with the exception of Section 84.01(30), authorize the Department to execute agreements with private entities, it could be argued that entering into a public-private partnership is a thing "necessary and expedient in the exercise of such supervision" and as such is necessarily implied from the agency's statutory authority.

H. Wisconsin Code Section 84.093: Cooperative acquisition of rights-of-way.

> (1) The department, acting in the public interest, may contract with a public utility, as defined in s. 196.01 (5), or with a rural electric cooperative association, as described in s. 32.02 (10), for the receipt or furnishing of services, or the joint exercise of any power or duty required or authorized by law, relating to the acquisition, development or maintenance of rights-of-way to be used jointly by the department and a public utility or rural electric cooperative association. If parties to a contract under this section have varying powers or duties under the law, each may act under the contract to the extent of its lawful powers and duties. This section shall be interpreted liberally in favor of cooperative action between the department and a public utility or rural electric cooperative association.

This provision authorizes the Department to contract for the receipt of services relating to the maintenance of rights-of-way to be used jointly by the department and another entity. In addition it also authorizes the joint exercise of any power or duty authorized by law by the Department and the entity. This provision is currently limited to contracts with public utilities and rural electric cooperatives. According to Section 196.01(5) "Public utility" means "every corporation, company, individual, association, their lessees, trustees or receivers appointed by any court, and every sanitary district, town, village or city that may own, operate, manage or control any toll bridge or all or any part of a plant or equipment, within the state, for the production, transmission, delivery or furnishing of heat, light, water or power either directly or indirectly to or for the public and includes a telecommunications utility."[39] Thus, this provision would

[39] However "public utility" does not include:

1. A cooperative association organized under ch. 185 for the purpose of producing or furnishing heat, light, power or water to its members only.

2. A holding company, as defined in s. 196.795 (1) (h), unless the holding company furnishes, directly to the public, telecommunications or sewer service, heat, light, water or power or, by means of pipes or mains, natural gas.

clearly authorize cooperative agreements for ITS projects in which a private entity was a public utility. As discussed above at III.2.F., ITS projects involving the provision of information to the public might qualify as telecommunications utilities.

I. Wisconsin Code Section 86.16: Utility lines on highways; place of poles; penalty.

(1) ***Any person, firm or corporation, including any foreign corporation authorized to transact business in this state may, subject to ss. 30.44 (3m), 30.45 and 196.491 (3) (d) 3m., with the written consent of the department with respect to state trunk highways,*** and with the written consent of local authorities with respect to highways under their jurisdiction, including connecting highways, ***construct and operate telegraph, telephone or electric lines, or pipes or pipelines for the purpose of transmitting messages, water, heat, light or power along, across or within the limits of the highway.***

This provision authorizes, with the appropriate approvals, entities to "construct and operate telegraph, telephone or electric lines, or pipes or pipelines for the purpose of transmitting messages, water, heat, light or power along, across or within the limits of the highway." Since this provision does not limit those entities which may seek placement of their lines on state highways to public utilities, an ITS project which utilizes "telegraph, telephone or electric lines" may, subject to approval by the Department, be permitted access to state-owned rights-of-way.

IV. ISSUES REGARDING THE USE OF DATA COLLECTED AS PART OF AN ITS PROJECT.

A. Sale of Records.

Wisconsin Code Section 85.105 Sale of motor vehicle records.

Notwithstanding s. 343.24 (2m), the department may contract with a person to periodically furnish that person with any records on computer tape or other electronic media that contain information from files of motor vehicle accidents or uniform traffic citations and which were produced for or developed by the department for purposes related to maintenance of the operating record file data base. The department and the person desiring to contract with the department shall make a good faith effort to negotiate the purchase price for the records to be provided under this section.

---

3. Any company, as defined in s. 196.795 (1) (f), which owns, operates, manages or controls a telecommunications utility unless the company furnishes, directly to the public, telecommunications or sewer service, heat, light, water or power or, by means of pipes or mains, natural gas.

4. A cellular mobile radio telecommunications utility [A commercial mobile radio service provider.].

5. A joint local water authority under s. 66.0735.

Wisconsin Code Section 85.10 Sale of aerial photographic survey products.

The department may sell to any person the selection of photographic products from the aerial photographic survey conducted under s. 23.325. The department may retain an amount equal to the costs that it incurs in selling and reproducing the photographic products.

These provisions authorize the Department to sell certain information received in its capacity as manager of the state's highways. These sections could be used as evidence that, absent a specific grant of authority from the legislature, the Department lacks the authority or ability to sell information it has gathered. This does not necessarily mean that the Department could not make data available to private entities as part of a larger ITS project, however.

B. Public Records Issues

Wisconsin Code Section 19.35 Access to records[40]; fees.

(1) Right to inspection.
(a) Except as otherwise provided by law, any requester[41] has a right to inspect any record. Substantive common law principles construing the right to inspect, copy or receive copies of records shall remain in effect.

* * *

(b) Except as otherwise provided by law, any requester has a right to inspect a record and to make or receive a copy of a record which appears in written form. If a requester appears personally to request a copy of a record, the authority[42] having custody of the record may, at its option, permit the requester to photocopy the record or provide the requester with a copy substantially as readable as the original.

[40] **Wis. Code Section 19.32 (2)** "Record" means any material on which written, drawn, printed, spoken, visual or electromagnetic information is recorded or preserved, regardless of physical form or characteristics, which has been created or is being kept by an authority. "Record" includes, but is not limited to, handwritten, typed or printed pages, maps, charts, photographs, films, recordings, tapes (including computer tapes), computer printouts and optical disks. ***"Record" does not include*** drafts, notes, preliminary computations and like materials prepared for the originator's personal use or prepared by the originator in the name of a person for whom the originator is working; materials which are purely the personal property of the custodian and have no relation to his or her office; ***materials to which access is limited by copyright***, patent or bequest; and ***published materials in the possession of an authority other than a public library which are available for sale***, or which are available for inspection at a public library.

[41] **Wis. Code Section 19.32(3)** "Requester" means any person who requests inspection or copies of a record, except a committed or incarcerated person, unless the person requests inspection or copies of a record that contains specific references to that person or his or her minor children for whom he or she has not been denied physical placement under ch. 767, and the record is otherwise accessible to the person by law.

[42] **Wis. Code Section 19.32(1**) "Authority" means any of the following having custody of a record: a state or local office, elected official, agency, board, commission, committee, council, department or public body corporate and politic created by constitution, law, ordinance, rule or order; a governmental or quasi-governmental corporation except for the Bradley center sports and entertainment corporation; a local exposition district under such. II of ch. 229; any court of law; the assembly or senate; a nonprofit corporation which receives more than 50% of its funds from a county or a municipality, as defined in s. 59.001 (3), and which provides services related to public health or

(c) Except as otherwise provided by law, any requester has a right to receive from an authority having custody of a record which is in the form of a comprehensible audio tape recording a copy of the tape recording substantially as audible as the original. The authority may instead provide a transcript of the recording to the requester if he or she requests.

(d) Except as otherwise provided by law, any requester has a right to receive from an authority having custody of a record which is in the form of a video tape recording a copy of the tape recording substantially as good as the original.

(e) Except as otherwise provided by law, any requester has a right to receive from an authority having custody of a record which is not in a readily comprehensible form a copy of the information contained in the record assembled and reduced to written form on paper.

This section requires an "authority," which would include the Department, to provide access to "records" which are created or kept by the authority to any person who requests them. Thus, if the Department retains data obtained as a result of an ITS project, it may be required to provide this data if it does not fit within one of the exceptions enumerated in Section 19.32(2) of the Wisconsin Code. To the extent that a particular public-private partnership calls for exclusive access to data, the public records law may make exclusivity impracticable.

V. COOPERATION OF MULTIPLE JURISDICTIONS

Although some ITS projects may use only state highways, it is likely that for most such projects completion of a comprehensive and efficient project will require the use of county and city highways as well as state highways. Use of the highways of counties or municipalities in a particular ITS project will necessitate at least some degree of interaction with these jurisdictions. This interaction could range from a requirement that the public-private partnership obtain permits, to the execution of cooperative agreements with the city or county. In Wisconsin, both counties and municipalities are responsible for the construction and maintenance of highways that are classified as county trunk highways[43] or municipal highways.

---

safety to the county or municipality; a nonprofit corporation operating the Olympic ice training center under s. 42.11 (3); or a formally constituted subunit of any of the foregoing.

[43]Wis. Code § 83.025 County trunk highways.
(1)
(a) The systems of county trunk highways heretofore selected by county boards and approved by the department are hereby validated.
* * * *
(c) Any city or village street or portion thereof selected as a portion of the county trunk system prior to May 1, 1939, shall be a portion of the county trunk system. All streets or highways in any city or village over which is routed a county trunk highway or forming connections through the city or village between portions of the county trunk highway system shall be a part of the county trunk system unless the governing body of the city or village, by

A. City and Village Authority Over Highways

Article XI, Section 3, of the Wisconsin Constitution grants cities and villages the authority to "determine their local affairs and government, subject only to this constitution and to such enactments of the legislature of statewide concern as with uniformity shall affect every city or every village." In addition to the general powers granted to a municipality under the home rule provisions of the Wisconsin Constitution, various statutes confer upon a municipality certain rights and responsibilities with regard to the streets and highways within its boundaries. For example, Section 66.048(4)(a) of the Wisconsin Code permits any city, village or town to "sell or lease the space over any street, road, alley or public place or municipally owned real estate or below ground level thereof to any person, if the governing body determines by resolution…." This means both that any ITS project requiring access to City rights-of-way will require the consent of the City, and that the City has the right to obtain compensation from the user.

B. Town Authority Over Highways

Various statutes confer upon a town certain rights and responsibilities with regard to the streets and highways within its boundaries. For example Section 81.01 of the Wisconsin Code provides that the town board "shall have the care and supervision of all highways in the town, except as otherwise provided." The town board may appoint a superintendent of highways to supervise, under the direction of the board, the construction and repair of the town's highways and bridges. If the town board does not appoint a superintendent of highways the town board must " perform all the duties that are prescribed by law for the superintendent of highways to perform.

C. County Authority over highways

Every county in Wisconsin has what the Wisconsin Code calls "administrative home rule." This means that "[e]very county may exercise any organizational or administrative power, subject only to the constitution and to any enactment of the legislature which is of statewide concern and which uniformly affects every county." Wis. Code §59.03(1). Like municipalities, county boards are " vested with all powers of a local, legislative and administrative character, including … the subject matter of …

---

resolution, removes the street or highway from the system, but the removal shall apply only to that portion of any street or highway which is situated wholly within the city or village.
* * *
(2) The county trunk system ***shall be marked and maintained by the county***. No county shall be responsible for the construction and maintenance of a city or village street on the county trunk highway system to a greater width than are those portions of such system outside the village or city and connecting with such street.

streets and highways…." Wis. Code §59.03(2)(A) (1997) Wis. Code § 83.01 provides that the county board shall elect a county highway commissioner. The county highway commissioner shall have charge, under the direction of the county highway committee, of the construction of highways built with county aid and of the maintenance of all highways maintained by the county.[44] Counties may also offer to exercise this and any of its other powers in order to consolidate the services and functions of municipalities located in the county. Such functions may be exercised exclusively by the county or jointly by the county and the municipality. The Section 59.03(e) confers upon municipalities the ability to enter into contracts that may be necessary for this consolidation.[45]

D. Cooperative Agreements

There are several provisions of the Wisconsin statutes that expressly authorize the Department to enter into cooperative agreements. These provisions generally limit the parties with which the Department may contract to other governmental authorities. Wisconsin counties and municipalities appear to have more flexibility as to what type of entity (private or public) they may contract with.

The Wisconsin Constitution grants home rule counties and municipalities the power to "determine their local affairs and government, subject only to this constitution and to such enactments of the legislature of statewide concern as with uniformity shall affect every city or every village." Neither the Wisconsin Constitution nor Wisconsin statutes prohibit a county or municipality from entering into public-private partnerships, therefore, home rule counties and municipalities, absent any charter provisions to the contrary, apparently have the authority to enter public-private partnerships.

---

[44] Wis. Code § 80.40 Control of highways laid by county. When the county board lays out, opens, alters or widens a highway, it reverts to the sole control of the town, village or city in which it lies, except county trunk highways, where control shall rest with the county. The town, city or village shall keep the highway in good repair, and, if deemed necessary, the town board, village board or common council may annually levy a special tax sufficient for that purpose, and the town, village or city may alter or discontinue such highway the same as though it had originally laid it out.

[45] Wis. Code § 59.03(2)
(e) The municipality concerned may enter into necessary contracts with the county, and appropriate money to pay to the county the reasonable expenses incurred by it in rendering the services assumed. Such expenses may be certified, returned and paid as are other county charges, and in the case of services performed under a proposal for the consolidation thereof initiated by the board and made available to each municipality in the county on the same terms, the expenses thereof shall be certified, returned and paid as county charges; but in the event that every municipality in the county accepts the proposal of the board, the expenses thereof shall be paid by county taxes to be levied and collected as are other taxes for county purposes. The municipalities are vested with all necessary power to do the things herein required, and to do all things and to exercise or relinquish any of the powers herein provided or contemplated. The procedure provided in this subsection for the request or acceptance of the exercise of the powers conferred on the board in cities and villages is hereby prescribed as a special method of determining the local affairs and government of such cities and villages under article XI, section 3, of the constitution.

The Department has the authority under different provisions of the Wisconsin Code to engage in certain types of contracts with municipal and county governments in regard to the construction and maintenance of highways.[46] The following statutes indicate circumstances when the Department may engage in these contracts.

1. Wisconsin Code Section 86.25 Municipal cooperation as to highways improved with state or federal aid.

(1) Any county, city, village or town may by any lawful means provide funds to match or supplement state or federal aid for the construction, reconstruction or improvement, under ch. 84, of any highway, street or bridge which it is authorized to construct, reconstruct or improve, and to pay such funds to the department or state treasury as provided in s. 84.03 (1) (b).

(1m) If lands or interests in lands necessary for an improvement under ch. 84 are acquired by a county or local municipality specifically for such improvement, the department may reimburse such county or local municipality therefor from funds available for such improvement.

(2) Any county, city, village or town, through its governing body or a committee which it may designate, may enter into agreements with the department providing for the construction, reconstruction or improvement with state or federal aid, of highways, streets or bridges which such county, city, village or town is authorized to construct, reconstruct or improve, providing for the subsequent maintenance by such county, city, village or town of any such highway, street or bridge improved with state or federal aid which it has authority to maintain, and providing for the subsequent regulation as to the location, form and character of informational, regulatory and warning signs, curb and pavement or other markings and traffic signals on any such highway, street or bridge improved with state or federal aid.

(3) Any city, village or town may levy special assessments under s. 66.60 not exceeding the cost to the city, village or town against the property benefited thereby to provide funds to match or supplement state or federal aid or both for the construction, reconstruction or improvement under ch. 84, or under any other statute of any highway or street which it is authorized to construct, reconstruct or improve, and any city, village or town is authorized to pay the proceeds of such assessments, certificates or special assessment bonds issued to finance the improvement to the department or state treasury as provided in s. 84.03 (1) (b).

(4) Sections 61.55, 62.15 and 66.29 shall not apply to funds provided or agreements made pursuant to this section.

2. Wisconsin Code Section 84.07 Maintenance of state trunk highways.

[46] Section 84.25(9) provides that "[t]o facilitate the purposes of this section, the department and the governing bodies of a city, county, town or village are authorized to enter into agreements with each other or with the federal government respecting the financing, planning, establishment, improvement, maintenance, use, regulation or vacation of controlled-access highways or other public ways in their respective jurisdictions." Inclusion of private entities in this particular provision would authorize the Department to engage in cooperative agreements.

(1) State expense; when done by county or municipality. The state trunk highway system shall be maintained by the state at state expense. The department shall prescribe by rule specifications for such maintenance and may contract with any county highway committee or municipality to have all or certain parts of the work of maintaining the state trunk highways within or beyond the limits of the county or municipality, including interstate bridges, performed by the county or municipality, and any county or municipality may enter into such contract.

3. Wisconsin Code Section 83.025

* * *

(3) The county highway committee, subject to the approval of the county board, may enter into agreements with the department as provided in s. 86.25 (2).

4. Wisconsin Code Section 83.027 Controlled-access highways.

* * *

(9) Cooperative agreements. To facilitate the purposes of this section, the county board and the governing bodies of a city, town or village are authorized to enter into agreements with each other or with the federal government respecting the financing, planning, establishment, improvement, maintenance, use, regulation or vacation of controlled-access highways or other public ways in their respective jurisdictions.

5. Wisconsin Code Section 83.035 Streets and highways, construction.

Any county board may provide by ordinance that the county may, through its highway committee or other designated county official or officials, enter into contracts with cities, villages and towns within the county borders to enable the county to construct and maintain streets and highways in such municipalities.[47]

6. Wisconsin Code Section 66.30

[47] **Wis. Code § 83.04 Highway construction by county; noncontract work; payments.**
(1) All highway improvements made by the county highway committee shall be by contract, unless the committee determines that some other method would better serve the public interest. ***The manner of advertising for bids and the forms of bids, contracts and bonds shall be substantially those used by the department***. In letting a contract the county highway committee acts for the county.

(2) If it is deemed inadvisable to let a contract for highway construction, the county highway committee may direct the county highway commissioner to proceed with the construction as noncontract work, and the commissioner may, under the supervision of the committee, employ and purchase the necessary labor and materials.

(3) During construction the work and materials shall be inspected by the county highway commissioner or by inspectors employed by the commissioner with the approval of the county highway committee. Upon the completion of any highway job by or for the county on the county aid system or for which county aid has been granted the work shall be inspected by the county highway commissioner, and if found in conformity with plans and specifications, the commissioner shall so find and notify the county highway committee and the county clerk thereof and that the improvement has been accepted.

*** * ***

(5) Any municipality[48] may contract with municipalities of another state for the receipt or furnishing of services or the joint exercise of any power or duty required or authorized by statute to the extent that laws of such other state or of the United States permit such joint exercise.

VI. OTHER ISSUES NOT ADDRESSED BY THE CURRENT WISCONSIN STATUTES

In addition to the issues raised above, undoubtedly issues that are not addressed by the Wisconsin Code or the Department's regulations will arise. One such issue is the question of who actually owns the information that would be derived from such a project. The answer to this particular question will affect other issues such as the Department's responsibilities in regard to production of "public records" if this information is deemed to belong to the Department. Finally, there will be taxation issues, copyright issues and various liability issues that arise as a result of the development of such public-private partnerships. An examination of the Wisconsin Code reveals that such issues are not currently addressed by the existing Code.

VII. FEDERAL LAWS AND REGULATIONS AFFECTING THE USE OF STATE HIGHWAY RIGHTS-OF-WAY

An examination of federal law affecting public-private partnerships for deployment of ITS in Wisconsin is beyond the scope of this report, but we wish to note that such statutes do exist. The main federal requirement that will affect ITS projects is Section 1.23 of the United States Department of Transportation's rules, 23 C.F.R. § 1.23, generally limits the use of "all real property, including air space, within the right-of-way boundaries of a project" to public highway purposes. However, this section provides that the Administrator may approve temporary or permanent occupancy or use of right-of-way, for non-highway purposes within the boundaries of the rights-of-way of Federal-aid highways, if the Administrator determines that such occupancy or use is in the public interest and will not impair the highway or interfere with the free and safe flow of traffic thereon.[49] The key federal statute is 23 U.S.C. §111 (1998).[50]

---

[48] "Municipality" means a city, village or town. Wis. Code § 66.023(1) (b).

[49] **23 C.F.R. § 1.23 Rights-of-way.**

(a) Interest to be acquired. The State shall acquire rights-of-way of such nature and extent as are adequate for the construction, operation and maintenance of a project.

(b) Use for highway purposes. Except as provided under paragraph (c) of this section, all real property, including air space, within the right-of-way boundaries of a project shall be devoted exclusively to public highway purposes. No project shall be accepted as complete until this requirement has been satisfied. The State highway department shall be responsible for preserving such right-of-way free of all public and private installations, facilities or encroachments, except (1) those approved under paragraph (c) of this section; (2) those which the Administrator

While this provision restricts the uses for which federal highways aid may be employed, that federal law contemplates joint, cooperative projects in the transportation area. The Intermodal Surface Transportation Efficiency Act ("ISTEA") and the Transportation Equity Act for the 21st Century ("TEA21") expressly facilitate public-private partnerships by encouraging cooperation in the design, financing and construction of transportation projects.[51]

VIII. CONCLUSION

Under current Wisconsin law, WisDOT will have to contend with four major issues if it attempts to form a public-private partnership to deploy ITS: (1) restrictions on the use of public property; (2) restrictions on the expenditure of public funds; (3) limitations on the authority of the Department to enter into certain types of arrangements, including cooperative agreements; and (4) restrictions on reinvestment of revenues generated by ITS projects.

Even those agreements that meet the public purpose requirements for use of public property and public funds and that are within the statutory authority of the Department will be subject to other limitations under federal and state law. These requirements could make such an agreement less attractive to private entities, could restrict or prevent certain projects entirely, or could affect the manner in which a project is organized. For example, certain state and federal statutes would require the approval of several different state and federal officials for the expenditure of funds and for the execution of construction contracts. These statutes would also dictate the manner in

---

approves as constituting a part of a highway or as necessary for its operation, use or maintenance for public highway purposes and (3) informational sites established and maintained in accordance with Sec. 1.35 of the regulations in this part.

(c) Other use or occupancy. Subject to 23 U.S.C. 111, the temporary or permanent occupancy or use of right-of-way, including air space, for nonhighway purposes and the reservation of subsurface mineral rights within the boundaries of the rights-of-way of Federal-aid highways, may be approved by the Administrator, if he determines that such occupancy, use or reservation is in the public interest and will not impair the highway or interfere with the free and safe flow of traffic thereon.

[50] **23 U.S.C. § 111. Agreements relating to use of and access to rights-of-way Interstate System**

(a) In General. - All agreements between the Secretary and the State highway department for the construction of projects on the Interstate System shall contain a clause providing that the State will not add any points of access to, or exit from, the project in addition to those approved by the Secretary in the plans for such project, without the prior approval of the Secretary. Such agreements shall also contain a clause providing that ***the State will not permit automotive service stations or other commercial establishments for serving motor vehicle users to be constructed or located on the rights-of-way of the Interstate System***. Such agreements may, however, authorize a State or political subdivision thereof to use or permit the use of the airspace above and below the established grade line of the highway pavement for such purposes as will not impair the full use and safety of the highway.....

[51] *See* 49 U.S.C. §5501 *et seq.*

which certain services and materials are acquired (e.g. procurement procedures and the competitive bidding process). In addition, both federal and state statutes, as they currently exist, would require that the Department retain the authority to supervise the construction and maintenance of highway projects.

Wisconsin law already permits certain types of public-private partnerships that may be applied to ITS projects. Build-operate-lease agreements, for example, are expressly permitted. In addition, the Department and municipal governments may lease their property to private entities. This authority, however, may not be sufficient in many cases. It is also too limited to allow much flexibility in how projects are organized. WisDOT's inability to enter into compensation agreements with private sector entities other than public entities, for example, is an important limitation.

Some of the limitations discussed above may be addressed by simply structuring the public-private partnerships in a particular way. In many cases, however, this may not be possible. Specific legislation therefore may be required to authorize certain projects or to amend those specific provisions that would otherwise bar a potential ITS project that meets the public purpose requirements.

G:\docs\client\9319\02\DMB00235.DOC

FINAL

TASK 3 REPORT

ATTRACTING RESOURCES TO ITS PROJECTS

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for:

Wisconsin Department of Transportation

Prepared by:

BOOZ·ALLEN & HAMILTON

With

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

December 17, 1999

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This Task Report examines practices and programs to attract resources to support ITS projects. In general, ITS projects involve various technologies, which have different characteristics in terms of cost and cost recovery. The financing mechanism appropriate for each project depends on the project cost and revenue characteristics, which range from publicly-funded and provided projects with no private cost recovery to profitable projects that may be partly or totally privately financed. The financial structure of the project depends to a large degree on the organizational model of the ITS project.

PUBLIC VS. PRIVATE GOODS

Economists define a "public good" as a product or service that is free to everyone once provided to one person. An example is rush hour traffic information broadcast by radio or television. Public goods undermine the ability to sell similar goods or services (e.g. traffic information) and thus are an impediment to private participation in projects. When public goods are a significant portion of ITS products and services, the likelihood of the private sector being able to earn a profit is greatly reduced and may be very low. Under these circumstances, a reasonable return on private investment could be guaranteed by a state subsidy

Economists define a "private good" as a product or service that can exclude users through the mechanism of pricing. Private goods attract resources of the private sector because consumers are willing to pay the price at which the product or service is offered for sale. If enough users are willing to pay, the ITS product or service will be profitable and no public expenditures are necessary.

Whether or not public or private goods are involved, the public sector can create a climate that enhances the likelihood of a private entity earning a profit by offering some degree of exclusivity (e.g., franchise). This allows the private partner to gain a competitive advantage and therefore an interest in participating in a particular public/private venture.

STAGE OF LIFE CYCLE

An additional consideration in determining the type of resources available is the stage of the life cycle that a particular ITS project addresses. There are three main stages in the implementation of ITS: pre-deployment (R&D mostly); deployment; and operations and maintenance. Most of the available mechanisms for attracting private resources are focused on deployment of ITS, primarily because methods of finance are

focused on capital investment in the transport system rather than operations and maintenance.

However, over the last ten years, particularly since the completion of the Interstate system, there has been increased emphasis on preservation and improving the operational efficiency of the existing transportation system. Not only are there increasing number of ways to finance ITS projects that can lead to improvement in operational efficiencies, but once ITS projects are deployed, there are increasing funds available for operations and maintenance of ITS systems.

MECHANISMS TO ATTRACT RESOURCES

Keeping the above considerations in mind, this document describes the following mechanisms to attract resources for ITS projects:

- Leveraging of Public Property involves parlaying public property – land, facilities, communication towers, as well as data or information -- into profitable business opportunities that help meet WisDOT's needs. Leveraging of public property is useful mostly for deployment and operational stages.

  Leasing right-of-way and telecommunications towers allows private firms to install wire-line and/or wireless communication networks. Such networks can provide a telecommunication backbone or network for ITS and other government purposes.

  In-kind Transactions is an option when government does not want to or cannot charge a lease fee. For example, the government agency might barter right-of-way for telecommunications network capacity. In-kind transactions are typically most useful for the deployment phase of ITS since bartering results in no direct revenues to support ongoing operations and maintenance. However, in-kind transactions can call for the private firm to perform operations and maintenance in some capacity.

  Franchising is a grant of a privilege to engage in a business. Agencies can leverage public property by awarding a franchise that grants access to right-of-way, communications towers, information or data in order to allow a firm to earn a profit while simultaneously meeting a public interest obligation (e.g. contribute to the deployment of ITS in manner that generates public benefits). Under many franchise agreements the franchisee must share revenue with the government.

  Licensing enables a firm to engage in a business that would otherwise be illegal or involve trespass. A government agency can issue a license to provide a service on the highway network or to sell data that would otherwise be illegal.

There are a number of issues to consider when examining different approaches to leverage public property. One of these issues is the level of *exclusivity* granted to the private partner. The degree of exclusivity affects whether the project will generate enough interest to attract a private partner. An additional financial consideration is whether the public sector's investment, in case it is required, can be financed through *tax-exempt* bonds, which reduce the cost of capital of the project. Other considerations include defining the project's *geographic scope*, addressing costs of *relocation* and liability issues, as well as defining the *form of the real property right* of the private partner.

- Federal Program of Innovative Finance which, since the passage of ISTEA in 1991, has been managed by the FHWA and FTA. The federal program of innovative finance has sought to increase the flexibility in the ways federal funds may be used. More recently, the Transportation Equity Act for the 21st Century (TEA-21) in 1998 expanded the financing mechanisms available to states. Within the innovative finance program are two important sets of loan programs:

  (1) *Federal Credit for Nationally Significant Projects (included in TEA-21),* which include ITS projects and contains various credit mechanisms namely, Flexible Payment Loans, Loan Guarantees, and Standby Lines of Credit (which seek to enhance both the cash stream at earlier stages of the project and to reduce the cost of funds throughout the life cycle of the project); and

  (2) *State Infrastructure Banks (included in TEA-21),* which began as a pilot project and now is expanding its scope throughout the country. The SIB's offer a wide array of financing tools in the form of credits (loans which can be subsidized and include flexible payment schedules, Grant Anticipatory Notes, Short-term lending and Long-term lending instruments), as well as credit enhancement mechanisms (Lines of Credit, Letters of Credit, Loan and Bond Guarantees and Capital Reserves). Additionally, SIB's are open to new forms of financial assistance, each of which would have to be approved by the U.S. Secretary of Transportation.

  Note that federal loans can apply to the federal share and state loans apply to the state share of federal aid matching requirements. In addition, federal credit enhancements such as loan guarantees can be used to back private debt which can in turn be used along with state funds to satisfy the state matching share of a federal aid project.

  State and private funds can be further leveraged by taking advantage of federal regulations concerning the ability to apply donations of third parties, such as private firms, to the states' share of federal aid matching requirements.

In addition, the use of a tapered match, under which payments of the federal matching share does not necessarily coincide with the time when costs are incurred, can also help to leverage funds, reduce project costs, and undertake more projects than would otherwise be feasible.

- Utilization of Tax-exempt Mechanisms such as nonprofit organizations (which can be joint public/private ventures) allowed by IRS ruling 63-20. This is a way to establish an intermediary well suited for public/private partnerships and that is useful to finance the capital costs of projects but not necessarily operations. A 63-20 corporation can be used to attract resources that would be focused both on enhancing transportation and serving a particular community, region, or economic sector such as tourism, agriculture, or forestry.
- Cooperative Research and Development Agreements with private firms to defray costs of the pre-deployment phase of ITS projects. These are among the many approaches to public/private partnerships with national laboratories and research institutions that that can help lead to commercialization of applied research or to the establishment of a proof of concept.
- Utilization of Venture Capital could be of interest in the deployment phase to finance capital costs where there is both great profit potential and risk. However, expected return on investment must be high enough to compensate for the risks in order to attract venture capital. Venture capitalists take an equity position in the company typically through stock or convertible debentures. Venture capital is costly relative to other sources of funds.

CONCLUSION/RECOMMENDATION

The organizational or business model selected for a particular ITS public/private partnership is the most important determinant of the ability to attract resources from the private sector. Business models most likely to attract private capital (and for that matter public capital) have the following features:

- Leverage public resources such as rights-of-way and or publicly generated data
- Avoid situations where the private sector must compete against public (free) goods
- Grant some degree of market exclusivity during the start-up period, and
- Create conditions of economies of scale.

To the extent that conditions do not exist or cannot be created that result in profitable business opportunities, then government can still attract private resources by

offering a subsidy to make up the difference between revenues required to be profitable and the revenues earned. State and private sector resources can also be leveraged using loans and credit enhancements available through the federal innovative finance program including State Infrastructure Banks and Federal Credit for Nationally Significant Projects.

1.0 INTRODUCTION

The Wisconsin Department of Transportation is interested in understanding programs and practices to attract resources to support its ITS program.

The emphasis of this Task Report is placed is on public/private partnerships and innovative finance mechanisms available to States either through the federal government, tax provisions, or other similar arrangements. The purpose of this document is to present the Wisconsin DOT with a menu of alternatives for financing ITS projects. All of these alternatives may not be applicable all the time. Some are just for specific stages of an ITS deployment.

There are three main stages in the implementation of ITS:

- Pre-deployment (R&D mostly);
- Deployment; and
- Operations and maintenance.

Most of the available mechanisms outlined in this document focus on deployment of ITS, principally because methods of finance are focused on capital investment in the transportation system rather than operations and maintenance. However, this has been changing since the completion of the Interstate System. In the last ten years there has been a growing emphasis on preservation of investment and improvement in the operational efficiency of the transportation system. Furthermore, the importance of operating and maintaining ITS has received much attention. It is important to bear in mind the role public/private partnerships can play in making the operations and maintenance sustainable over the life of the partnership.

The most effective ways to enhance public/private partnerships for deploying ITS in Wisconsin depend on the institutional models adopted, which in turn depends on the possibility of cost-recovery by the private sector. Some institutional models are conducive to creating profitable opportunities and others much less so or not at all.

ITS refers to a vast array of technologies and services which provide different types of user services. For example, it is desirable to distinguish between Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS). ATMS enables transportation agencies to respond to transportation demand by controlling traffic, access, or pricing. ATIS provides an array of information services to users to pre-plan trips, choose appropriate transport mode, departure time, route, etc.

Figure 1 illustrates the major issues affecting the financial feasibility of public/private partnerships for ITS, using ATMS and ATIS as examples[1].

- Cost recovery depends to a large extent on whether the ITS service is a public good or not. Economists define a pubic good as being free to everyone as soon as it becomes available to one person. Clearly, if ATMS user services are free, which is generally the case, there is no possibility for the private sector firms in a public/private partnership to recover costs. Without cost recovery and the ability to earn a profit, it is not possible to attract private capital.

- Service options may involve a mixture or a bundle of public and private goods. Whereas a public good is free, a private good is characterized by the ability to exclude users by charging a price. Some service options are to offer ATMS and basic ATIS for free; provide ATMS services but sell data that comes from ATMS; and to provide free ATMS services but sell ATIS services and data. Depending upon the mix of public and private goods in these bundles of services, the public/private partnership may or may not recover sufficient costs to be profitable. It may break even, cover all operating costs plus allow a profit, or the whole project might be profitable. To the extent that the overall project falls short of being profitable because of the presence of public goods and/or insufficient willingness of consumers to pay, then a government subsidy is required to create a profitable situation for the private sector and to attract private capital.

  Note that one of the service options in Figure 1 is electronic toll collection, a type of ATMS. Electronic toll collection turns a highway, which would otherwise be a free good, into a private good, since only people willing to pay the toll may use the highway. If demand is high enough there will be cost recovery and profit on the original investment. Toll roads with forecasted traffic volumes high enough to recover costs and earn a profit, can attract substantial private capital.

- The degree of exclusivity or competition is the third major determinant of the financial viability of a public/private partnership. If a public/private partnership is offered an exclusive franchise, and is protected from competitors, there is a substantial reduction in the risk that future revenues will not achieve their targets for profitability. As exclusivity is relaxed and competition increases, then the risk of not recovering costs

[1] "Overcoming Barriers to ITS: Lessons from Other Technologies". Final Report, Prepared for the US Federal Highways Administration by The Urban Institute with Cambridge Systemics, Inc., Miller, Canfield, Paddock and Stone, P.L.C. and MTA-EMCI. Page 65.

and generating a profit goes up greatly. The ability of a public/private sector partnership to attract private sector resources is a direct function of the degree of market exclusivity. Competition must be managed carefully. It is possible to grant a high degree of exclusivity at the outset of a public/private partnership to attract private capital, but once cost recovery has been achieved, later introduce competition in order to foster price competition and innovation. Issues dealing with exclusivity are discussed in more detail below in regards to shared resource projects.

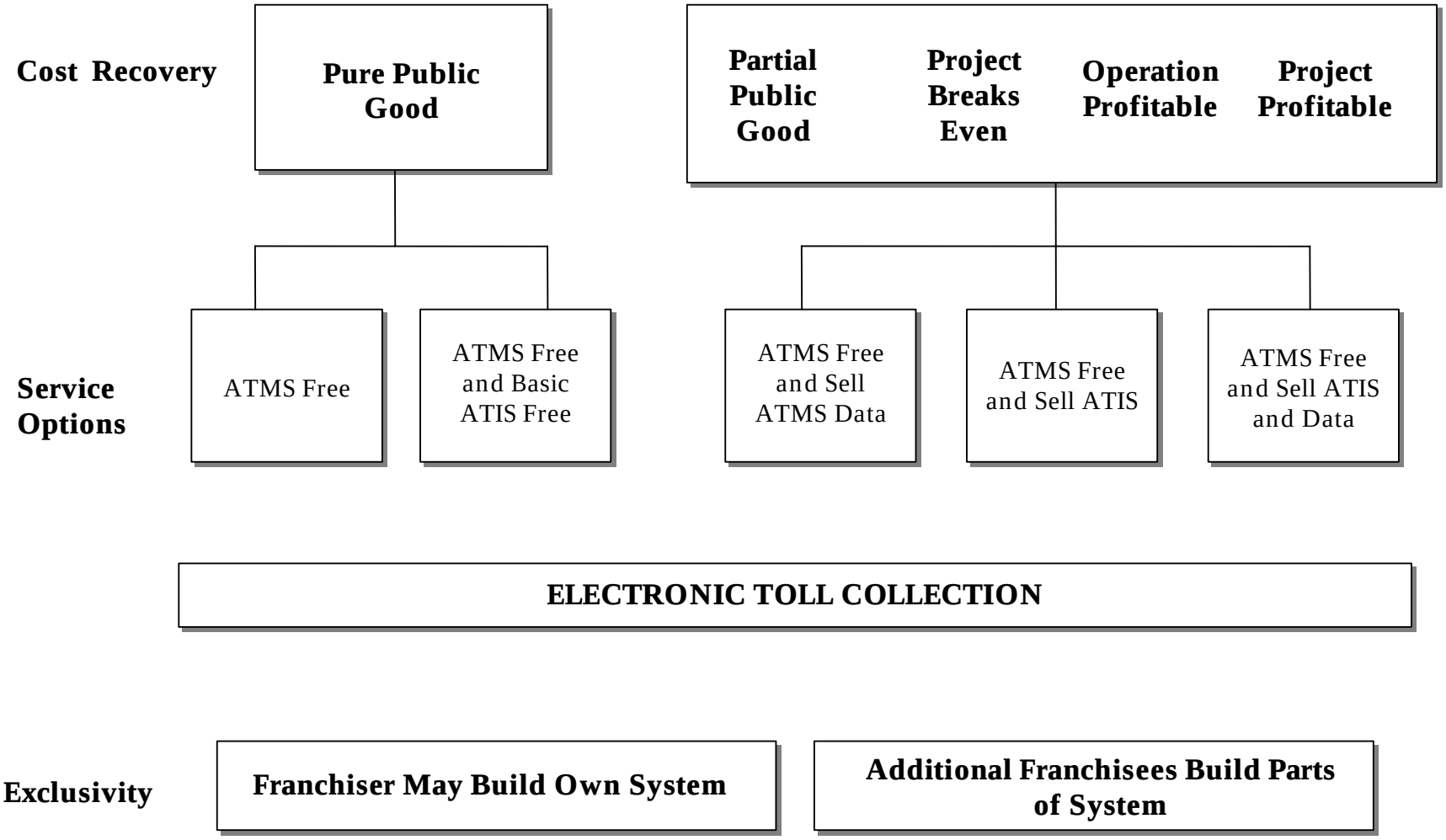


Figure 1: Major Issues Affecting the Financial Feasibility of Public/Private Partnerships for ITS

Different types of financial mechanisms have varying roles in attracting private capital, depending on which business and institutional model applies to a particular ITS project. Under a situation where the public sector pays for most or all of the cost of the project or subsidizes the private partner for incurring the cost, the state could utilize financial mechanisms of the Federal Credit Program or a State Infrastructure Bank. The financial instruments in these two federal programs help to accelerate projects and reduce risks. They leverage public funding to add liquidity to early phases of projects and enhance credit, thereby increasing the likelihood of private investment.

As the ITS project moves along the spectrum in which it is possible to increase private participation and cost recovery, then other financial options become available: shared resources projects become more viable by stimulating the interest of the private sector to participate. As the projects have some operations which are profitable or the project itself overall is profitable, then it will be possible to resort to other types of financing mechanisms like a 63-20 corporation issuing tax exempt general obligation or revenue bonds (a 63-20 corporation will need to have a future stream of revenue or general tax collection to pay off the bonds).

Theoretically, under a model at the end of the spectrum, where the project involves a private good, the public sector would not have to commit resources to the project. Because it is profitable there would be private funds available to fund it. However, the state may support the project through loan or bond guarantees or similar mechanisms to help ensure that the cost of financing of the project is at a level which makes the project profitable (assuming that without these credit enhancements the cost of financing would not make the project viable through private sector financing alone).

2.0 PUBLIC/PRIVATE PARTNERSHIPS AND INNOVATIVE FINANCE FOR ITS

The remainder of this paper discusses specific types of private/public partnerships and innovative finance mechanisms for ITS and their ability to attract private capital to Wisconsin. Also discussed are tax provisions and venture capital involvement. Public/private partnerships have been touted as a way to augment state and local funds available to relieve capacity constraints. Public/Private partnerships can take advantage of a large set of activities and instruments that have been developed by the federal government since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and in succeeding legislation, the Transportation Equity Act for the 21st Century (TEA-21). Some of the initial programs, such as State Infrastructure Banks, which began as pilot projects, have now moved to implementation.

The following are the main ways of attracting resources to ITS and their applicability to Wisconsin:

- Leveraging of Public Property involves parlaying public property – land, facilities, communication towers, as well as data or information -- into profitable business opportunities that help meet WisDOT's needs. Leveraging of public property is useful mostly for deployment and operational stages.

  Leasing right-of-way and telecommunications towers allows private firms to install wire-line and/or wireless communication networks. Such networks can provide a telecommunication backbone or network for ITS and other government purposes.

  In-kind Transactions is an option when government does not want to or cannot charge a lease fee. For example, the government agency might barter right-of-way for telecommunications network capacity. In-kind transactions are typically most useful for the deployment phase of ITS since bartering results in no direct revenues to support ongoing operations and maintenance. However, in-kind transactions can call for the private firm to perform operations and maintenance in some capacity.

  Franchising is a grant of a privilege to engage in a business. Agencies can leverage public property by awarding a franchise that grants access to right-of-way, communications towers, information or data in order to allow a firm to earn a profit while simultaneously meeting a public interest obligation (e.g. contribute to the deployment of ITS in manner that generates public benefits). Under many franchise agreements the franchisee must share revenue with the government.

Licensing enables a firm to engage in a business that would otherwise be illegal or involve trespass. A government agency can issue a license to provide a service on the highway network or to sell data that would otherwise be illegal.

There are a number of issues to consider when examining different approaches to leverage public property. One of these issues is the level of *exclusivity* granted to the private partner. The degree of exclusivity affects whether the project will generate enough interest to attract a private partner. An additional financial consideration is whether the public sector's investment, in case it is required, can be financed through *tax-exempt* bonds, which reduce the cost of capital of the project. Other considerations include defining the project's *geographic scope*, addressing costs of *relocation* and liability issues, as well as defining the *form of the real property right* of the private partner.

- Federal Program of Innovative Finance which, since the passage of ISTEA in 1991, has been managed by the FHWA and FTA. The federal program of innovative finance has sought to increase the flexibility in the ways federal funds may be used. More recently, the Transportation Equity Act for the 21st Century (TEA-21) in 1998 expanded the financing mechanisms available to states. Within the innovative finance program are two important sets of loan programs:

  (1) *Federal Credit for Nationally Significant Projects (included in TEA-21)*, which include ITS projects and contains various credit mechanisms namely, Flexible Payment Loans, Loan Guarantees, and Standby Lines of Credit (which seek to enhance both the cash stream at earlier stages of the project and to reduce the cost of funds throughout the life cycle of the project); and

  (2) *State Infrastructure Banks (included in TEA-21)*, which began as a pilot project and now is expanding its scope throughout the country. The SIB's offer a wide array of financing tools in the form of credits (loans which can be subsidized and include flexible payment schedules, Grant Anticipatory Notes, Short-term lending and Long-term lending instruments), as well as credit enhancement mechanisms (Lines of Credit, Letters of Credit, Loan and Bond Guarantees and Capital Reserves). Additionally, SIB's are open to new forms of financial assistance, each of which would have to be approved by the U.S. Secretary of Transportation.

  Note that federal loans can apply to the federal share and state loans apply to the state share of federal aid matching requirements. In addition, federal credit enhancements such as loan guarantees can be used to back private debt which can in turn be used along with state funds to satisfy the state matching share of a federal aid project.

- Utilization of Tax-exempt Mechanisms such as nonprofit organizations (which can be joint public/private ventures) allowed by IRS ruling 63-20. This is a way to establish an intermediary well suited for public/private partnerships and that is useful to finance the capital costs of projects but not necessarily operations. A 63-20 corporation can be used to attract resources that would be focused both on enhancing transportation and serving a particular community, region, or economic sector such as tourism, agriculture, or forestry.
- Cooperative Research and Development Agreements with private firms to defray costs of the pre-deployment phase of ITS projects. These are among the many approaches to public/private partnerships with national laboratories and research institutions that that can help lead to commercialization of applied research or to the establishment of a proof of concept.
- Utilization of Venture Capital could be of interest in the deployment phase to finance capital costs where there is both great profit potential and risk. However, expected return on investment must be high enough to compensate for the risks in order to attract venture capital. Venture capitalists take an equity position in the company typically through stock or convertible debentures. Venture capital is costly relative to other sources of funds.

3.0 LEVERAGING OF PUBLIC PROPERTY

Efforts to deploy ITS have used public property to leverage private sector participation. Private funds help augment scarce public dollars for which there are many competing demands. The Maryland State Highway Administration conducted cost analysis into decisions of building or leasing ITS networks to support its Chesapeake Highway Advisories for Routing Traffic (CHART). The Maryland State Highway Administration rapidly discarded the "build" option due to its high cost and analyzed various combinations of build/lease in which the issue was the length and components to be leased.[2]

Given the increased interest in attracting new sources of funds to ITS projects, State governments have been able to leverage certain illiquid assets to mobilize private sector financing of deployment costs. The two main assets that have been mobilized by the states are right-of-way and access to telecommunication towers. Both of these assets are of commercial interest to telecommunications and cable television firms because they allow installation of networks through negotiations with a single property owner. The alternative would be negotiate right-of-way with a multitude of individual property owners which would probably take longer and involve greater administrative resources.

The classic cases of these transactions, known as shared resource projects, have been described in the literature and are briefly summarized here:

- "State of Maryland: The Maryland Department of General Services has a shared resource agreement with MCI and Teleport Communications Group for the installation of 75 miles of fiber optics along I-95. Maryland receives 48 fibers, equipment to "light" 24 fibers, and maintenance services…Each partner owns its fiber, but only MCI will physically access the system.
- Ohio Turnpike: The Ohio Turnpike Commission has several unexclusive licensing agreements with private firms for installing telecommunications infrastructure along ROW. The projects vary in location and length covered. In each case, the Commission receives a fixed annual license fee of $1,600 per mile and rights to use the fiber optics for Turnpike purposes at low or no cost.
- State of Missouri: Using standard procurement procedures, the Missouri Highway Administration contracted with Digital Teleport, Inc., to install more than 1,300 miles of a backbone system of six fibers, with associated telecommunications equipment and maintenance, dedicated to Missouri

[2] "A Case for Intelligent Transportation System (ITS) Telecommunications Analysis", by Ben Gianni and Alison Moore. U.S. Department of Transportation.

Highway Administration use. In exchange, Digital Teleport gets exclusive access to the same ROW for its own fiber-optic system.

- Bay Area Rapid Transit: In the San Francisco Bay Area Rapid Transit (BART) agreement, BART procured a new fiber-optics system supporting its rail operations from MSF Network Technologies and MSF invested funds to install more conduit throughout the system to rent to carriers willing to pull their own fiber. Caltrans is a silent partner because some of BART's ROW in this project is leased from the State. BART gets 91 percent of lease revenues from MSF-owned conduit, MFS retains 9 percent, and Caltrans receives part of BART's revenues as well as the use of four fiber strands.
- City of Leesburg, Florida: The City of Leesburg established a communications utility with Knight Enterprises and Alternative Communications Networks (ACN), which designed and constructed the network. The City funded and owns the dark fiber on its ROW, part of which will be used for public sector uses. ACN has exclusive rights to lease the remaining capacity to private and public customers, who own their links to the backbone. The lease revenue goes to the City until its capital investment has been repaid; thereafter it will split revenues with its partners. Leesburg may still enter into agreements with other partners for additional infrastructure."[3]

The actual form a shared resources project will take depends on the resolution of a number of issues (which are examined below). The institutional model adopted by each state will impact the decisions and choices available for each of these types of transactions.

3.1 In-Kind Transactions

In-kind transactions (barter) involve the state granting access to right-of-way to a telecommunications firm in return for accessing the fiber optic or other network installed to support ITS (in-kind transactions can be exclusive as in the case of Missouri or non-exclusive as in the case of the Ohio Turnpike).

In-kind, as well as cash, transactions have the inherent difficulty of the appropriate valuation for the right-of-way. There are various techniques, which have been utilized by public entities to address this issue.[4] Generally the value of the land is only worth what someone is willing to pay for it. On the one hand, it is important to be

[3] "Shared Resources: Sharing Right-of-Way for Telecommunications" U.S. Department of Transportation. Pages 2-3.
[4] This discussion is taken from "Shared Resources: Sharing Right-of-Way for Telecommunications" U.S. Department of Transportation.

competitive with private easements, and on the other hand to capture what the land is worth in the next best alternative use. Basing fees on historical data, including information from other states is helpful.

The value of right-of-way sometimes can be determined based on the value of adjacent land, which has the advantage of taking into account the local land market. However, this approach may underestimate the advantage of dealing with one owner of the right-of-way (one of the reasons why these transactions are attractive to private parties) and does not really take into account issues such as installation costs and risks which may affect the value of the land.

Another approach to valuing the land is to conduct market research on revenues that can be earned using the right-of-way as an input. The difficulty with market research is anticipating why a private firm would enter into the agreement. If there is strong market justification, the private partner would have a higher willingness to pay than in other circumstances.

Missouri, as mentioned above, conducted a normal competitive procurement process that essentially determined the price of being able to use the public right of way through an auction process. Each firm or consortium submitting a proposal had an opportunity to provide the Missouri DOT with the best offer in terms of how much of the highway network (in excess of a minimum) would be covered with an optical fiber backbone and how much bandwidth the state would receive. However, without involvement of enough interested parties such a valuation may miss the mark.

Finally, the state may simply determine compensation based on ceding right-of-way against the value of its own needs for ITS. While this approach ensures that the needs of the public sector are met, it does not take into account the willingness to pay of the private partner which may be substantially lower (in which case the project does not go forward) or higher (in which case the state "loses" the differential).

In-kind transactions involve various options, depending on the needs of the state. The right-of-way is exchanged for fiber optic conduits and strands, electronics, operations and maintenance of a system and/or for upgrading of a system. The state's needs for telecommunications to support its ITS determines the approach to take.

In-kind transactions have some advantages:

- There is a "win-win" situation possible when the private cost is less than the cash value to the public sector.

- The company can give more than the cash equivalent of the right-of-way, thereby increasing the benefits to the state. Indeed, the company can give the state conduit and fiber at cost.
- The state avoids having to make a large cash outlay to obtain telecommunication capacity.

- In kind transactions can occur quickly (since the pace of deployment is set by the private sector, which needs to have the network installed in the quickest amount of time). The case of BART is illustrative. BART procured a new fiber-optics system supporting its rail operations from MSF Network Technologies and MSF invested funds to install more conduit throughout the system to rent to carriers willing to pull their own fiber. MSF had a strong incentive to have its own network installed as soon as possible to enable it to begin renting to carriers and generating a revenue stream.[5]

- It may save administrative time and expense of the state highway agency in terms of supervision and other recurring costs, if these functions are negotiated in the barter agreement.

- Such transactions avoid the exchange of money. Revenue in many states must go to a general fund and cannot be retained for transportation or ITS purposes.

In-kind transactions have various disadvantages:

- One of the disadvantage often mentioned is that the cost of the right-of-way may be less than the willingness to pay of the private partner. In this case, the state may "lose" revenue by granting the right-of-way at a cost less than what it may have otherwise obtained.

- In addition, the barter agreement does not necessarily include the support costs of the systems (although in cases such as Maryland this was negotiated into the agreement).

- In kind transactions are a "one-off" occurrence in most cases -- once the access to right-of-way has been granted, the state has used up its ability to leverage the asset. In Maryland, once the state had obtained optical fiber for the I-95 corridor, there was no interest from the private sector in

[5] The need to generate positive cash flow to pay for investments typically increases the rate of completion of projects, as is evident in most project finance transactions. For example, road concessions in countries such as France where completion of the corridor is required prior to charging tolls, are finished in shorter periods than traditional public works projects.

expanding provision of optical fiber to other key portions of the state network to support ITS and the CHART program. In contrast, Missouri resolved this difficulty by seeking bidders that could help the DOT meet its telecommunication needs on a large portion of its network rather than just one attractive corridor.

- The state has relatively little bargaining power because it signaled to the private partner that it has no other option to build the ITS backbone, while the private partner has the option to build its telecommunication network somewhere other than on the state ROW (although at a higher cost, especially if indirect costs are taken into account). Missouri felt it was desirable for the state to grant exclusive access to the right-of-way in order to obtain the fiber optic network it desired. However, such exclusivity may limit the flexibility of the public partner in some arrangements.

- The Telecommunications Act of 1996 on the one hand prohibits granting exclusive use of ROW, while on the other hand protects the rights of states to obtain fair value for its ROW. The Telecommunications Act of 1996 does not resolve this tension and conflicts have been left to the courts to resolve.

3.2 Cash Transactions

Cash transactions face many of the same issues as in-kind transactions (such as valuation of right-of-way) but have other distinctive features. Under a cash transaction, the state may simply grant access to its telecommunication towers or right-of-way in exchange for a an occupation fee or lease payment, or it may combine granting access with payment of some sort. Historically, Wisconsin has obtained cash in return for access to public rights-of-way.

A case of cash transactions is the BART example mentioned above. Other examples include the New Jersey DOT which leases use of public buildings for installation of antennas, as well as use of right-of-way according to a structure of rates which vary from $10,000 to $45,000 per year per site, depending on issues such as location, number of antennas at each site, number of sites required by each private partner, etc. Similarly, the New Jersey Turnpike Authority has allowed access to right-of-way for construction of private towers, poles and antennas in exchange for tower space (to install its own network) as well as payment of $15,000 to $35,000 per year per site, depending on issues similar to those taken into account by the New Jersey DOT, plus a percentage of the sub-lease revenues generated by the private partner. Also the

New York DOT has allowed chicklet antennas to be installed on signboards along the Long Island Expressway for $9,000 per year per site.[6]

The type of compensation to the state may vary, particularly as it relates to the stage of implementation of ITS. There could be a lump sum payment from the private partner, which is useful if the state is deploying the ITS and requires up-front capital costs outside the domain of the partnership. Or the payment could take the form of either a lease or a percentage of revenue of the private operator, although obtaining a percent of revenue is difficult to administer with telecommunications companies. Both these forms of payment address issues of operations and maintenance and provide a revenue stream, which can potentially make an ITS public/partnership sustainable.

Cash compensation for access to right-of-way, as well as a combination of cash and in-kind, have various advantages:

- The State obtains a liquid asset. This is useful in states that are unsure or that do not require telecommunications services at the time of deployment. In addition, the liquid asset helps to cover operations and maintenance expenses during the time of the lease, thus ensuring sustainability of the project by guaranteeing a source of recurrent revenues.

- In cases where there is a combination of cash and in-kind transactions, there is a "win-win" situation possible when the private cost is less than the cash value to the public sector.

There are various disadvantages to cash transactions:

- The state only gets cash when it might get more in value such as conduit/fiber.

- The state may not be able to earmark the funds obtained for transportation or ITS purposes. Such funds would therefore flow to the General Fund. If the funds were earmarked, the amount flowing to the DOT may be deducted from its overall budget by the State. If either of these scenarios is the case, there would not be an obvious incentive for the DOT to engage in these transactions.

- Cash payments may also create a "zero-sum" situation between the partners, rather than a "win-win" situation. What the public partner is charging the private partner is revenue lost by the latter.

[6] "Overview of Shared Resource Projects" Presentation by Dr, Susan Jakubiak, Apogee Research, Inc. to ITS America Legal Affairs Committee. February 15, 1996.

3.3 Exclusivity vs. Non-Exclusivity

The issue of exclusivity is related to the institutional model deemed more appropriate by the state. The issue of exclusivity should not be looked at in absolute terms, as there may be exclusive rights in one area of an ITS project and not for others.

There are lessons in other technologies (cable television, for example, which was described in the Task 1.0 report), which may be applicable regarding this issue. Limited franchises in cable television, for example, were useful to extend the service, although there was always an issue of monopoly profits emerging in such a situation. Other important franchise-related issues are the duration of time that is reasonable for the private partner to recover its investment plus an adequate return and the point in time when the private partner begins to generate monopoly profits.

In general, the following advantages can be obtained by using an exclusive agreement with the private partner:

- Administrative ease for the public entity which does not have to deal with many providers of a service but has one point of contact. These exclusive agreements will generate an administrative burden less than "normal" projects.

- In general, there is a higher willingness to pay on the part of the private partner for exclusive rights. This will be the case if the state asset is relatively unique (for example, leasing building space by the New Jersey DOT for installation of antennas is not unique in many areas and, therefore, there is no reason for the private partner to pay a premium over the use of this space; however, access to the right-of-way of BART may increase the willingness to pay of the private partner due to the cost of the alternatives). The private sector is also likely to be more willing to pay, the longer the period of time the franchise remains exclusive.

The biggest disadvantage to this type of an agreement is the following:

- There is a non-competitive situation for a number of years in the provision of a particular service (transmission through a fiber optic network in an important corridor). There are at least three problems with a non-competitive situation: first, there is an issue of public perception which could undermine the project itself if the procurement process is not seen as fair; second, there is the issue of a private operator utilizing a public asset with little control or competition; third, the lack of competition may lead to charging customers excessive rates and retard innovation.

The above disadvantages can be addressed through an appropriate institutional structure, such as a public/private partnership with some of the characteristics mentioned in the Task 1.0 report, including the following:

- A true partnership and not a contractual relationship, where it is in the interested of both parties to remain in the partnership.

- Sharing of information to permit appropriate regulation and prevent monopoly rents from appearing.

An alternative to the above is non-exclusive use of the state's asset by the private partner. The non-exclusive right has several advantages:

- It promotes fairness by treating all wishing access to public property as equals.

- Minimizes the risk of litigation as a result of granting exclusive rights.

- Increases the potential revenue for the state, particularly in situations in which the shared resource involves cash compensation or a combination of cash and in-kind compensation.

- Allows for more flexibility on behalf of the state to allow shifts when demand or technology changes (this may be an important issue given the speed of technological change in some aspects related to ITS and to the telecommunications industry).

However, non-exclusivity also has some disadvantages:

- Higher administrative burden given that the state will deal with more than one party.

- There is also the danger of recurring construction (for example, to install a different network where the original right-of-way network had been installed).

- The greater the competition, the more challenging it is for private partner to make a profit and to attract private resources. The incentives to private participation as a result of granting exclusive rights will depend upon the private sector investment perspective – short-term, mid-term, or long-term. The private sector generally is willing to offer more to the public

sector, the longer it can retain exclusive rights, unless it has specific short-term objectives.

3.4 Other Issues[7]

3.4.1 Tax-exempt Status of Public Bonds for Financing Private/Public Transportation

A state or other governmental agency or quasi-governmental agency may issue tax exempt bonds as a way to finance part of a public/private partnership, including projects that may have a shared resource component. However, an important issue to consider is the tax-exempt status of the bonds utilized by the public partner to finance its part of the project. The policy concern is that private entities may not profit from local government's federal tax exemption. Tax exempt financing offers the prospect of reducing the overall cost of financing the project and having a positive effect on financial feasibility, but if private entities will profit from the tax exemption, then the tax-exempt status of the financing could be lost and adversely affect financial feasibility. Moreover, there is a cap on the amount of tax exempt bonds that can be issued in Wisconsin. The issuance of tax exempt bonds that might predominantly benefit the private sector would be at the expense of other uses of tax-exempt financing in Wisconsin.

For example, in the case in which the partnership is not a single entity (as would be the case under 63-20 Corporation), there are two general tests which need to be met to issue tax-exempt bonds:

- General Private Activity Test: seeks to determine if 10% of the proceeds of the bonds or less are used for private business and if the private business payments or secure payment (principal + interest) is less than 10% of bond proceeds. (The private activity test has a cap of $15 million either as proceeds or payment or security.)

- Private Loan Financing Test: seeks to determine if less than 5% or less than $5 million is going to be used to make or finance loans other than to government units.

If the affirmative holds for both tests, then the tax exemption is allowed; if not, there is no such exemption.

These tests may limit the organizational options available for projects, particularly if the project is viable only with tax-exempt financing.

[7] Most of this section summarizes the discussion found in "Shared Resources: Sharing Right-of-Way for Telecommunications" U.S. Department of Transportation.

3.4.2 Geographic Scope of the Project

The geographic scope of a shared resources project directly affects its ability to attract private sector investment

The advantages of the state specifying a geographic scope that covers all or most of a network or a major corridor are as follows:

- It is administratively easier for the state.
- It may permit establishing telecommunications equipment in areas of low commercial interest, but of high public interest to the state in exchange for the use of right-of-way in areas of higher private interest. This cross-subsidy will have its cost.

The main disadvantage is these projects will probably entice relatively big players with greater geographical interest at the expense of local, relatively-small private partners. As a result, there may be less interest of local firms in the project and the approach may go against statewide objectives of promoting local firms.

If the state opens a network to shared resource projects with the possibility of many small projects, there are various advantages:

- Small firms with local interests will be encouraged to participate, thus increasing the level of competition.
- Additionally, by dividing a project into many projects, the state can sequence individual projects according to its resources and needs.

Disadvantages of many small resource projects are:

- There may be a greater administrative burden of having to coordinate many projects.
- There may be no bidders for certain segments which may be of interest to the state but not attractive to the private partner.
- The approach may discourage the participation of some of the big telecommunications players who may not see the advantage of negotiating various right-of-way projects with the state.

Instead of the state determining the geographic coverage, suppose the private bidder determines the geographic scope of the shared resource project. These projects have the advantage of attracting high levels of interest from local and national firms. However, especially in barter projects, there is a concern that there will be sections of the highway network not attractive to the private sector, even though the sections are economically interesting to the state.

3.4.3 Relocation in cases of Expansion of Transportation Infrastructure

Another issue to consider is the following: if there is a need to expand the infrastructure during the life of the shared resource agreement, who would be responsible for bearing relocation costs? Because a shared resource agreement involves a partnership, the unilateral imposition of a solution by the state may not be viable or even desirable. While this issue is usually addressed in shared resource agreements, there is no consensus on how to divide or allocate the costs. Relocation clauses in shared resource project agreements represent a departure from traditional public policy, which imposed all relocation costs on the private partner. In general, it is prudent to plan for future contingencies such as relocation of infrastructure.

3.4.4 Form of Real Property Right

There are two issues to consider regarding the form of the real property right, both of which will impact the institutional structure of a shared resource project. The first is whether the private partner may install its own infrastructure or is simply being granted access to public right-of-way or installations.

Allowing the private firm to install its own infrastructure on the right-of-way has the advantage of increasing the level of participation of the private partner to design, build, install and operate the telecommunications and ITS infrastructure. However, the public sector will loose a certain degree of control over the infrastructure itself. Alternatively, the state may control the timing and type of infrastructure installed better if it only grants access to its own infrastructure. However, the state will then have to incur the cost of building all of it.

The second issue concerning real property rights has to do with the manner in which access is granted. In general there are four main ways in which the right may be offered:

- "Easement: a property interest in land owned by another. The types of uses allowed may vary by state, but traditionally, easements are limited to certain uses including ROW.

- Lease: an agreement that grants rights to use property for a specific time period. Forms of lease payment include fixed-price, percentage, and graduated based on an independent index.

- Franchise: a privilege granted to engage in defined business practices. Typically a franchise is a business privilege and not a real property right although, where land is involved, some states classify franchise as a form of real estate.

- License: the permission to perform an act which otherwise would be a trespass or other illegal act. Licenses are granted, for some consideration, to a private party to allow the practice of some business subject to police power regulation."[8]

Each of these approaches has tax implications for the private partner. Also, the state may lack the statutory authority to grant access in a particular manner.

3.4.5 Federal Aid Matching and other Leveraging Opportunities

Shared resource projects can further leverage funds by taking advantage of the ability to apply the value of the private sector contributions to the current or future matching share of ITS or other transportation projects. Under the National Highway System Act amended by U.S.C 323 funds, materials and services by third parties such as a company, association or individual (not federal, state or local government) may be used as the state's matching share. For, example, under its shared resource project, the State of Missouri was able to apply the value of the optical fiber the private sector contributed to current and future matching shares for other ITS projects.

States can further leverage their federal funds by using a tapered match on federal aid projects. Normally the federal share of a project is established when a project is approved. The share is expressed as a *pro rata* percentage or a lump sum amount, and the amount of federal funds obligated is entered into the project agreement between the state and the federal government. Under the traditional approach, federal progress payments are made at the time the costs are incurred and are based upon the federal pro-rata share of such costs. Under a tapered match, the federal share is applied to the total project costs, and the state may bill for the federal funds at a higher or lower rate in comparison to the normal process. Consequently the tapered match may result in one of the following conditions under which the federal government will approve use of the tapered match:

- Earlier project completion

[8] "Shared Resources: Sharing Right-of-Way for Telecommunications" U.S. Department of Transportation. Page 17.

- Reduction in project costs
- Leveraging of additional non-Federal funds.

Note that federal loans can apply to the federal share and state loans apply to the state share of federal aid matching requirements. In addition, federal credit enhancements such as loan guarantees can be used to back private debt which can in turn be used along with state funds to satisfy the state matching share of a federal aid project.

4.0 LOAN PROGRAMS UNDER THE FEDERAL PROGRAM OF INNOVATIVE FINANCE

The Federal government has understood that a barrier to private financing of infrastructure in general and ITS in particular, is the risk involved which raises the cost of capital and limits the capacity to repay debt, and which limits the cash flow in early years (pre-deployment and deployment phases of projects). In addition, there are certain projects, which may be too costly for an individual state to fund. To address these issues, the federal government has enacted various pieces of legislation to support private participation in infrastructure, which have become the Federal Program for Innovative Finance, administered by the FHWA and by the FTA. The latest legislation is the Transportation Equity Act for the 21st Century (TEA-21) of 1998, which seeks to accelerate the construction of nationally significant projects, including ITS, through various credit enhancement tools.

The U.S. has fallen relatively behind other industrialized nations in allowing private sector participation in its roads. In France, for example, the national highway system has been constructed with concession agreements beginning in the 1960s. The concessionaire is granted not only the construction and operation of the highway, but also exclusive rights to the right-of-way during the life of the concession, which is a source of revenue through leasing arrangements for restaurants, gas stations, and so on. The concession program in France has developed strong project finance capabilities in the local financial markets (banks such as Paribas and BNP are strong players in the project finance sector) and resulted in a liquid secondary market for relatively long maturities of financial instruments.

Similarly, Italy and Spain have developed their main highway networks through concession agreements – although the Italian network is older and has been developed with concessions of public and private firms not just private firms.

Also, the UK Government has enacted the Private Finance Initiative (PFI) to facilitate investment in key sectors, which included infrastructure. However, under PFI there have been relatively few projects in roads.

The introduction of private sector financing for infrastructure in Europe has led to emergence of new financial instruments in those countries. It may be expected that the same process will occur in the U.S., which has a more liquid capital markets than other countries.

In the U.S., there are two important approaches to consider under the Federal Program for Innovative Finance, even though the actual financial instruments are not that different: Federal Credit for Transportation and the State Infrastructure Banks. Each is discussed separately. However, there is a common requirement for both types

of programs: given that they involve federal funds in some fashion, they may only be used to finance projects which have been identified under a Statewide Transportation Improvement Program (STIP).

The main difference between the Federal Credit for Transportation Program and the SIB's refer to the size of the projects each program supports. The Federal Credit for Transportation Program is targeted at large, nationally significant projects, which may impact more than one state. Thus, without federal support, local governments or private partners would probably not fund these projects. The SIB's support relatively smaller projects, generally confined within the boundaries of a state.

4.1 Federal Credit Program

The Federal Credit Program can offer three types of assistance to selected projects: Flexible Payment Loans; Loan Guarantees; and, Stand-by Lines of Credit. The main goal of this program is to reduce the cost of financing for projects of national importance, which includes ITS projects, to such a level as to permit private participation in such projects, thus accelerating projects by as much as 20 years. Given that financial costs, both during construction and during debt service, can be a significant portion of project total costs, any significant reduction in cost of capital will go a long way towards attracting private partners.

It is important to remember that these are federal programs with caps on the amount of outlays the federal government can provide, so there is an important screening process for each project. This process is both quantitative and qualitative. In essence, projects must be not only financially feasible in their own right, but must address other areas of concern of the FHWA, such as economic impact, regional balance among states, etc. Thus, there is a limitation to the use of these tools as a result of scarcity of funds.

In addition, the Federal Credit for Transportation Program limits project support to certain percentages (usually 33% although certain exceptions may apply) and to projects whose cost is over $100 Million or 50% of the amount of Federal highway apportioned funds for the most recently completed fiscal year for the state in which the project is located, which ever is less. TEA-21 mentions ITS projects specifically. For ITS projects the minimum size to be eligible to participate in the innovative finance program is $30 Million.

4.1.1 Flexible Payment Loans

Flexible loan payments structure debt service so as to match the revenue stream being generated. In a typical project the repayment schedule requires steady payments over the term of the loan, but little or no revenues may accrue in the early years.

Moreover, to help achieve a balance between revenue generation and the debt payment schedule, it is fairly common to have various financial instruments (senior, subordinate, or junior debt, zero coupon debt with capitalized interest, etc.) in one project which increases the cost of capital of the project, as well as the administrative expenses and effort. Flexible payment loans are, therefore, useful to reduce the cost of financing.

The main reason why flexible payment loans reduce the cost of financing is by allowing the project to retain liquidity in the early years. The sponsors are able to forgo expensive short-term financing in exchange for a longer-term debt, reducing overall interest expenses of the project. In addition, since the federal government provides the loans, the interest rate charged is very near the "riskless rate" in capital markets – although the loans can also be priced at market rates (the "riskless rate" refers to that of the most secure obligations in a particular market, and in the US, this is the rate for Treasury Bills).

4.1.2 Loan Guarantees

A loan guarantee ensures a borrower can meet its payment schedule and repay its loan. A loan guarantee is a way the federal government can leverage its scarce resources. A federally guaranteed loan reduces the cost of financing to levels similar to the federal government (the "riskless" rate in the U.S. capital markets). However, since these are guarantees and not outlays by the federal government, the government can use the "same" funds to back up a series of projects up to many times the actual amount of money. Indeed, the government only has a small amount of money at risk, because its expected payment is equal to the probability of default multiplied by the value of any portion of the loan not repaid.

Accounting for federal guarantees in budgets has evolved to take into consideration the contingent character of the liability (a guarantee is a liability but contingent upon the borrower not being able to meet debt service obligations). Currently, the liability in federal budgets reflects the probability of a lender making use of the guarantee to cover debt service. As such, this represents a relative small amount of funds, compared to the financing that guarantees are able to mobilize.

However, under current tax legislation, if a project receives support through a loan guarantee, it cannot issue tax-exempt bond financing for the part guaranteed. Under current legislation, such a situation would be construed as a double subsidy and is not permissible. Thus, when considering using a loan guarantee a project sponsor must evaluate the impact of reduced interest rate due to a federal loan guarantee and increased interest rate due to the loss of the tax exemption. For example, if a project would have an intrinsic interest rate of 10% (due to its risk), the federal loan guarantee would probably reduce the interest rate to, say 8% and the loss of the tax exemption would increase the project interest rate to 9%, then it would make sense to apply for a loan guarantee. However, if the reduction of interest rate due to the guarantee would

only be of 100 basis points, and the increase in interest rate would be of 150 basis points, then the cost of financing would end up at 10.5% leaving the sponsor worse off with the guarantee.

4.1.3 Stand-by Lines of Credit

A stand-by loan is an instrument used by the federal government to guarantee the liquidity of a project, especially during the period when the revenue stream is uncertain, to ensure that debt service will occur. The net effect of a stand-by line of credit is to reduce the cost of financing.

While non- and limited-recourse lending usually call for a stand-by line of credit during the construction phase (in addition to debt service and collateral accounts held in escrow), in the private market these lines of credit may be expensive and may thus increase overall cost of capital. Non- and limited-recourse lending refers to the financing of projects in the private sector, for example BOT's, where the lender may only have access to the revenue generated by the project itself (non-recourse) or it may have access to only a part of the assets and capital of the project sponsor (limited recourse) in case the project does not generate sufficient funds to repay the debt. Given that the risk to the lender is high in non-recourse lending (a new project does not have an established track record as a company might), the lender will seek to establish certain protections in the loan covenant. These protections typically include the establishment of a Debt Service Account, which is held in trust by a trustee designated by the lender, which must have a balance equal to or greater than six months debt service. Additionally, the lender may require the sponsor to have a stand-by line of credit to ensure liquidity to the project in the early phases. All these conditions will increase the cost of financing of such a project.

4.2 State Infrastructure Banks (SIB)

The State Infrastructure Bank pilot project was enacted by Congress under the National Highway Designation Act of 1995, in an effort to increase funding for the transportation sector. The Fiscal Year 1997 Appropriations Act expanded the pilot program to any state that applies and is approved by the U.S. Department of Transportation. The SIBs continue to be included in TEA-21.

"The SIB is an investment fund at the state or regional level with the ability to make loans and provide other forms of credit assistance to public and private entities to carry out highway construction and transit capital projects."[9]

Given that there may be a strong demand for SIB assistance, the federal government recommends it be used for phases of projects which traditionally have had

[9] FHWA Guidance for Administering the State Infrastructure Bank Pilot Program. Introduction.

greater difficulty in attracting financing: pre-construction or pre-deployment. However, SIB assistance is not exclusive to any phase of a project.

The SIB provides assistance to project sponsors in the form of loans in terms similar to the Federal Credit program. It has instruments to support projects through loan-type assistance or credit enhancement.

4.2.1 Loans

Loans could be either Flexible Payment loans (in which debt service matches the sources of revenue or traditional payment (either principal + interest constant as in a traditional mortgage loan, or principal constant + varying interest payment, where total debt service will decrease over the life of the loan). In addition, the loans could be subsidized in terms of having a below market interest rate.

- Grant Anticipation Notes (GAN). This is an instrument whereby the federal government issues notes up to the amount of the grant reimbursement, but makes them available to sponsors prior to the actual reimbursement. As such, they are backed by the federal government and represent the "riskless" cost of capital. GAN's can accelerate construction schedules in projects, which require significant matching funds by the local government (a situation which previously had the impact of delaying construction or deployment). What GAN's do is increase the liquidity of projects in early stages and reduce cost of capital in projects, thus making feasible projects which otherwise might not be.

- Short term construction debt. Government issues short-term debt as bridge financing. Medium-term commercial or other debt is used to pay off bridge financing once revenues begin flowing and reduce the cost of capital significantly. The reason is the government provides debt during the periods where there is a greater project risk and uncertainty, but only as bridge financing for debt which would be issued once revenue streams are known and have materialized. Thus the uncertainty and risk are reduced, lowering capital costs.

- Long-term debt. Certain projects may have repayment schedules in excess of capital markets or loan market maturities. These projects would go unfunded if there were no longer-term debt. Long-term debt fills a void in financing many projects (long-term maturities may be more easily managed by the government than by the private sector due to the uncertainties attached[10]).

[10] This no longer the case, however, as blue chip firms such as Coca-Cola and Disney have issued notes of 100-year maturity (much longer than the longest Treasury Bill maturity in the market).

4.2.2 Credit Enhancement

- Lines of Credit. Discussed above.

- Letters of Credit. A letter of credit is different than a line a credit, since the latter refers to an instrument to guarantee liquidity to project, but a letter of credit is a guarantee of the government to the financier that it will repay the original loan. As such, a letter of credit significantly reduces the cost of capital of the project.

- Loan Guarantees and Bond Guarantees. A bond guarantee is similar to a loan guarantee. It has the same impact of reducing cost of capital of the project.

- Capital Reserves. Project lenders usually require borrowers to set aside some funds into various funds, which cover debt service for a certain period of time (say, six months) as well as other risks of the financiers. By providing these reserves through the SIB, the project can free resources for actual payment and thus reduce the debt-coverage ratio required by financiers.

4.2.3 Other Forms of Assistance

The instruments made available by the SIB are not exclusive. Rather, the SIB's are encouraged to explore alternative instruments. These alternative or innovative instruments, however, need to be approved by the US Secretary of Transportation.

5.0 USE OF TAX-EXEMPT MECHANISMS BY INTERMEDIARIES

As was mentioned in the Task 1.0 Case Study Report, the South Carolina DOT assisted the Metropolitan Planning Organization of Greenville to form a non-profit 63-20 corporation to issue revenue bonds to finance the Southern Connector, a project which had been in the Transportation Improvement Plan since 1967 but had not been financed due to its cost.

A 63-20 Corporation is a single-purpose, not-for-profit corporation authorized by IRS and may issue tax-exempt bonds (in the case of South Carolina these are revenue bonds backed by future toll receipts). Both the South Carolina Southern Connector and a similar project in the Pocahontas Parkway outside Richmond, Virginia, were allowed to form such corporations under the IRS revenue ruling 63-20. For a 63-20 corporation to be authorized, it must contain participation of local organizations and government. Thus, it encourages public participation in a project, which can increase buy-in from the community. Buy-in is a concern in applicable projects because the corporation is issuing tax-exempt financing which must be repaid. Therefore, the revenue sources available to the corporation must be identified up-front. These revenue sources can range from general taxation (for example, an increase of sales taxes in the area of the project) to user charges (for example, tolls). Having public participation in the corporation responsible for the debt lowers resistance to the charges, which need to be imposed.

A project authorized by the 63-20 ruling can be promoted either by the local community, local governments or an MPO, or by a particular economic sector (i.e. tourism industry). As such, it is a mechanism, which permits a particular economic/community group to channel funds to a project, which has economic benefits. Additionally, the 63-20 Corporation will be a public/private partnership due to the greater ability of the public sector to mobilize funds for repayment of debt obligations (through raising sales taxes or similar measures). Bonds issued by the 63-20 Corporation to finance a particular project could be either revenue bonds (in which case the project debt is repaid by users, as in the case of a toll road) or general obligation bonds (in which case the project debt is repaid through the general fund of the locality participating as a member of the 63-20 Corporation).

The attractiveness of a 63-20 Corporation is twofold: it will permit a particular economic sector or community to promote economically viable projects which support their interests; and, it will reduce the cost of financing of the project. The cost of financing of the project occurs due to two distinct effects:

- Since the bonds issued by the 63-20 Corporation are tax exempt, the interest payments are lowered (in theory, the bonds may reduce interest rates from comparable issues by a rate equivalent to the capital gains tax).

- A project funded by a 63-20 Corporation will be an all-debt financed project (in other words, the bonds issued will cover all costs of the project and of operating the 63-20 Corporation itself). If the economic sector or community were to finance the project on their own, as private parties, it would not be possible to finance it exclusively through debt. Any lender would require the economic sector or the community to invest an equity stake in the project. Equity is more expensive than debt and would therefore raise the overall costs of the project.

A 63-20 Corporation will therefore be an intermediary, which can mobilize support from the community to enable a project to be financed. Such a Corporation, to comply with the IRS opinion, must incorporate community members and local governments, thus ensuring an effective public/private partnership.

6.0 COOPERATIVE RESEARCH AND DEVELOPMENT[11]

Research and development in new technologies such as ITS is under-supplied in a market economy. The reason is that R&D typically has positive externalities, that is to say, positive effects on the economy which cannot be internalized via a price mechanism. For this reason, the provider of R&D does not reap the benefits of research. However, given that research and development are important to an economy, there is a case to be made for subsidies or support by the government on grounds of economic efficiency.

In the U.S. the federal government has embraced this role through its research grants. The federal government seeks to increase the level of basic research in the sciences. Basic research involves investigations in physics, mathematics, etc. for which there is no evident application in the short or medium term. The benefits or rewards of basic research is difficult to internalize in terms of revenues and it may not be desirable to do so.

The U.S. federal government has attempted to funnel resources to basic research through grants and subsidies – the level of federal funding is 50% of all R&D expenditures in the country. In addition, during the 1980's various legislative efforts were aimed at giving greater incentives to private firms.[12]

The federal government also finances applied research but government efforts to drive the R&D effort towards particular goals and applications is not always successful.[13] Much applied research is funded through federal research laboratories. There are some 700 federal research laboratories which perform research themselves, or through collaborative arrangements with private firms (although these public/private partnerships cover less than half of all federal labs). In addition, the federal government also funds long-term R&D projects of universities and private research organizations and firms. Various federal agencies also support certain types of R&D, for example, the Small Business Administration and the National Institutes of Health.

During the 1980's public/private partnerships in R&D were increasingly common, as the federal government looked for ways to increase applied research. Since

[11] This section summarizes the discussion on cooperative R&D contained in "Final Task B Report: Lessons from Other Technologies [for ITS]" by the Urban Institute with Cambridge Systemics, Inc., Miller, Canfield, Paddock and Stone, P.L.C. and MTA/EMCI. December 1, 1995

[12] These have included the Stevenson-Wydler Technology Innovation Act of 1980, the Bayh-Dole Act of 1980, the Trademark Act of 1984, and the Federal Technology Transfer Act of 1986.

[13] Probably the most notorious failure was the Brazil's Federal Government's effort to develop a computer hardware industry in the country during the 1970's and 1980's through subsidies to the main local firms in the sector. This effort was ultimately stopped in the mid-1990's when the Brazilian government realized the technological gap of its industry with the rest of the world was increasing rather than diminishing.

the private sector has a greater understanding of market dynamics, it may assist in directing the R&D required for systems such as ITS.

States do not supply a major share of the R&D expenditures but some states have developed a niche market for supporting research efforts. Since states have a better understanding of local conditions and tend to focus on economic development within their jurisdictions, the efforts at supporting R&D are more targeted and may impact more than the total expenditure figures would suggest. There is no homogenous approach to support R&D carried out by the states. Rather, each state tailors its own program to suit its own individual needs.

For example, Ohio established eight Edison Technology Centers, which draw on resources from their staff and local universities to support industries in the state. The centers charge for the services, depending on the level of support, so that fees for service are a significant part of their budgets. However, total cost recovery is probably not possible due to the positive externalities associated with R&D spill over into various sectors of the economy and cannot be easily internalized and captured as a revenue stream. Indiana, on the other hand, does not conduct or finance research directly, but has established a non-profit organization to provide funding and technical assistance for new technology firms and established manufacturing firms. Massachusetts tries to build upon the research conducted by higher educational institutions and upon the economic base of the large number of high-tech firms within the state. Massachusetts has adopted the strategy of a venture capitalist, providing seed capital to start-up firms, which would otherwise have difficulty obtaining finance.

The private sector has also engaged in new efforts to increase its level of R&D by capturing its benefits. Since patent protection is not as effective as would be desired in protecting property rights and research results, firms have established consortia and joint ventures in a particular sector with clear rules on profit and expense distribution. This move has been possible due to new interpretations of regulations such as anti-trust legislation which have relaxed its definition of anti-competitive behavior in R&D, as well as by tax provisions that act as incentives for R&D.

In some cases, the federal government has joined these consortia or contributed to them as a means to further its own R&D policy. A visible example of such a consortium was SEMATECH – a partnership that looked to revive the semiconductor industry in the U.S. When it was begun in 1987, the private firms and the federal government (through the Department of Defense's Advanced Research Products Agency) each contributed $100 Million annually to develop and disseminate technologies and processes for the manufacture of semiconductors. This approach to public/private partnership has been viewed very favorably by the federal government.

7.0 UTILIZATION OF VENTURE CAPITAL

Public/private partnerships that have prospects of substantial profits in the long run are potential candidates for venture capital. Venture capitalists typically seek exceptional profit opportunities with potential returns on investment of 300 to 500 percent in three to seven years.[14] Given the risks involved and the likely failures, the average return on investment is much lower but still substantial.

To be considered by a venture capitalist, a business plan must be submitted that provides a very strong case for financing based on a unique product or service, a market analysis, *pro forma* financial statements and projections, an outstanding management team, current capitalization, and the amount of venture capital needed.

Venture capitalists typically concentrate on specific sectors (e.g. biotechnology, telecommunications) and fund businesses in various stages. Types of financing include:

- Seed money for proof of concept
- Startup financing
- First stage financing
- Expansion financing
- Management/leverage buy-out financing
- Turnaround financing.

Normally a venture capitalist will fund only firms that have some operating history, although some will fund brand new business concepts such as Internet e-commerce.

Venture capitalists assume an ownership position in the company of ideally no more than 30 or 40 percent, although the venture capitalists share can range from 10 to 90 percent of a company depending upon the stake of the original owners, the worth of the company, its current and expected future success, and difficulties it may currently be experiencing.[15]

The venture capital firm will invest in terms of direct stock ownership, or more likely convertible subordinated debentures or preferred stock. Convertible debentures are similar to a loan which can then be converted to common stock of the company according to an established ratio and before a particular date. Venture capitalists hope to reap rewards from the investment by arranging for an Initial Public Offering (IPO), a

[14] Hosmer, LaRue Tone. "A Venture Capital Primer for Small Businesses," U.S. Small Business Administration web site.
[15] Ibid.

merger with another company whose stock is publicly traded, or through a buy-back of the stock by the company in which they invested.[16]

It is important for the business seeking venture capital to fully understand the cost of this capital in terms of the ownership share that must be given to the venture capital firm and any annual interest charges associated with convertible debentures.

To date most of the products and services that comprise ITS user services do not represent exceptional profit opportunities and therefore have not attracted noteworthy quantities of venture capital. For example, representatives of many states and the larger metropolitan regions worked closely with the ITS Joint Program Office and a number of financial experts to identify strong business prospects for ATIS in metropolitan areas throughout the country in order to develop a price of service model that could be the basis for private sector financing. The opportunities were not large enough to attract new investors (firms such as SmartRoute Systems an Metro Traffic were already serving these markets). Other ITS areas have proved more promising such as Mayday services, which have attracted substantial capital by major private sector firms such as General Motors.

The past is not necessarily indicative of the future. Highly profitable ITS business opportunities that require the state as a partner may emerge, and thus might potentially attract venture capital.

[16] Ibid.

FINAL

TASK 4 REPORT

OPPORTUNITIES FOR PUBLIC/PRIVATE PARTNERSHIPS

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for:

Wisconsin Department of Transportation

Prepared by:

BOOZ·ALLEN & HAMILTON

With

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

January 17, 2000

TABLE OF CONTENTS

EXECUTIVE SUMMARY
OPPORTUNITIES FOR PUBLIC/PRIVATE PARTNERSHIPS

This Task Report presents and assesses a variety of opportunities for public/private partnerships. These ideas come from the following sources:

- WisDOT published reports and written materials
- WisDOT headquarters and district staff
- Task reports prepared for WisDOT's project on Methods to Enhance ITS Public/Private Partnerships
- The Booz·Allen & Hamilton team, the contractor for the above project.

Opportunities for Public/Private Partnerships are rated High (H), Medium (M), or Low (L) according to five criteria:

- Ability to attract private capital
- Public benefits such as reduction in travel time, travel time variability, accidents, air pollution, and user stress
- Prospect of eliminating legal, regulatory and institutional barriers
- Consistency with areas WisDOT is focusing on for ITS – incident management, CVO, and traveler information
- Whether the project has already been planned or programmed.

The Table below lists and rates each idea or opportunity:

Name of Opportunity	Ability to Attract Capital	Size Of Benefits	Able to Overcome Barriers	Focus On Key Areas	In Plan Or Program
Periodic WisDOT Open Solicitations	H	M	H	L	L
Periodic Open Solicitation Applicable to All Road Entities – State and Local	H	M	L-M	M	L
WisDOT ITS Test Beds	M-H	H	H	H	L
Shared Resource Project – ROW for Fiber Bandwidth	H	H	H	H	L
Shared Resource Project – Exchange Access to Towers for Wireless Bandwidth	L-M	M	M	H	L
Shared Resource Project – Access to Parcel Remnants/Towers for Cellular Autolocation	L-M	M	M	H	H
Statewide or Major Corridor Traffic Surveillance System	H	M	L-M	M	L

Name of Opportunity	Ability to Attract Capital	Size Of Benefits	Able to Overcome Barriers	Focus On Key Areas	In Plan Or Program
Statewide Traffic Monitoring System Using Probes Based on Cellular / Wireless Autolocation Technology	L-H	H	H	H	M
Integrated RWIS and Traveler Information System	M-H	H	H	H	M
Publicly Funded Traffic Surveillance System and Privatized Traveler Information System	L-H	H	L-M	H	M
Public / Private Highway Corridor FM Broadcast Radio Stations	M	M-H	H	H	L
Integrated Statewide Traveler and Tourist Information System	H	H	M	H	M
Electronic Clearance of Commercial Vehicles	M-H	M-H	H	H	H
Streamlined CVO Permitting of Oversize and Overweight Loads	H	H	H	H	H
One-Stop CVO Credentialing	H	H	L-H	H	L
International Trade Data System	H	H	H	H	L
Digital Certificates for Personal Identification	H	H	H	M	L
Air Pollution Credits based on Telecommuting Certificates	L-H	H	L-M	M	L
Traveler Information Systems and Route Planners Integrated with Welfare-to-Work, Job Placement, and Employment Classified Advertising	M	H	H	H	M-H
Optimal Transit and Paratransit Vehicle Utilization to Meet Employment Needs of Low Income Workers and Those Transitioning from Welfare to Work	M	H	M-H	L	L
Fixed, In-place Anti-icing Systems	H	M-H	M-H	L	M
Mayday Services	H	H	M-H	H	M
Congestion Pricing	H	H	L-M	L-H	L
Traveler Information with Accident Rates and Insurance Premium Reductions	M-H	H	L-M	H	L

OPPORTUNITIES FOR ITS PUBLIC/PRIVATE PARTNERSHIPS IN WISCONSIN

1.0 INTRODUCTION

This technical memorandum identifies opportunities for ITS public/private partnerships in Wisconsin and attempts to identify which are the most and least promising. Sources of ideas come from WisDOT published reports and written materials, WisDOT headquarters and district staff, and other Task reports prepared for WisDOT's project on *Methods to Enhance ITS Public/Private Partnerships*. In addition, numerous ideas come from the Booz·Allen & Hamilton team.

In its report, *2020 Transportation, Intelligent Transportation Systems (ITS) & the State Trunk Highway System: An Overview*, WisDOT says it is striving to implement ITS technologies in three core program areas:

- Commercial Vehicle Operations (CVO)
- Traffic Incident Management
- Traveler Information.

The main objectives of ITS deployment are:

1. Improve travel time on the State Trunk Highway system
2. Improve the predictability of travel on the state trunk highway system
3. Reduce highway user stress.

The state has a balanced approach to deploying ITS in both urban and rural areas. Thus, on the one had the state is continually expanding such projects as MONITOR in Southeastern Wisconsin. On the other hand, WisDOT is pursuing rural initiatives such as a Roadway Weather Information System/Advanced Rural Transportation System (RWIS/ARTS) through the Fortell Consortium and by serving rural areas along Corridor 2020 Backbone routes such as Highways 29, 151 and Interstates I-90/94 and I-39.

WisDOT has advanced far in its efforts to deploy ITS, including public/private partnerships. In fact, WisDOT has been pursuing many transportation improvement projects since the 1970s that have since become known as ITS, for example ramp metering, traffic detection, surveillance, and incident management on the Milwaukee regional freeway system. More recently, WisDOT developed a Strategic Deployment Plan for the I-90/94 Intercity Corridor Study. Along with Indiana and Illinois, it has developed a comprehensive program plan for the Gary-Chicago-Milwaukee Priority Corridor. ITS Midwest, a chapter of ITS America, is a forum for Wisconsin, Indiana and Illinois to coordinate and work together. ITS Midwest has issued an open solicitation for public/private partnerships, which resulted in an award to TranSmart Technologies Inc., with the American Trucking Association as a subcontractor, to develop a CVO Traveler Information System for the GCM Corridor. WisDOT is exploring shared

resource projects – exchanging access to public rights of way and telecommunication towers for bandwidth – and is pursuing a public/private partnership involving park and ride lots in Milwaukee.

Table 1 summarizes past, current, and planned public/private partnerships.

Table 1. Past, Current and Planned ITS Public/Private Partnerships

Project Name	Status
GCM Coalition Traveler Information Project	In progress
Fortell Consortium, FHWA ARTS/RWIS Project	In progress
Milwaukee Park and Ride Lot	In progress
GCM Investment Bank	Proposed
Shared Resource Projects(s) involving State Wireless Towers	Under investigation
Shared Resource Project(s) on WisDOT Interstate	Under investigation

2.0 CRITERIA FOR ASSESSING OPPORTUNITIES

Five criteria are used to assess each opportunity for ITS public/private partnerships presented below:

- Ability to attract private capital
- Public benefits such as reduction in travel time, travel time variability, air pollution, and user stress
- Prospect of eliminating legal, regulatory and institutional barriers
- Consistency with areas WisDOT is focusing on for ITS
- Whether the project has already been planned or programmed.

Various opportunities for public-private partnerships are rated high, medium or low, in the following manner:

Ability to Attract Private Capital

High (H) –There is a high likelihood of being able to attract private capital and the private partner earning a profit after commencement of operations. The public sector would share in the up-front costs through through one or more of the following: cash, in-kind contributions, debt financing, or credit enhancements.

Medium (M) – There are modest prospects of attracting private capital and the private partner earning a profit. The reason is there is considerable uncertainty regarding

future revenues and costs after commencement of operations. A public subsidy probably is required to reduce the risk to an acceptable level.

Low (L) – The prospect of attracting private capital is low. The likelihood of a private partner earning a profit is low on account of the low revenue potential and high risk and uncertainty.

Public Benefits

High (H) – Public benefits are likely to be high on account of the number of transport users or others receiving benefits and the magnitude of benefits received by each.

Medium (M) – Public benefits are likely to be medium on account of the number of transport users or others receiving benefits and the magnitude of benefits received by each.

Low (L) – Public benefits are likely to be low on account of the number of transport users or others receiving benefits and the magnitude of benefits received by each.

Prospect of overcoming legal, regulatory or institutional barriers

High (H) – A modest or reasonable effort would be sufficient to overcome all significant legal, regulatory, or institutional barriers.

Medium (M) – There is a good chance legal, regulatory or institutional barriers could be overcome with hard work

Low (L) – One or more important legal, regulatory or institutional barriers is very difficult to overcome or insurmountable.

Consistency with Areas of Focus

High (H) – Addresses CVO, incident management, or traveler information in both rural and urban areas

Medium (M) – Addresses CVO, incident management or traveler information in either rural or urban areas

Low (L) – Does not address CVO, incident management or traveler information

In a plan or program

High (H) – In a plan or program and funding has already been allocated

Medium (M) - In a plan or program and funding is expected to be allocated within five years

Low (L) – Not in a plan or program.

The next section includes descriptions of numerous opportunities for public/private partnerships rated according to criteria listed above. Ratings of each opportunity assumes WisDOT does its utmost to attract private capital. Thus the ratings are optimistic and assume WisDOT is successful in obtaining fairly broad statutory authority for public/private partnerships and puts in place other parts of the institutional architecture necessary to make public/private partnerships succeed.

3.0 OPPORTUNITIES FOR PUBLIC PRIVATE PARTNERSHIPS

3.1. Open Solicitation Process

WisDOT would establish procedures that would allow private firms or consortia (including other public agencies) to submit proposals for ITS public/private partnerships on a periodic basis (e.g. every one or two years). The objective of the open solicitation would be to encourage private firms to apply their creativity, intellectual property rights, and proprietary products and services to meeting transportation needs in Wisconsin. Such an open solicitation process would reduce the burden on the state to come up with good ideas for implementing ITS and would be likely to attract private capital. The open solicitation process would require entities submitting proposals to state how the private and public sectors would share costs, risks, and rewards, and be explicit about the size of any state subsidy required. For projects that would create a revenue stream, the open solicitation process should require a business plan whether or not a subsidy is anticipated.

	Rating	Reason
Ability to Attract Private Capital	H	Private capital is likely to emerge with creative ideas
Public Benefits	M	Varies with type of projects; high in long run
Ability to Overcome Barriers	H	Requires statutory authority likely to be granted
Consistency with Areas of Focus	L	Projects address all areas of focus, rural and urban
In a Plan or Program	L	Not in current plan or program.

3.2 Open Solicitation for PPPs for All Transportation Entities – State and Local

WisDOT would work with local governments and regional planning agencies, including neighboring states, to establish an open solicitation process under which a private firm or consortia could submit a proposal to one, several, or all jurisdictions with transportation responsibility for an ITS public/private partnership. The purpose of this institutional framework would be to allow a private firm to achieve economies of scale and density of coverage in providing ITS products and services, including surveillance of traffic conditions. Participating agencies would need to sign a single

agreement. Such arrangements might be carried out under existing joint power agreements applicable to multiple agencies.

The open solicitation process could be periodic, or could allow for the submission of a proposal any time, as in the case of Virginia.

	Rating	Reason
Ability to Attract Private Capital	H	Private capital is likely to emerge with creative ideas
Public Benefits	M	Varies with type of projects; high in long run
Ability to Overcome Barriers	L-M	Difficult to get all local agencies to sign up
Consistency with Areas of Focus	M	Projects address all areas of focus, rural and urban
In a Plan or Program	L	Not in current plan or program.

3.3 WisDOT ITS Test Beds

WisDOT would make its highway facilities available to carry out R&D and develop proof of concepts for ITS products and services. Each Test Bed would be a public/private partnership where WisDOT would grant the right to access public rights-of-way to conduct R&D or develop a proof of concept in return for some benefit, for example unrestricted license to use the product or service in Wisconsin once it has been fully commercialized. Agreements between WisDOT and private firms could involve sharing costs, risks and benefits in any manner. ITS Test Beds might be extended to other modes such as transit.

	Rating	Reason
Ability to Attract Private Capital	M-H	Private firms are frequently looking for testbeds for ITS products and services and new concepts.
Public Benefits	H	Wide range including reduced travel time and accidents
Ability to Overcome Barriers	H	Ensuring safe movement of goods and people during field tests is most crucial
Consistency with Areas of Focus	H	Addresses all areas of focus in both rural and urban areas
In a Plan or Program	L	No

3.4 Shared Resource Project – Exchange Access to Public Rights-of-Way for Bandwidth

For some time WisDOT has been exploring shared resource projects as a way to obtain a fiber optic backbone that would cover part or all its Interstate network. WisDOT would issue a Request for Proposals to telecommunications companies and offer to grant access to public rights-of-way in exchange for bandwidth that could be used for transportation and other public purposes. Each bidder would propose to install conduit/fiber over whatever portion of Interstate (or other portion of the state trunk highway network) is in each company's interest and offer to give WisDOT a certain number of conduit/fibers in exchange. WisDOT would award the contract to the firm making the offer most advantageous to the state.

The Division of State Patrol has stated it would be interested in obtaining fiber capacity in WisDOT right-of-way to serve communications needs to the seven State Patrol District headquarters, the Academy and the scale sites. More specifically, the DSP could augment its microwave backbone routes, provide video connectivity to DSP 2-Waukesha to receive ITS video feeds from WisDOT TMC at 633 W. Wisconsin Ave, Milwaukee, and provide video connectivity to key traffic incident sites such as Wisconsin River bridge or other known troublespots. DSP could also use fiber capacity for its VHF digital trunking system and for the DSP scale sites.

The fiber capacity could also serve other needs including, education, public broadcasting, traffic control, and video conferencing for business and government. The DSP recommends that a joint planning entity be established to determine aggregate public interest communication needs including educational, transportation needs, broadcast needs, and DNR needs.[1]

	Rating	Reason
Ability to Attract Private Capital	H	Telcom firms will trade bandwidth for ROW access
Public Benefits	H	Facilitates both ITS and telecommunications
Ability to Overcome Barriers	H	WisDOT requires statutory authority for PPPs
Consistency with Areas of Focus	H	Addresses all areas of focus in rural and urban areas
In a Plan or Program	L	Not in current plan or program

3.5 Shared Resource Project – Exchange Access to Telecommunication Towers for Wireless Bandwidth

WisDOT would issue a request for proposal to telecommunications companies offering to grant access to telecommunications towers on public property in exchange for wireless bandwidth that could be used for transportation and other public purposes. Each bidder would propose how much wireless bandwidth they are willing to offer the state in return for the right to place antennas on existing towers. WisDOT would award the contract to the firm with the offer most advantageous to the state.

It is crucial that the DSP maintains control of their tower sites as they are critical to their mission of providing Public Safety Communications. This assures structural integrity of the tower and management of the Radio frequency environment at the site. These elements are important in maintaining necessary communications for police, emergency government, fire, and medical services, many of which are provided by DSP towers.[2]

---

1 *Memo from Glen Unger, Deputy Director, Bureau of Communications and Tom Tuttle, Tower Specialist dated October 8, 1999.*

2 *Ibid.*

DSP already has some agreements with private entities to use existing DSP (???) towers and more are in the works. These opportunities are limited since each tower has its own physical limitations. Unfortunately, due to the cost of developing and maintaining or leasing sites, leasing tower antenna space cannot be considered a source of income. Towers can also be a great sink of funds as in Ohio. [3]

	Rating	Reason
Ability to Attract Private Capital	L-M	Each tower has physical limitation; many other places exist to site antennas for wireless networks
Public Benefits	M	Facilitates both ITS and telecommunications
Ability to Overcome Barriers	M	High costs of developing and maintaining lease sites
Consistency with Areas of Focus	H	Addresses all areas of focus in rural and urban areas
In a Plan or Program	L	DSP already has agreements and more are in works

3.6. Shared Resource Project – Exchange Access to Telecommunication Towers or Parcel Remnants for Cellular Telephone Autolocation and Traffic Monitoring Services

WisDOT would exchange parcel remnants to site wireless towers or would allow antennas on existing WisDOT towers in exchange for cellular autolocation technology and services that can turn vehicles with drivers using wireless phones into probes. WisDOT would be able to calculate vehicle speeds between various locations on state and local highway networks. Companies such as U.S. Wireless have developed software for such purposes which will be tested shortly in Maryland and Virginia. However, it is not clear to what extent access to public property is necessary to deploy systems able to track the location of cellular and other wireless users. 911 emergency service centers in cooperation with companies such as GM's Onstar might conceivably deploy such services on a nationwide basis and offer for free or sell traffic data to ISPs throughout the country.

	Rating	Reason
Ability to Attract Private Capital	L-M	Bargaining position of state limited because each tower has physical limitations
Public Benefits	M	Facilitates both ITS and telecommunications
Ability to Overcome Barriers	M	High costs of developing and maintaining lease sites
Consistency with Areas of Focus	H	Addresses all areas of focus in rural and urban areas
In a Plan or Program	H	Autolocation using cellular is in GCM plan

3.7. Statewide or Major Corridor Traffic Surveillance Systems

Wisconsin DOT would issue a Request for Proposal for a public/private partnership that would augment the existing traffic surveillance system and cover the entire state trunk highway system (and perhaps selected local arterial networks) or a major corridor. WisDOT would establish performance specifications concerning the

[3] *Ibid.*

density of coverage and accuracy of surveillance data by functional class and by population density. For example, on freeways in dense urban corridors, there might be a requirement that speeds to traverse one mile links can be determined with 95 percent accuracy 90 percent of the time whereas lower resolution (say two mile links) might be required on rural sections of freeways. Surveillance could occur using any combination of sensor technology (cameras, loops, infrared beacons, probes based on cellular autolocation) and telecommunications (wireline and wireless).

Through a competitive auction, one would grant future exclusive rights to sell traveler information obtained from the traffic surveillance network that would be constructed under a Design-Build-Operate-Transfer provision or similar arrangement. Firms that anticipated they would not earn a profit, even with exclusive rights, could request some degree of subsidy as a part of their bid. The firm with the highest bid net of subsidy would be awarded the contract. Firms would be required to submit a detailed business plan with their proposal to justify their cost and revenue projections.

	Rating	**Reason**
Ability to Attract Private Capital	H	Could attract significant private capital
Public Benefits	M	Reduced travel time and travel time variability
Ability to Overcome Barriers	L-M	Requires legislation allowing business to own facilities and equipment in ROW
Consistency with Areas of Focus	M	Addresses urban and rural traveler information
In a Plan or Program	L	Elements of this are included in the CGM program plan and related projects have been funded

3.8 Integrated RWIS and Traveler Information System

This public/private partnership concept would be similar to the one directly above, except that the private entity would not only install traffic sensors but additional RWIS sensors or other ITS sensors. The private entity would be required to disseminate bundled traveler information, road condition, and weather data by developing an integrated data base containing information from the existing RWIS network, the new RWIS units and the network of traffic sensors. Revenues could be earned from advertising, subscriptions, and other means.

The only data generated with public funds would come from previously installed traffic sensors and RWIS units. If the private firm added enough new sensors and provided enough extra value to the traveling public, it would probably be able to sell the data and earn meaningful revenues. It is also likely to be sheltered from competitors, since competitors would only have access to the data generated from prior publicly funded investments.

As in the above concept, the right to deploy the traffic sensors and RWIS units on the state trunk highway network and sell road traffic, condition, and weather data would be auctioned under a competitive bidding process. The contract to develop the

system would be awarded to the bidder willing to pay the highest amount net of any subsidy required.

	Rating	Reason
Ability to Attract Private Capital	M-H	Could attract significant private capital
Public Benefits	H	Reduced travel time and accidents
Ability to Overcome Barriers	H	Likely that statutory authority needed will be granted
Consistency with Areas of Focus	H	Addresses urban and rural traveler information
In a Plan or Program	M	Elements of this are included in the GCM program plan and related projects have been funded

3.9 Statewide Traffic Monitoring System Using Probes Based on Cellular/Wireless Autolocation Technology

The Federal Communications Commission has required that as a condition of awarding cellular / wireless licenses that it be possible to locate phones for purposes of 911 emergency response. As a result, triangulation procedures can be used to identify the location of cellular / wireless users. Recently the states of Virginia and Maryland have entered into agreements with a major wireless company that has developed software that will allow those agencies to monitor traffic speeds of people traveling on the network who are using their cell / wireless phones. It will be done in manner that will safeguard personal privacy. This suggests technology has evolved to the point where it may be possible to accurately monitor traffic flow on many if not most portions of both state and local freeway and arterial networks without having to install traffic sensors in the right-of-way. It is possible that this could be a purely privately provided service, although there may be role for fusing data from publicly owned traffic sensors that already exist. The nature of the public / private partnership in terms of cost, risk, and benefit sharing would have to be investigated further and, if feasible, pursued through an appropriate procurement

	Rating	Reason
Ability to Attract Private Capital	L-H	Service might just be a private sector activity; then there would be private capital but not part of PPP
Public Benefits	H	Reduced travel time and travel time variability
Ability to Overcome Barriers	H	Likely that a statewide traffic surveillance system can be established without access to ROW
Consistency with Areas of Focus	H	Addresses urban and rural traveler information
In a Plan or Program	M	Elements of this are included in the GCM program

3.10 Publicly funded Traffic Surveillance System and Privatized Traveler Information System

WisDOT would use public funds to install traffic sensors on the state trunk highway network at close enough intervals so that the value that could be derived from traffic data would exceed that currently available for free from broadcast services and

other sources. WisDOT would issue a Request for Proposals for a private entity to format and disseminate the traffic data either directly to the public or to value-added resellers. Ideally, the private firm would incur all data fusing and dissemination costs and earn enough revenue to receive a reasonable return on its investment. As a practical matter this prospect is unlikely because of Wisconsin's open records laws. WisDOT would probably be required to make the traffic data available to anyone who requested it. There would be a constant threat of other firms providing value-added services derived from publicly available information and therefore undermining the profitability of the private entity. Perhaps "first mover advantage" of the entity awarded the traveler information system contract would be enough to deter competition. If not, WisDOT would need to give the private firm some direct or indirect protection from competition or help the private firm gain a marketplace advantage in some other way. Otherwise, no private entity would be likely to invest its capital in the traveler information system.

	Rating	Reason
Ability to Attract Private Capital	L-H	Open records law allowing any party to access traffic data might mean low barriers for competitors to enter market. If there was some protection from competition, this concept could attract private capital.
Public Benefits	H	Reduced travel time and travel time variability
Ability to Overcome Barriers	L-M	Difficult to overcome potential competitive threat posed by open records law; other existing or emerging traveler information systems would also be competitive threats.
Consistency with Areas of Focus	H	Addresses urban and rural traveler information
In a Plan or Program	M	Elements of this are included in the GCM program plan and related projects have been funded

3.11 Public/Private Highway Corridor FM Broadcast Radio Station

A public/private partnership would establish a radio station serving a particular corridor and provide the following type of information in return for advertising revenues:

- Roadway conditions along the corridor
- Weather forecasts along the corridor
- Traveler information regarding service stations, hotels, restaurants, attractions, shopping, etc.
- Special events in communities along the corridor
- Emergency phone numbers to call if stranded
- Public service announcements
- News
- Directions for selected destinations

The radio broadcasts would be similar to but far more comprehensive than Highway Advisory Radio service and would not include any music. This type of radio service would fill needs by people who do not have cell phones, internet connections, and who do not wish to stop and access information from kiosks. Normal area-wide radio broadcasts do not provide corridor information and the ROADWIS service is often busy, outdated, and not very location specific.

	Rating	Reason
Ability to Attract Private Capital	M	Uncertain that business could cover all costs –- startup and operations – plus make a profit even if state made certain up-front contributions
Public Benefits	M-H	Increased travel comfort and reduced travel time
Ability to Overcome Barriers	H	No major barriers except competition for people's attention from regular radio stations
Consistency with Areas of Focus	H	Addresses urban and rural traveler information
In a Plan or Program	L	No

3.12 Integrated Statewide Traveler and Tourist Information

A public/private partnership would enhance existing traveler, weather and tourism information available through DTN, the Fortell Consortium, roadside kiosks and the Travel Buddy Website through a comprehensive and detailed program. The tourist industry, which benefits directly from effective dissemination of information on lodging, restaurants, attractions and road and weather conditions, would help pay for the enhancements. To finance all or part of the enhancements, one possibility is to establish a 63-20 Corporation that would serve tourist interests throughout the state and, with local community support, issue revenue backed tax-exempt bonds to be paid off with some type of guest services tax or fee. This is an approach that has been used successfully in South Carolina for transportation finance. Traveler information enhancements could be designed, built, installed, operated and maintained under contract. Or alternatively enhancements could be deployed through some type of exclusive or partially exclusive franchise or licensing arrangement, which would help attract additional private capital.

	Rating	Reason
Ability to Attract Private Capital	H	Good chance tourist industry would be willing to help finance. Additional private capital a possibility.
Public Benefits	H	Reduced delay, travel time variability, and confusion; also increased information tourist related sites and businesses
Ability to Overcome Barriers	M	Successful institutional models already exists
Consistency with Areas of Focus	H	Addresses traveler information for tourists
In a Plan or Program	M	Related traveler information systems are already funded and being implemented.

3.13 Electronic Clearance of Commercial Vehicles

WisDOT would issue an RFP to establish electronic clearance of commercial vehicles at weigh stations through a public/private partnership program. Presently there are two main models for such a program. The first is Help Inc. under which a franchisee does two things (1) helps establish or install weigh-in-motion equipment , transponder readers and software to support electronic clearance; and (2) enrolls vehicle operators by issuing them transponders and collecting charges from vehicles within weight limits when they bypass weigh stations. The motor carrier benefits from avoiding the delay of being inspected and the state does not waste effort inspecting vehicles in compliance with weight limits. The second model, NORPASS, differs in that trucks pay an up-front fee for the transponder and are not charged each time they bypass a weigh station. Electronic clearance can be extended to determine safety fitness of drivers, vehicles, and carriers.

	Rating	Reason
Ability to Attract Private Capital	M-H	Both Lockheed Martin which is the Help Inc. franchisee, and, TransCore, which implemented the NORPASS program, have demonstrated their willingness invest private capital.
Public Benefits	M-H	Reductions in travel time and travel time variability
Ability to Overcome Barriers	H	Electronic clearance implemented in other states
Consistency with Areas of Focus	H	Addresses Commercial Vehicle Operations
In a Plan or Program	H	ITS CVO Plan

3.14 Streamlined CVO permitting of oversize and overweight loads

A private firm or entity would reengineer and streamline the existing business process for issuing permits for oversize and overweight loads so it is highly customer oriented, develop software to support the streamlined process, implement and operate the process, and maintain and upgrade the software as required. Costs would be recovered through the permit fee issued to those seeking to transport oversize and overweight loads. Private firms would be very likely to provide the capital to redesign the process and implement it under this arrangement.

	Rating	Reason
Ability to Attract Private Capital	H	If a private firm knows that that revenues from the permit fee will allow it cover costs and a reasonable profit, then it is very likely to invest private capital.
Public Benefits	H	Increased convenience and reduced delay in issuing permits
Ability to Overcome Barriers	H	Statutory authority likely to be granted for this and other PPPs
Consistency with Areas of Focus	H	Addresses Commercial Vehicle Operations
In a Plan or Program	H	In ITS CVO Plan

3.15 One Stop CVO Credentialing

The Wisconsin Division of Motor Vehicles would issue an RFP to design a highly customer-oriented, one-stop CVO credentialing service that would address IFTA and IRP tax filing, motor carrier vehicle registration, driver licensing, and any other credential requirements. The re-engineered process would carefully distinguish between those functions that the DMV must continue to undertake and those which the private firm would take over on an outsourcing basis. Transaction fees for credentials would cover the entire administrative cost of the program including that portion for which the private entity would be responsible. The private sector would pay part or all of the initial business process re-engineering and software development costs with the expectation that their portion of each transaction fee charged would cover their investment costs and operating costs, and provide a reasonable return on their investment.

	Rating	Reason
Ability to Attract Private Capital	H	If a private firm knows that that revenues from fees charged to issue credentials will cover costs and a reasonable profit, then the firm is very likely to invest its own capital.
Public Benefits	H	Increased convenience and reduced delay in issuing credentials
Ability to Overcome Barriers	L-H	Statutory authority likely to be granted for this and other PPPs. Probably DMV would have to continue to assume certain responsibilities to protect privacy. Otherwise insurmountable barriers likely to arise.
Consistency with Areas of Focus	H	Addresses Commercial Vehicle Operations
In a Plan or Program	L	No

3.16 International Trade Data System

Wisconsin would implement an International Trade Data System (ITDS) to support processing of imports and exports in and out of Wisconsin. A Wisconsin version of ITDS would be consistent with specifications being developed by BoozAllen & Hamilton for U.S. Customs and the Department of the Treasury and satisfy any additional state requirements. ITDS consolidates the reporting requirements of 104 federal agencies into a standard reporting system that will speed customs processing of imports and exports.

Because of the substantial benefits to Wisconsin business of more efficient customs processing of imports and exports, it is assumed Wisconsin businesses would be willing to finance the development of the system under a suitable institutional arrangement.

The Wisconsin Department of Commerce also identified this as an area where there might be a strong role for ITS public/private partnerships. There is some

possibility the Department of Commerce might be willing to help finance a system such as ITDS.

	Rating	Reason
Ability to Attract Private Capital	H	Wisconsin importers and exporters would benefit
Public Benefits	H	Reduced delay in shipment of imports and exports
Ability to Overcome Barriers	H	No major barriers exist to pursuing this project
Consistency with Areas of Focus	H	Addresses Commercial Vehicle Operations
In a Plan or Program	L	Not in current plan or program.

3.17 Digital Certificates for Personal Identification

The Wisconsin Division of Motor Vehicles is in a unique position to authenticate the identity of individuals based on procedures it uses to positively identify people who receive driver licenses. As the revolution in business brought about by the World Wide Web continues unabated, there is increasing need for buyers and sellers involved in e-commerce and other Internet transactions to have digital signatures where the identity of individuals is authenticated. The Wisconsin DMV would issue fully authenticated digital certificates that could be used for personal identification and electronic signatures.

The state would enter into a partnership with a private firm that would issue the digital certificates with the assistance of the DMV. Revenues earned from a fee charged for each digital certificate would cover the costs of the program and allow the private firm to earn a profit. Revenue sharing could also be part of the arrangement. Demand for the authenticated electronic signatures is expected to be high in the long run.

	Rating	Reason
Ability to Attract Private Capital	H	Strong demand for authenticated digital signatures
Public Benefits	H	Facilitates e-commerce and reduces congestion
Ability to Overcome Barriers	H	No major barriers exist to pursuing this project
Consistency with Areas of Focus	M	E-commerce
In a Plan or Program	L	Not in current plan or program.

3.18 Air Pollution Credits based on Telecommuting Certificates

Congress recently enacted legislation and funded a grant to the National Environmental Policy Institute to design a pilot program that would link telecommuting to emissions credits in the Washington D.C., Los Angeles, Philadelphia and two undetermined metropolitan regions.[4] Traveler information systems might play an integral role in such a program, especially if telecommuting decisions were made in part based upon short term traffic conditions. The Milwaukee metropolitan region, which is an ozone non-attainment area and the Chicago-Gary-Milwaukee corridor

[4] *The Steering Committee appears to have already identified the cities that might serve as the additional two pilot programs: Chicago and Houston. If the idea of establishing an emissions trading program linked to telecommuting proved viable, the Milwaukee region could proceed on its own.*

might be a potential candidate for participation in such a pilot program. There are many different possibilities for a public/private partnership to play a role in such a project. One is for a private partner to establish the emissions trading software and cover its cost and profit based on a small transaction fee for each trade that occurs.

	Rating	Reason
Ability to Attract Private Capital	L-H	High risk and complexity in establishing an emissions trading program; may require a national approach on which to piggyback
Public Benefits	H	Reduction in travel time, user stress, and air pollution
Ability to Overcome Barriers	L-M	Pilot project being designed by NEPI
Consistency with Areas of Focus	M	Would probably need to be integrated with ATIS
In a Plan or Program	L	Not in current plan or program.

3.19 Traveler Information Systems and Route Planners Integrated with Welfare-to-Work, Job Placement, and Employment Classified Advertising

Job placement personnel, including those within the Department of Workforce Development, often do not consider transportation issues or do enough to address them. They tend to emphasize the process of job seekers applying for job openings without considering how the applicant will travel to an interview or commute to the job if he or she is hired.

The Wisconsin Department of Transportation and the Department of Workforce Development have already made substantial strides in helping job seekers – especially low income earners that rely on mass transit and ridesharing – figure out how meet their transportation needs as they transition from welfare to work or simply seek, secure, and take on jobs. These efforts have included the development of an Internet Trip Planner funded by the University of Wisconsin –Milwaukee and the Job Ride program in Milwaukee.

One or more public/private partnerships could potentially build upon current efforts of the WisDOT and the Department of Workforce Development by further integrating traveler information and trip planning software into employment classified advertising, job search and job placement services. Among possible partners are job bank programs and newspaper companies that have employment advertising.

	Rating	Reason
Ability to Attract Private Capital	M	Major employers, recruitment firms, and newspapers might be a source of private capital
Public Benefits	H	Helps get/keep people off welfare and employed
Ability to Overcome Barriers	H	Positive track record already exists in this area
Consistency with Areas of Focus	H	Addresses traveler info in urban and rural areas
In a Plan or Program	M-H	WisDOT and Dept. of Workforce Development are already pursuing similar projects.

3.20 Optimal Transit and Paratransit Vehicle Utilization to Meet Employment Needs of Low Income Workers and Those Transitioning from Welfare to Work.

A meeting with the Wisconsin Department of Workforce Development revealed that resources (drivers, vehicles, facilities) for specialized transit services of the Department of Health and Family Services might be more efficiently utilized. Not only could such resources meet the needs of the elderly, disabled, and Headstart participants for example, but with careful coordination and planning, the vehicles and drivers when not in use could provide employment related transportation programs.

A public/private partnership might be established to develop and distribute computer software to more efficiently utilize specialized transit vehicles (i.e. buses and vans) in order to serve employment needs of low income workers and those transitioning from welfare to work. The institute could also provide education and training services regarding optimal paratransit resource utilization serving multiple public purposes.

A possible institutional framework might be a non-profit educational institute similar to Operation Respond Inc., a public/private partnership that develops and distributes software for hazardous material transportation management and provides related education and training services.

	Rating	Reason
Ability to Attract Private Capital	M	Software development firm, paratransit companies and major employers might be a source of private capital
Public Benefits	H	Helps gets/keep people off welfare and employed
Ability to Overcome Barriers	M-H	Successful institutional model already exists
Consistency with Areas of Focus	L	Does not address areas of current focus
In a Plan or Program	L	WisDOT and Dept. of Workforce Development are already pursuing similar things.

3.21. Fixed, In-place Anti-icing Systems

A variety of commercial anti-icing systems are now available that can be installed on bridges to prevent the build-up of ice on deck surfaces and reduce the likelihood of accidents. These types of anti-icing systems potentially have use on other parts of the highway network where freezing pavement conditions, low pavement friction due to early build up of ice, and accidents are also known to frequently occur. There is a potential for a public-private partnership under which suppliers or manufacturers of anti-icing chemicals would finance the installation of fixed, in-place anti-icing equipment, and would recover costs (including a profit) based on the quantity of anti-icing chemicals dispensed each year. Alternatively, the costs could be recovered and profit earned through some periodic annual payment. The equipment

might be installed under a Build-Operate-Transfer (BOT)-Lease arrangement under current statutes. Another option is for the state to purchase the equipment at the outset but pay it off over time. These approaches might be sufficient to overcome the statutory barrier prohibiting businesses to install privately owned equipment in public-rights-of-way.

	Rating	Reason
Ability to Attract Private Capital	H	Suppliers/manufacturers of anti-icing equipment and supplies likely to be willing to finance
Public Benefits	M-H	Reduced accidents
Ability to Overcome Barriers	M-H	Likely barriers can be overcome
Consistency with Areas of Focus	L	Does not address areas of current focus
In a Plan or Program	M	WisDOT either currently using such equipment in selected places or is investigating

3.22. Mayday Services

Both the state of New York and Minnesota have been involved in public/private partnerships to test the feasibility Mayday services initiated by accident detection systems on board vehicles. Also, wireless telephone users can reach emergency services by dialing 911. In Wisconsin there is a potential role for public/private partnerships on the one hand to further test the feasibility of Mayday services both in rural and urban areas, and on the other hand to fully deploy Mayday services. Mayday services would involve notification of both private and public emergency service providers such as towing, ambulance, state patrol, and safety service patrol vehicles. It is not clear how far WisDOT ought to go in regards to establishing public/private partnerships to test or deploy Mayday services. Lessons learned from other states might be sufficient to deploy them in Wisconsin. While it seems that participation of both private and public sector emergency response organizations would be essential, it is possible that accident detection and notification could be purely a private sector function, if automobile manufacturers both install the detectors and provide the emergency notification service and wireless phone companies can fully satisfy the need to transmit 911 emergency calls.

	Rating	Reason
Ability to Attract Private Capital	H	Consumers/motorists have a strong willingness to pay for Mayday services.
Public Benefits	H	Faster response time to accidents, mitigation of injury, and avoidance of some deaths
Ability to Overcome Barriers	M-H	Likely that any barriers can be overcome. Ultimately the private sector may furnish the detection and notification component of Mayday services without the need for public sector funding. Therefore a public/private partnership may not be needed, except for the component involving response by different emergency service providers.
Consistency with Areas of Focus	H	Addresses rural and urban incident response.
In a Plan or Program	M	In several program plans, but not funded.

3.23. Congestion Pricing

Congestion problems are serious in Milwaukee and growing in smaller metropolitan and urban areas of Wisconsin. Some cities, such as Madison, are experiencing congestion problems that are disproportionate to the size of the urban area. Congestion pricing might have a role to play in order to help optimize the use of existing highway capacity and reduce travel delay. Congestion pricing can be implemented using a variety of different low and high-tech methods. A low-tech approach would require users desiring to drive part of a roadway network during rush hours to purchase a special license or a placard to be placed somewhere on the vehicle visible to law enforcement officers. A high-tech approach would require the state to install transponders on portions of the road subject to congestion pricing, require road users desiring to use the roadway section to install transponders in the vehicles, and charge and bill road users in accordance with levels of congestion on the roads. In the past, throughout the world, any form of congestion pricing has encountered very strong public opposition for reasons of equity. When electronic systems have been involved, privacy has also been a major concern. However, recent experience in California and a few other places, suggests that resistance to congestion pricing is breaking down. Congestion pricing, like toll road development, would be very likely to attract substantial private capital for installation of transponder. Revenues from congestion charges would be expected to easily cover the costs of installing equipment and dissemination of transponders.

	Rating	Reason
Ability to Attract Private Capital	H	High because of the substantial revenues resulting from congestion charges
Public Benefits	H	Reduced delay and travel time availability. Also, likely to postpone or avoid the need for new lanes and new roads.
Ability to Overcome Barriers	L-M	In the past, concerns about the ability to pay of people with low and middle incomes have derailed nearly all congestion pricing proposals throughout the world. Privacy must also be fully protected.
Consistency with Areas of Focus	L-H	Does not directly address incident response, traveler information, or CVO, but would address all types of road users in congested areas. Transponder readers for congestion pricing could be used as part of a traffic surveillance system if done in a manner to safeguard privacy.
In a Plan or Program	L	No

3.24. Traveler Information Systems with Accident Rates and Insurance Premium Reductions

A public/private partnership involving motor vehicle insurance companies, traveler information system providers, and the WisDOT would create and periodically update a digital map and disseminate traveler information including accident rates and

travel times on different links of the transportation network. Thus accident rate information would be integrated into normal traveler information systems. Users of both the road and transit networks could receive reductions in insurance premiums for selecting modes and/or routes with consistently lower accident rates than normal. There are a number of significant challenges in implementing such a program. First, accident rates on various parts of the network may not be accurate enough, and the business process for ensuring their accuracy might need to be substantially improved. Second, the insurance industry may not have a strong incentive to provide discounts on insurance rates, since their profits are probably just a certain fraction of the total value of insurance policies written, although some insurance mutual funds might gain a competitive advantage by offering special rate reductions. Third, is the challenge of monitoring whether users of the transport network actually take modes and routes with lower accident rates when they tell their insurance companies that is what they are doing. It might be sufficient for WisDOT to provide accident rates on various routes as additional information that traveler information providers could furnish to the public.

	Rating	**Reason**
Ability to Attract Private Capital	M-H	Public might be willing to pay extra to know accident rate information in addition to travel times when selecting various modes and routes, especially if using modes and routes with lower accident rates result in reductions in insurance premiums.
Public Benefits	H	Reduced accidents. Reduced outlays for motor vehicle insurance.. Perhaps reduced travel time and delay resulting from more people using traveler information systems.
Ability to Overcome Barriers	L-M	Requires a paradigm shift in the insurance company approach to business that may be difficult to achieve. However, traveler information service providers might find that accident rates on alternative routes might attract a significantly higher number of customers of traveler information.
Consistency with Areas of Focus	H	Addresses traveler information for urban and rural areas
In a Plan or Program	L	No

FINAL

TASK 5 REPORT

ASSESSMENT OF POLICIES REGARDING ACCESSIBILITY AND FEES FOR PUBLIC INFORMATION AND DATA

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for:

Wisconsin Department of Transportation

Prepared by:

BOOZ·ALLEN & HAMILTON

With

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

January 19, 2000

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report examines key issues and makes a recommendation concerning policy regarding accessibility and pricing of publicly owned or generated data and information used in ITS public/private partnerships involving the Wisconsin Department of Transportation (WisDOT).

Key issues that must be addressed include the following:

- To what degree is the public sector committed to allowing the private sector to earn revenues and profit using publicly owned or generated information or data in order to attain public sector goals?
- Under what conditions does making information available for free or for a price maximize public benefits?
- How desirable is it to allow private firms to have exclusive access to publicly generated or owned information in order to help ensure the public/private partnership is profitable and can therefore attract private capital?
- To what degree is it desirable for ITS public/private partnerships not to be subject to the open records law?
- To what extent is policy consistency or flexibility desired regarding fees to be charged for publicly owned or generated data?

Ideally WisDOT should have statutory authority and adopt a policy regarding fees to be charged for public data and information that enables the state to maximize public benefits flowing from ITS public/private partnerships. This means that WisDOT needs the flexibility to support a wide variety of business models and pricing strategies when publicly owned or generated data and information is involved.

The range of types of business models that needs to be supported include the following:

- Market competition involving value added resellers, free information with advertising revenues, bundling ITS information with other information, bundling ITS information with equipment or services, and transaction or subscription fees.
- Monopoly provision or some degree of market exclusivity involving franchises, concessions, or licenses coupled with limits on the fees that can be charged for data and the return on investment.
- Hybrid of a monopoly and competitive environment through awarding (and renewing) monopoly rights via a competitive bidding process or through a competitive joint venture in which private firms jointly own the database but compete against one another in providing information services.

In the Internet era involving highly creative approaches to e-commerce, it is important that a public/private partnership be able to adopt any of the following pricing strategies depending upon its stage of evolution, the competitive environment, and its business model:

- Provide information for free
- Offer information for the cost of reproduction
- Apply marginal cost pricing
- Apply average cost pricing
- Establish prices by auction
- Capture all consumer surplus through product differentiation and pricing
- Sell in futures markets
- Earn profits through arbitrage.

In many circumstances WisDOT needs the ability to grant a private partner exclusive access to data or information generated with public funds and to set prices for data or information as close as possible to what buyers are willing to pay in order to help ensure the private partner can earn a profit.

In sum, WisDOT needs statutory authority to establish prices for information and data in a manner that is most likely to maximize public benefits of ITS public/private partnerships. Sometimes this means WisDOT needs the flexibility to establish policy regarding pricing and accessibility of data and information in a manner that will maximize the likelihood that a public/private partnership is economically feasible and its private partner can earn a reasonable rate of return on its investment. Making publicly owned or generated data and information available for free or for the cost reproduction will often not lead to an economically viable public/private partnership.

However there are a number of barriers to such statutory changes. Current statutes and policy require making publicly owned or generated data available to any one who requests for free or a cost not to exceed the "actual, necessary and direct" cost of reproduction:

1. There is a strong presumption that the public has already paid for information or data generated with public funds, and therefore the public should not have to pay for it a second time.
2. It is more equitable if everyone has access to information for free or as close to free as possible. Not just those with the ability to pay should have access.
3. Wisconsin has an open records law predicated upon the idea that business conducted by the public sector is the public's business and the public is entitled to any information that is not proprietary.

If statutory changes are not possible that can give WisDOT the flexibility to grant its private partner exclusive rights to public data and to charge the public for

information in a manner most conducive to generating a profit, then WisDOT needs to find other ways to help its partner gain a competitive advantage. Some possibilities are:

- Allow the private sector partner earlier access to data so it is more timely than data provided to others.
- Provide incentives to the private partner to add value to data and information in a manner that others are unlikely to duplicate.
- Allow the private partner to be the first point of contact for access to the data. The private partner becomes the gatekeeper but also must make the data available to everyone.
- Create conditions that allow the private sector to generate increasing returns to scale and lower prices to consumers, thus allowing the partner to expand market share. One way to do this is for the public sector to assist the private partner in marketing information and data.
- Allow the private sector partner to use the WisDOT logo to help brand its product or service to obtain the benefits of the credibility and stability of the state.

1.0 INTRODUCTION

The purpose of this report is to evaluate options and set out a recommended policy framework for charging fees for publicly owned data and information in order to enhance ITS public/private partnerships. This is a critical area of policy. If it is not handled well, it can undermine all other efforts to foster ITS public/private partnerships where part or all of the revenues earned by the private sector come from the sale of data or information.

Accordingly this report does the following:

- Discusses various considerations and policy options with regards to charging fees for publicly owned information and data;
- Identifies an ideal policy framework with regards to charging fees for information and data in order to enhance ITS public/private partnerships;
- Identifies the statutory, regulatory, policy and other constraints that stand in the way of an ideal policy framework; and
- Offers an approach that removes the constraints or minimizes how the constraints detract from the ideal policy.

1.1 Key Issues

The main premise of a public/private partnership is that the public and private sectors share costs, risks, and rewards. When the public sector is willing to share costs and risks with the public sector so as to create profitable opportunities, the public sector frequently can attract private investment. Generally, the private sector requires the profit to be at least as large as might be earned in some other investment with comparable risk.

One of the resources that the public sector brings to the table is publicly-owned data and information. There are a number of considerations, many conflicting, that must be a factor in determining what policy WisDOT should adopt regarding charging for publicly-owned data and information.

- **Commitment to Public/Private Partnerships.** To what degree is the public sector committed to allowing the private sector to earn revenues and profit using public resources -- including information and data -- to attract private investment in order to attain public sector goals?
- **Protection from Competition.** Is the state willing to avoid providing information essential to a public/private partnership to competitors of its private sector partner? The likelihood of the public/private partnership being successful (profitable) is greatly reduced when information essential to a public/private partnership is available to competitors for free, at cost of reproduction, or even market prices.

- **Maximization of Public Benefits.** How does the public sector maximize public benefits? These are benefits that accrue to the public such as reduced congestion, accidents, and air pollution, which are not fully captured by prices and revenues in the market place. Does maximization of public benefits follow from just public investment, private investment or both?
- **Availability of Data.** To what degree is the state required by statute or regulations to make data and information gathered with public funds available to anyone who requests the information?
- **Price of Data.** What do state statutes and regulations say regarding what WisDOT may charge for information and data?
- **Policy Consistency Across ITS User Services.** Should the policy regarding the availability and price charged for publicly-owned information and data be consistent regardless of the type of ITS user service or market package involved?
- **Policy Flexibility.** To what degree is firm policy or flexibility required in establishing an approach regarding the availability and charges for publicly generated information and data to be used for ITS public/private partnerships?

In order to address each of these issues successfully, first it is necessary to make certain assumptions, establish important facts, and clarify key tradeoffs and points of potential conflict.

1.2 Commitment to Public Private Partnerships

The objective of this project, "Methods to Enhance ITS Public/Private Partnerships" is to recommend an institutional framework, including statutes and guidelines, that fosters public/private partnerships for ITS deployment in Wisconsin. We therefore start with the assumption that WisDOT is committed to allowing the private sector to earn revenues and profit using public resources -- including information and data -- to attract private investment in order to attain public sector goals.

The strength of this commitment is the key question. We believe WisDOT wishes the commitment to public/private partnerships to be as strong as possible within statutory and regulatory constraints, and if feasible, to change the statutes and regulations in order to allow an even stronger commitment to its private sector partners.

1.3. Protection from Competition

The history of other industries makes it quite clear that government frequently has played a major role in catalyzing the deployment of a new technology, frequently by protecting firms from competition. There are a variety of reasons why government coddles industry from time to time. These include defense concerns, industrial policy (i.e. trying to promote selected industries such as semiconductors), more economically

efficient deployment, and creating public benefits from commercialization of the publicly held information and data or other public property.

Bear in mind that even when an exclusive right to conduct a business is granted, competition is nearly always present in the award and often in the renewal of a franchise, concession or license.

In the ITS arena, a recent example of protection from competition is the grant of an exclusive franchise by the Michigan Department of Transportation to SmartRoute Systems to establish the MOTORCITI Advanced Traveler Information System (ATIS) for the Detroit Metropolitan Region. Under its franchise agreement, SmartRoute Systems is granted exclusive rights to data and information that comes from government traffic surveillance systems.

The MOTORCITI franchise achieves the same end result of disseminating traveler information to the public with the intent of reducing congestion and air pollution but at far less cost than if SmartRoute Systems were required first to install identical or equivalent traffic surveillance equipment in the right-of-way and then sell traveler information.

The MOTORCITI franchise runs counter to the prevailing trend of deregulation and increasing competition throughout the U.S. and world economy. Partial or complete deregulation of many industries (e.g. air, truck, rail, telecommunications, electric utilities) has occurred since the late 1970s. Policy makers have sought to foster competition with increasing ardor and have little taste for protection of firms from competition. Moreover policy makers and public officials are extremely sensitive to charges of having cozy relationships with private firms. In addition, the public is not easily persuaded of the desirability of protecting firms from competition under any circumstances.

Nonetheless when it is possible to achieve large public benefits (e.g. improved communications, transportation, environmental quality) government still continues to grant some degree of exclusivity when it is necessary to attract a large amount of private capital (cellular duopoly licenses, wireless licenses). The case for protection from competition is even more compelling if there are economies of scale that result in lower unit costs and consumer prices or one can avoid undesirable duplicative services. Of course, granting exclusive rights requires ways to protect against price gouging and excessive returns on investment and to ensure there is a procurement process that fosters fair and open competition at the appropriate times.

1.4 Maximization of Public Benefits

An important consideration in establishing policy concerning the availability and price of publicly owned data is whether free information tends to maximize public benefits. The experience of the Internet suggests strongly that the widespread

availability of free information on countless topics has been a mighty contributor to the Internet's success. Much of the information found on the Internet is a public good as economists define it: once it is provided to one person for free it is available to everyone. Thus the benefits of each piece of information multiply with the number of people who access it.

Some of the free information on the Internet is traveler and related information useful for making trip and freight shipment decisions. The more free information available, the better choices users of the transport system make and the more efficient utilization of scarce highway and other transport capacity. The consequence is increased public benefits in the transport sector due to reduced congestion, accidents, pollution, etc.

At present, the problem with free traveler information offered over the Internet (and via other dissemination channels) is it pertains only to a small portion of the transport network. In the case of highways, information on traffic conditions are usually available for just freeways and other major highways. The public sector – federal, state and local government – has so far been unwilling or unable to make the financial investment in traffic surveillance to provide extensive coverage of the highway network.

So while the information is available for free and the total public benefit multiplies with access by user, the total public benefits remain small because the value of each piece of information and the overall value is small.

Besides increasing public investment, there are only two other ways to increase the value of information and the total benefits:

1. More private investment in traffic surveillance
2. The formation of a public/private partnership to pool resources and invest in traffic surveillance.

The private sector so far has not found a cost-effective way to monitor traffic on the entire highway network, let alone the multimodal transport network. To date, the private sector has needed permission to access public rights-of-way, for example as has occurred in the TrafficMaster deployment in England and Germany. However, innovations in wireless technology may lead to a better solution. In the year 2000, Virginia and Maryland will be testing wireless telephone callers as probes by building upon emergency "911" location determination technology.

The other way to increase the value of traveler information is for the public and private sectors to form public/private partnerships to pool their resources and capital and invest in additional traffic surveillance. Public/private partnerships have the advantage of both public sector and private sector inputs and can achieve more than either can alone.

Similar considerations apply to the maximization of public benefits associated with other types of information essential to ITS user services. Examples include weather data, data on parking availability, lodging and other tourist related data, estimated time of arrival for mass transit, emergency response data, and safety fitness data of commercial motor carriers.

1.5 Availability of Data

There are a variety of reasons why public policy favors making publicly owned or generated data available to anyone who requests it.

First, the information or data is generated with public funds, and there is a strong presumption that since the public has already paid for it, the public should not have to pay for it a second time.

Second, it is more equitable if everyone has access to the information rather than just those who are willing to pay. People with lower incomes are not as able to afford the information as people with higher incomes.

Third, the federal government and virtually every state, including Wisconsin, has a Freedom of Information Act or similar open records law. The presumption is that business conducted by the public sector is the public's business and the public is entitled to any information that is not proprietary.

Notwithstanding these compelling reasons concerning full availability of data, it must be recognized that easy availability of data by competitive information service providers is likely to undermine the economic feasibility of a public/private partnership. This is especially true of a public/private partnership that depends upon exclusive or favored access to public information for its success and profitability.

Ideally WisDOT should be allowed to grant exclusive access to information and data in a manner similar to MOTORCITI Traveler Information deployment. Thus, statutory and regulatory changes are highly desirable that give WisDOT this authority.

If statutory changes are not possible, creative solutions are necessary that on the one hand respect the policy imperatives for widespread availability of government information and on the other hand help maintain some sensible barriers to competition if the goal is to attract significant private investment. Some possibilities are as follows:

1. Allow the private sector partner earlier access to data so that it is more timely than data provided to others.
2. Provide incentives to the private partner to add value to data and information in a manner that others are less likely to duplicate.

3. Allow the private partner to be the first point of contact for access to the data. The private partner becomes the gatekeeper but also must make it available to everyone.
4. Create conditions that allow the private sector to generate increasing returns to scale and lower prices to consumers, thus allowing the partner to expand market share. The public sector assisting the private partner in marketing information and data is one way to do this.
5. Allow the private sector partner to use the WisDOT logo to help brand its product or service to obtain the benefits of the credibility and stability of the state.

1.6 Price of Data

There are many different considerations regarding how information and data should be priced. The options and considerations are discussed below in some detail.

The Wisconsin statutes concerning the open records law basically says that publicly owned or generated data or information must be available at a cost not to exceed the "actual, necessary and direct cost" of reproduction, which can include locating and copying records plus mailing and shipping. A state agency can make the information or data available for free.

WisDOT has followed this policy to date. For example, WisDOT makes reports available for copying costs set out in the Transportation Administrative Manual (TAM).

The Division of Motor Vehicles makes driver safety records available to the insurance industry. It charges $3.00 to search a record, and has received reimbursement of about $8 million per year. The DMV has the authority to do this under Section 3.43 of the Wisconsin Statutes. However, a recent U.S. Supreme Court ruling, *Condon vs. Reno,* has upheld privacy laws, and is forcing the DMV to review and revise its procedures for releasing driver safety records.

At present, selected traffic information in Milwaukee and generated by the state, such as closed circuit television images of traffic conditions, is available for free to the public, broadcasters and information service providers.

1.7 Policy Consistency Across ITS User Services

ITS comprises a large number of user services and market packages. A key question is whether it is desirable to adopt a policy concerning availability and pricing of publicly generated data that applies to all types of ITS user services and market packages or should the policy vary.

It is suggested that issues concerning availability and pricing of data are most important when the public/private partnership proposes to generate revenues through the sale of raw data or value-added information services. The public/private partnership may wish to enhance the data in various ways or bundle it with other

information, thus making it more attractive to consumers and increasing the likelihood they are willing to pay for it.

If a public/private partnership is not being considered as a key way to deploy an ITS user service or sell a market package, then there is no compelling reason to adopt a pricing policy that will help the private partner maximize revenues. Quite the contrary. The best policy is to make the information available for free or at the lowest possible cost in order to maximize public benefits.

In sum, it would be undesirable to have a policy regarding the pricing of information and data that applies consistently to all ITS user services and market packages.

1.8 Flexibility of Policy

WisDOT requires flexibility in policy regarding availability and pricing of data and information needed for ITS. If statutes and regulations are so rigid that they stand in the way of a policy that can foster public/private partnerships, then the Department should seek to modify them or obtain additional authority that gives the Department the flexibility it needs.

The next two sections discuss the range of business models and pricing policies that WisDOT may want to support.

2.0 BUSINESS MODELS

Previous task reports include case studies and discussions on methods to attract resources to ITS public/private partnerships. These case studies and methods document a broad range of business models that have been an integral part of public/private partnerships somewhere in the United States or abroad. Policies concerning fees to charge for public information and data need to support the full range of business models. For the most part , these business models fit within one or more of the following three economic environments:

- Market competition
- Monopoly provision or some degree of market exclusivity
- Hybrid of a monopoly and competitive environment

2.1 Market Competition

The prevailing economic environment in the United States and throughout the world is market competition. Public/private partnerships will face a high degree of competition during at least some phase of their existence if not throughout deployment, operations, and maintenance. Competition imposes discipline on firms to control their costs, to earn revenues in excess of costs, and to respond to strategic opportunities and

threats. Among the opportunities and threats is the rapid pace of innovation in an advanced technological society.

Today innovation is not just technological but also applies to business and organizational models. In many cases e-commerce businesses are formed on the strength of an idea for an innovative business model. A good example is *priceline.com* which holds a patent on its approach to business. The *priceline.com* business model involves using software and telecommunications to allow a person to propose a price consumers are willing to pay for a product or service and then finding sellers who are willing to provide the product or service at the price offered.

Priceline.com's approach to its business turns the traditional approach to pricing products and services on its head. An example such as this behooves WisDOT policy makers to think deeply about what should be the appropriate policy for pricing information and data owned by the public.

2.1.1 Value Added Resellers

The federal government and nearly all DOT's have acknowledged the critical role of Information Service Providers (ISPs) that function as value-added resellers. The ITS National Architecture specifically accommodates a business model in which the public sector generates a certain type of data or information and disseminates it to the private sector. The private firms then sell information that is reformatted in an attractive and useful way, bundled with other information, or bundled with other products and services. Information may be offered for sale by subscription or piecemeal using a transaction-based business model (i.e. charging for each unit or bundle of information sold).

There are a large number of business models and creative ways to add value to existing government information and data. Some of the most prominent of these are discussed in turn.

2.1.1.1 Free Information with Advertising Revenues

One of the most thoroughly explored ITS business models is for a value-added reseller to make ITS information available for free and earn revenues through advertising. This is the classic business model of many Internet businesses. In a similar vein, rush hour traffic services provide free information over radio and television and earn revenues for advertising in conjunction with rush hour traffic reports.

In many cases, a new ISP cannot compete effectively with an incumbent service provider which gives away information. Indeed, this is an effective barrier to competitors. They are either forced to withdraw from the market or bundle traffic information with other things.

2.1.1.2 Bundling ITS Info with Other Information

Even though the core business of some firms such as Metro Traffic and Shadow Traffic revolves around traffic reports, they augment their revenues by selling other information such as news, weather, sports, stocks, and electronic yellow pages for locating lodging, restaurants, attractions and so on. They also deliver information and personalized services through a variety of end user products – portable PCs, handheld PCs, cable TV traffic programming, internet web pages, personalized paging, and location services.

For some time Microsoft Sidewalk has offered a wide variety of content regarding attractions, events, restaurants, lodging and other information in major metropolitan areas. To this Microsoft has added traveler information. Recently Microsoft Sidewalk discontinued offering traveler information at its Sidewalk website apparently because the incremental revenues did not justify the costs.

2.1.1.3 Bundling ITS Info with other Equipment or Services

Firms may also bundle ITS information with the sale of services or equipment. For example, a firm might bundle Mayday services and tourist booking services which are sold through a free subscription service with traveler information. Many wireless communications companies are bundling weather, stock quote, and other services with traffic information.

In addition firms are bundling in different permutations not just services and information but also equipment, some of which is free and some not. For instance a firm might offer a free cell phone to a subscriber who is willing to pay for a rich enough package of bundled information services. Or a firm might offer free traveler information and charge for the cell phone and other services. Another possibility is to offer a certain number of free hours of cell phone service, a low-cost phone, and charge for other information services. We are also on the threshold of seeing personal digital assistants becoming integrated with cell phones, which amplifies the number of possibilities further. As integration of computer and telecommunications platforms proceed, strategies for bundling information, services, and equipment will increase in complexity and so will corresponding approaches to pricing.

2.1.2 Transaction Fees vs. Subscription Services

Above, we alluded to the fact that information can be sold piecemeal where the consumer is charged for each transaction, or the consumer can pay up front by subscribing to a service. Both of these approaches are common in the Internet era.

E-commerce sites offer discrete items for sale (information, computer files, toys, electronics, housewares). Under this model every item is priced individually.

Typically, the consumer selects individual items to buy, confirms the intent to purchase them, and then enters a credit card number, and the e-commerce business fills the order, either electronically or through a delivery service.

Under a subscription service, the consumer pays a subscription free up front, and then is entitled to everything that the subscription service agreement allows. Once subscriber has paid the price of entry to the service, he or she will typically be able to access a large amount of information for free, although some information service providers will still charge subscribers for certain things.

Under some business models both subscribers and non-subscribers must pay for each item they purchase, but a subscriber receives a discount.

2.2 Exclusivity and Partial Exclusivity

Each of the business models discussed in Section 2.1 are commonly found in the competitive market place. Another set of business models that information availability and pricing policy needs to accommodate is monopoly or some degree of exclusivity.

WisDOT may choose to grant full or partial exclusivity to a private firm participating in a public/private partnership in order to enhance the profitability of a business opportunity and attract private investment. The granting of exclusive or partially exclusive franchises, licenses, and concessions are among the ways to accomplish this.

When a private sector firm receives protection from competition, WisDOT pricing policy must include the ability to prevent the firm with monopoly or quasi-monopoly market power from charging excessively high prices and earning an unreasonably high rate of return.

There are a variety of mechanisms for placing limitations on what a firm with some degree of monopoly power can charge. These include the following:

1. Including limitations on what can be charged in the agreement granting exclusivity or partial exclusivity. Many franchise agreements set explicit limits on what rates the franchisee can charge.
2. Establishing an intermediary of public and private sector representatives to oversee the behavior of the franchisee, licensee, or concessionaire. This is the model that Help Inc. uses, for example.
3. Using an existing regulatory body, such as a Public Utility Commission, to regulate rates and return on investment. Discussions with Wisconsin electric utilities and the Wisconsin Public Service Commission (PSC) strongly indicate that the PSC would not take on the responsibility of regulating rates charged by a monopoly ITS information service provider.

2.3 Hybrid Business Models of Competition and Monopoly

WisDOT needs a strategy of introducing competition or phasing in competition at the right moments when it intends to offer its private partner full or partial protection from competition. One of the important roles of competition is it tends to put a lid on prices a firm can charge. Another important role of competition is it tends to foster innovation, and innovation has a tendency to meet consumer needs at increasingly lower prices. Among the approaches WisDOT can use to impose some degree of competition on a monopoly and partial monopoly environment are the following:

1. Use a competitive procurement, possibly including an auction, to award exclusive rights
2. Require that renewal of exclusive rights be subject to a competitive bid
3. Limit the time period during which the private partner receives protection from competition.
4. Foster business models that have characteristics of both monopoly and competition.

An interesting instance of the last option is a "Competitive Joint Venture." Under a competitive joint venture, private firms share in the ownership of the infrastructure (e.g. database) but compete with one another in providing information and services to the public. An example is a newspaper printing press that is jointly owned by a morning and evening newspaper companies that compete against each other in the same metropolitan region. Another example, is the TransAlaskan Pipeline which oil companies jointly own. However the oil companies compete with one another in selling oil on the world market. Other examples are pooled databases of telephone directory services of telephone companies that compete with one another. A final example is the pooled database of an airline reservation system that serves numerous airlines that compete with one another.

A public policy objective might be to grant exclusive rights to a number of firms serving different regions of the state but ultimately force them to pool information and compete against one another in a competitive joint venture. This would have the effect of using competition to limit the price monopolists can charge.

3.0 OPTIONS FOR PRICING PUBLICLY OWNED DATA

Keeping in mind the business models discussed above, WisDOT has a variety of policy options regarding what to charge, if any thing, for publicly owned or publicly generated data and information needed for ITS.

3.1 Free Information and Data

The first option is to offer ITS related information and data for free to the public and to value-added Information Service Providers.

Advantages:

- Tends to maximize public benefits if information has high value to consumers and travelers
- Avoids criticism of charging for data that was acquired or developed with public dollars
- Avoids criticism of giving special treatment to a particular firm

- Is more equitable since income is no barrier to accessing information or data

- Is consistent with open records laws.

Disadvantages:

- No revenue is earned from the sale of public information and data that could be used to recover private investment costs, or for that matter, public investment costs
- Will not maximize public benefits if information has low value to consumers and travelers.
- Likely to undermine the feasibility of the public/private partnership and deter private investment
- Fails to cover the administrative and other basic costs of information collection, formatting, bundling, storage, retrieval and dissemination.

3.2 Cost of Reproduction

Under this option WisDOT would only recover the cost of reproducing and, perhaps, disseminating the information to consumers and value-added resellers.

Advantages:

- Covers reproduction costs and is consistent with provisions under Wisconsin's open records law
- The state earns a nominal amount of revenue
- There is a low barrier to access information and data
- The policy tends to promote equity regarding the ability of people and value-added resellers to acquire the information or data
- Fairly effective in maximizing public benefits if the value of information is high, but not as effective as making the information available for free under such circumstances.

Disadvantages:

- The revenue that could be earned by the state or a public/private partnership is small in comparison to a situation in which the partnership can charge a fee more consistent with what people are willing to pay.
- Competitors of the partnership will have access to data and low cost data is likely to undermine the feasibility of the partnership.
- Not likely to attract significant private investment.

3.3 Marginal Cost Pricing

This policy consists of setting price equal to marginal costs, where marginal costs are defined as the incremental costs of increasing output by an additional unit of production. Incremental costs of information and data include collection, formatting, bundling, storage, retrieval, and dissemination costs. Marginal cost pricing can result in widely different prices depending upon whether the incremental costs per unit of production is constant, increasing, or decreasing. If there are economies of scale (i.e. declining marginal costs over the full range of production), marginal cost pricing would result in steadily declining prices charged to consumers and value-added resellers. Conversely, if there are increasing costs to scale, there would be increasing prices charged to consumers and value added resellers as output expands. Constant costs of expansion would mean constant price.

Advantages:

- In the absence of externalities (i.e. when the costs of consuming or producing something are not fully born by the consumer or producer but spill onto others, for example pollution and congestion), marginal cost pricing results in the most economically efficient price, and tends to optimize the allocation of resources.
- If there are increasing costs of expansion, revenues will always exceed costs including the opportunity cost of investing in the next best option. Thus, the public/private partnership will be profitable. Over some range of expanded service, there are probably significantly increasing costs to scale, because of the lumpiness of incremental investment. For example, this would be the case if the state sought to expand traffic surveillance to arterial rights of way throughout a metropolitan area and set the price of traffic data generated by the arterial street surveillance system equal to marginal cost.
- Over some range of production, the incremental costs of information and production is likely to equal no more than reproduction costs. So the advantages associated with information priced only to recover reproduction costs would apply.

Disadvantages

- Marginal cost pricing can be difficult to administer because the incremental costs of expansion would vary with the stage of deployment and the cost

characteristics of the business. Calculation of incremental costs is difficult, and requires one to define a unit of production and make assumptions about how granular or lumpy the unit of production is.

- This type of pricing is not economically feasible if there are economies of scale (i.e. declining costs as output expands). Total revenues will be less than total costs, and the public/private partnership will lose money.
- Marginal cost pricing does not yield an efficient allocation of resources when there are externalities. Suppose information was priced at marginal cost and buyers flooded a website and exceeded its capacity to disseminate the information (i.e. there are congestion externalities). Then the optimal price would obviously need to be higher to dissuade some customers from attempting to access the website.
- Marginal cost pricing has all the disadvantages of not making information available for free, including reduced accessibility, inequities, and charging something for which taxpayers have already paid.

3.4 Average Cost Pricing

Under this the option price of information or data is set to the average cost of each unit of production. To implement this pricing strategy one must identify the total number of units of information that will be produced and disseminated and divide that number into the total cost of production.

Advantages

- Average cost pricing recovers all costs including the opportunity cost of capital. A public/private partnership will be profitable if it uses average cost pricing.
- The basic concept is simple to understand, much simpler than marginal cost pricing.

Disadvantages

- Average cost pricing may not be the economically efficient price when there are either increasing or decreasing costs of scale. However, average cost pricing is often the best way to charge for products and services when costs decline as output increases and marginal cost pricing cannot recover costs.
- Does not promote equity and universal access to information, and it does not avoid the accusation that consumers and value-added resellers have to pay for something they already paid for through taxes and user fees.
- It can be challenging to define a unit of production. Over different portions of the range of production, investment can be lumpy or quite granular. So the unit of production could be associated with investments of different lumpiness.

3.5 Competitively Determined Prices

3.5.1 Traditional Markets

Another approach to setting prices is to let competition in the market place determine them. When prices are determined competitively, a public/private partnership might set prices using any of the methods listed above. But as soon as a competitor offers the same or a substitute product or service for less, the public/private partnership may be forced to adopt a different pricing strategy as it lowers its prices.

Not only does competitive pricing tend to hold prices down, but a competitive threat is usually sufficient to dissuade a firm from raising prices and may even force them to lower prices in anticipation of an action by a competitor.

Reliance on competitive markets to set prices has a number of advantages and disadvantages:

Advantages:

- Avoids the need to regulate prices charged consumers
- Competitive markets tend to be efficient in their allocation of resources, but not always
- Imposes discipline on public/private partnerships. Businesses and public/private partnerships that survive will succeed in managing their costs and pricing their products and services in a way to cover those costs.

Disadvantages

- A public/private partnership may need protection from competition during the start up period in order to survive, and may need the freedom to price its products and services in a manner likely to cover costs.

3.5.2 Auctions

An alternative to relying on traditional competitive markets to set prices, is to set a price through a competitive auction. There are many different auction schemes, but in most of them (*priceline.com* is an exception), bidders compete with one another to establish the price of something to be sold. Auctions are in vogue in the field of advanced technology. The FCC routinely conducts competitive auctions of electromagnetic spectrum for various telecommunication purposes.

In theory, through a competitive process, one could auction off the future exclusive rights to sell government generated traveler information pertinent to a corridor, state or metropolitan region. The government would make a commitment to

install traffic sensors every one mile on all freeways and arterials (thus increasing the density of coverage and the value of the traveler information compared to what exists today). The government would require bidders to state how much they would charge consumers for traveler information both on a subscription and transaction basis, and how much the bidder would be willing to pay for this exclusive right. Under the agreement with the winning bidder, the government would finance (perhaps through revenue-backed tax-exempt bonds) and install the surveillance technology to achieve the desired coverage by a certain date. Once the surveillance system is built, the winning bidder would pay the bid amount to the government so the government would recover part or all of its investment depending on the winning bid amount. Next, the winning bidder would commence selling the data presumably for the subscription and/or transaction price it proposed consistent with revenue and profit it expects to earn.

While no states have auctioned off the rights to sell information and data useful for ITS applications, some have gone through a competitive procurement processes that come close to being an auction. In a number of cases, bidders have been asked to propose how they would meet the needs for a regional traveler information system, how much of the costs they would pay for, how much government is expected to contribute, and when government support might cease. This approach is somewhat similar to that used for Partners in Motion, the Washington D.C. Metropolitan area traveler information system.

Advantages and disadvantages of auctions are as follows:

Advantages:

- They can be conducted in a competitive manner
- They are potentially a means to establish a price for information services that can cover costs or a significant portion of costs.
- They can attract substantial private capital if bidders are awarded exclusive or partially exclusive rights to offer a service , as in the case of wireless telecommunications auctions.
- They are a way to potentially attract enough private investment such that, when combined with public investment, public benefits are maximized.

Disadvantages

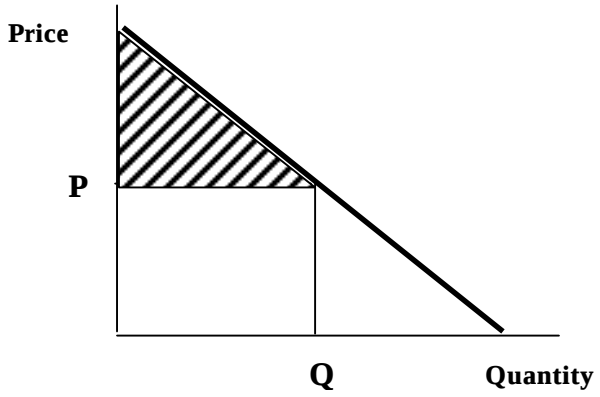
- They are an unfamiliar concept at the state level.
- One must offer some degree of exclusive and perhaps monopoly rights in order to attract private capital.
- Designing and administering an auction so it has the intended effect is challenging.
- Information and data will not be free and maybe not even be low cost.

3.6 Capturing Consumer Surplus

One of the virtues of an auction, if designed properly, is it can potentially capture most and in some instances the full value to buyers. Economists define the full value to a buyer as follows:

(the price of the item purchased x *quantity purchased) + the consumer surplus*

Consumer surplus (shaded area in the figure below) is the difference in what a consumer is willing to pay versus what the consumer actually pays. Consistent with a declining demand curve, typically a consumer is willing to pay some declining amount in excess of the price for each additional unit purchased.



If a public/private partnership can capture the full amount of the consumer surplus via the prices it charges, it can increase the likelihood of covering its investment cost.

There are number of different approaches to extracting consumer surplus.

3.6.1 Monopoly Pricing

A major concern about monopolists is they can charge what the traffic will bear, since there is nowhere else to go to buy the product or service. A monopolist can act as a gate keeper and not provide access to a product until a buyer has revealed what it is willing to pay. Through careful experimentation and modulation of its price a monopolist can extract the full consumer surplus from buyers.

Advantages:

- If the private partner of a public/private partnership has monopoly rights, it can increase the likelihood of profitability and investment recovery by seeking to capture the full consumer surplus.

- A private partner expecting to receive monopoly rights would be more likely to provide private capital for ITS deployment.

Disadvantages:

- It is unacceptable public policy to allow a firm with monopoly power to charge excessive prices and earn excessive rates of return
- There needs to be a way to limit prices and rates of return.

3.6.2 Product Differentiation and Personalized Pricing in a Competitive Market

Ironically as the marketplace becomes increasingly competitive, firms throughout the country are using data mining techniques to allow them to behave more like a monopolist with regards to each buyer. Firms increasingly are trying to learn so much about each buyer's preferences and habits that they can differentiate their product so it is tailored to each buyer's needs and there are no good substitutes. The seller, attempts to become the only feasible provider to the consumer. Hence the seller becomes a monopolist vis-a-vis each buyer without buyers realizing it. The more personalized the service, the more likely the business can sell the product or service for a price that extracts the full consumer surplus.

Highly personalized traveler information, for example, would take into account the types of vehicles a person owns, accessibility to mass transit and other modes, and give travel times and traffic conditions on each transport link on the network between the origin and destination of each traveler. This information is much more valuable to a person than general traffic conditions on the main highways.

Advantages:

- This type of pricing is likely to increase revenues of a public/private partnership and therefore increase the likelihood of private investment.
- In a competitive market, it is perfectly legal to differentiate products in a highly personalized manner and price those products in a manner to capture all a buyer is willing to pay.
- Personalized products and services create customer loyalty and increase profitability.
- Pricing calculated to extract consumer surplus may be fairly equitable, if people with lower incomes are charged less than people with high incomes for similar but personalized products and services.

Disadvantages:

- Many see techniques such as data mining, that leads to highly personalized product differentiation and pricing, as an invasion of privacy.

- It requires a great deal of sophistication to develop personalized products and pricing.

3.7 Futures Markets and Arbitrage

Developing an appropriate policy for pricing ITS data and information generated with public funds should also take into account the possibility that information and certain transport related rights and privileges may be traded in future markets, and that firms may seek to profit through arbitrage – i.e. profiting from the gap between the price a buyer is willing to pay and the price a seller is willing to sell a product or service. [1]

Congress recently enacted legislation proposed by Congressman Wolf of Virginia, that would design pilot programs in Washington D.C. , Los Angeles and two other metropolitan areas that would issue pollution emission credits tied to certificates representing that employees in a business telecommute a certain number of days each week. One might envision that this emissions trading program linked to telecommuting would be integrated into a traveler information system that would allow would-be telecommuters to make sound choices regarding when not to commute to and from work. The pollution emission credits could be traded on a futures market, in the same manner that pollution credits for sulfur oxides are currently traded. Situations might arise where an information service provider might increase their revenues through arbitrage.

4.0 THE IDEAL POLICY

There are some important advantages in making ITS related information and data owned or generated with public funds available for free or for the cost of reproduction. However, there are compelling reasons to accommodate other approaches to pricing information and data as well, especially if WisDOT desires to attract the greatest possible amount of private capital as it pursues public / private partnerships.

The ideal pricing policy is to give WisDOT the authority to establish prices for information and data in a manner that is most likely to maximize public benefits. Sometimes this means WisDOT needs the flexibility to establish pricing policy in a

---

[1] If a third party can buy the product or service at the price the seller is willing to sell and then sell it to a buyer who is willing to pay more, the third party will make a profit on the difference in seller's and buyer's price for each unit sold to the buyer. Sometimes arbitrage greatly increases the efficiency of markets and resource allocation. Other times firms can earn profits through arbitrage that do nothing but allow them to extract all the buyer is willing to pay.

manner that will maximize the likelihood that a public/private partnership is economically feasible and its private partner can earn a reasonable rate of return on its investment. Making publicly owned or generated data and information available for free or for the cost reproduction will often not lead to an economically viable public/private partnership.

5.0 CONSTRAINTS

Current statues, regulation and policy place limits on fees WisDOT can charge to for information and data generated with public funds and needed for ITS. These constraints are:

- Open records law requires that publicly generated information should be available to the public upon request.
- The existing statutes that say WisDOT and other agencies at most can recover the cost of locating, reproducing, mailing and shipping information and data.

6.0 CONCLUSION AND RECOMMENDATION

WisDOT needs new statutory language that gives the Department more flexibility to establish fees or prices that can be charged for publicly owned or publicly generated information and data when the sale of such information or data is expected to be a source of revenue in an ITS Public/Private Partnership. [2]

Given such statutory authority, WisDOT could establish administrative rules for making pricing decisions or it could make pricing decisions case-by-case.

If statutory changes are deemed not politically feasible, WisDOT may often need to subsidize its private partner or find other ways to give its partner some market advantage when the effect of the open records law is expected to have a depressing effect on revenues.

---

[2] Statutory language along the following lines may be appropriate: "WisDOT or its partner(s) in an ITS public/private partnership may charge fees for publicly owned information or data other than the 'actual, necessary and direct cost' of reproduction provided the projected public benefits (e.g. reductions in travel time, accidents, pollution) will be substantially greater than the benefits that result if charges are set in accord with open records law, the fees will not be excessive, and unreasonable rates of return on investment will not result."

FINAL

TASK 6 REPORT

OPTIONS FOR STATUTORY CHANGES TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS IN WISCONSIN

METHODS TO ENHANCE PUBLIC/PRIVATE PARTNERSHIPS FOR ITS

Prepared for:

Wisconsin Department of Transportation

Prepared by:

BOOZ·ALLEN & HAMILTON

With

Miller & Van Eaton, P.L.L.C
K.L. Engineering, Inc.

February 8, 2000

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This Report follows up on the Task 2 Report, "Legal and Procurement Barriers to Public-Private Partnerships in Wisconsin," prepared by Booz-Allen & Hamilton, Inc., and Miller & Van Eaton, P.L.L.C., for the Wisconsin Department of Transportation ("WisDOT"). The Task 2 Report examined Wisconsin law and identified five major types of legal restrictions on the formation of public-private partnerships to deploy intelligent transportation systems ("ITS"). The five types of restrictions are:

- Constitutional and common law restrictions on the use of public property.
- Constitutional restrictions on the expenditure of public funds.
- Statutory restrictions on the use of public property.
- Statutory limitations on or ambiguity in the authority of WisDOT to enter into certain types of arrangements.
- Statutory limitations on the disposition of project revenues and acceptance of in-kind compensation.

This Report discusses options for modifying the current statutory framework in Wisconsin to simplify and advance the implementation of ITS projects. This Report identifies four approaches and proposes statutory language for implementing each approach. The State could choose one of the four options, adopt a variation on one of the options, or possibly combine the options in some way.

The Report identifies possible advantages and disadvantages of each option and includes suggested statutory language for each. The four options are:

- *Detailed legislation addressing each of the limitations identified in the Task 2 Report.* The advantage of this approach is that it would give WisDOT some general authority and remove known obstacles. Its chief disadvantage is its complexity.

- *Detailed legislation creating specific authority for WisDOT to engage in ITS public-private partnerships.* The advantage of this option is that it gives express authority to engage in ITS projects. Because an expansive new grant of authority may raise questions about the need for specific ITS authority, this is also a drawback. In addition, if a particular project falls outside the scope of the legislation, new authority might be needed.

- *General legislation creating authority for WisDOT to engage in activities designed to promote economic development in the State.* By not referring to ITS, this option might not raise exactly the same concerns as Option 2, but giving WisDOT much more expansive authority related to economic development might cause legislators to question the need for the legislation.

- *General legislation creating authority for WisDOT to engage in innovative technology projects and business arrangements.* This option is modeled after an existing Minnesota

statute that has been used extensively to authorize ITS projects; this is an important advantage. The option avoids the problems of complexity and over-specificity of the first two models, and the over-breadth of the third.

Attachment A of this report indicates how each of the issues that were identified as potential barriers to the enhancement of public-private partnerships for ITS in Wisconsin in the Task 2 survey have been addressed.

Attachment B indicates whether the various business models proposed in the Task 4 Report can be implemented under current law or the four options for statutory changes.

I. INTRODUCTION

This Report follows up on the Task 2 Report, "Legal and Procurement Barriers to Public-Private Partnerships in Wisconsin," prepared by Booz-Allen & Hamilton, Inc., and Miller & Van Eaton, P.L.L.C., for the Wisconsin Department of Transportation ("WisDOT"). The Task 2 Report examined Wisconsin law and identified five major types of legal restrictions on the formation of public-private partnerships to deploy intelligent transportation systems ("ITS"). The five types of restrictions are:

- Constitutional and common law restrictions on the use of public property.
- Constitutional restrictions on the expenditure of public funds.
- Statutory restrictions on the use of public property.
- Statutory limitations on or ambiguity in the authority of WisDOT to enter into certain types of arrangements.
- Statutory limitations on the disposition of project revenues.

This Report will discuss options for modifying the current statutory framework in Wisconsin to simplify and advance the implementation of ITS projects. This Report will not address the limitations imposed by the Wisconsin Constitution because they represent fundamental policy decisions regarding the use of public property and public funds which apply to all state agencies. Seeking exemptions to those requirements solely for the benefit of WisDOT or ITS public-private partnerships would be neither desirable nor practical.

The statutory restrictions, on the other hand, are typically limited to the authority of WisDOT itself. Consequently, they can be modified or superseded without affecting other state agencies or the broad public policy of the State of Wisconsin. We will not discuss the nature and effects of the restrictions in this Report because they are addressed in the Task 2 Report. In addition, while preparing this report, we learned of a barrier that was not addressed in the Task 2 Report. The state's Legislative Audit Bureau has effectively forbidden WisDOT from accepting in-kind cooperation for the use of its right-of-way, on the theory that the goods or services have effectively been purchased, and therefore that the state legislature must first enact appropriations legislation.

II. OPTIONS FOR CHANGES

There are several ways in which Wisconsin law could be amended to make the establishment of public private partnerships for ITS simpler and more effective. This Report identifies four approaches and proposes statutory language for implementing each approach. The four options are presented as clear, stark alternatives for purposes of illustration. In reality, however, WisDOT has great flexibility in addressing the issues, and it is not limited to the four options. The State could choose one of the four options, adopt a variation on one of the options, or possibly combine the options in some way. Each approach has strengths and weaknesses and a combination of elements of each may be the best approach.

The four options are:

- Detailed legislation addressing each of the limitations identified in the Task 2 Report.
- Detailed legislation creating specific authority for WisDOT to engage in ITS public-private partnerships.
- General legislation creating authority for WisDOT to engage in activities designed to promote economic development in the State.
- General legislation creating authority for WisDOT to engage in innovative technology projects and business arrangements.

We will address each option in turn, identifying possible advantages and disadvantages of each.

A. Option One: Specific Amendments of Existing Statutes.

The first method of revising the existing statutory framework is to amend each individual code provision that has been identified as potentially inhibiting WisDOT's ability to enter into ITS partnerships. *See* Task 2 Report. The chief advantage to this option is that if each provision is revised appropriately there will be clear direction for both WisDOT and private investors regarding WisDOT's authority to engage in such public-private partnerships. This option also has the advantage of eliminating apparent ambiguities and inconsistencies in current law that may restrict deployment of ITS, and would retain the current structure of the Wisconsin Code as much as possible.

This option has a number of drawbacks, however. These generally derive from the piecemeal approach of revising a large number of individual code sections. First, it requires the most detailed drafting of the four options because it requires identifying each provision of the Wisconsin Code that might present an obstacle to ITS public-private partnerships, and determining how to modify each provision in a way that does not reduce WisDOT's current authority and responsibilities, while still promoting ITS. While we have done much of that work in the Task 2 Report and in the attached draft amendments, if our work has failed to identify an important statute, WisDOT might find that the legislation ultimately does not suit the intended purpose.

Second, to be effective such an approach will require that each change be passed by the Legislature and that each revision be enacted essentially in the form in which it was proposed. Ensuring that revisions made to each of these provisions during the legislative process are consistent and sufficient to serve the purposes and goals of the originally drafted revisions would require an immense amount of coordination. In addition, if every provision were not enacted in the form in which it was originally intended, WisDOT might ultimately find that it has the authority to do some things but not others, which would mean that although some forms of public-private partnerships would be feasible, others might not. While such an occurrence could still result in a more "public-private partnership friendly" statutory framework, it might still leave in place certain provisions which could substantially inhibit WisDOT's authority to enter into certain types of public-private partnerships or make such partnerships unattractive to private investors. For instance, if all of the revisions authorizing WisDOT to participate in public-private ITS projects are enacted except revisions which deal with the funding or disposition of the revenues generated, WisDOT would be free to engage in a public-private partnership but

powerless to reinvest the revenues from such projects, which could significantly affect a project's viability.

Finally, as the number and variety of revisions to the Wisconsin statutes increases, so does the possibility that projects that rely on the revisions may be challenged in court. So, too, does the possibility that the courts may interpret some of the changes in ways different from what was intended, or as having consequences not intended or anticipated by those revising the language in the context of ITS partnerships.

B. Option Two: Creation of Specific ITS Authority.

A second method of revising the existing statutory structure would be to adopt legislation containing a separate Code provision which expressly authorizes certain types of ITS public-private partnerships. The chief advantage of this option is that it would clearly establish the authority of WisDOT to enter into specified types of public-private partnerships for the deployment of ITS. Conversely, the chief drawback of this option is that in the course of specifying WisDOT's authority, the legislation would likely limit those types of public-private partnerships and projects in which WisDOT may engage to those expressly set forth in the new provision. As with any "laundry list" provision, it is impossible to include all potential types and forms of public-private partnerships that may be necessary for the deployment of public-private partnerships in the future. This problem would seem only to be exacerbated by the rapid growth and technological advances occurring in this area today.

Consequently, this method might require the revision of the particular provision each time a new type of public-private partnership or project was developed. In addition, taking into consideration the length of time such revisions may take, the need for such revisions before a project can be conducted may slow the implementation of new projects considerably.

Finally, detailed legislation creating express ITS authority would probably draw the attention of interest groups opposed to the promotion of ITS in ways that more general legislation would not.

C. Option Three: Creation of Broad Economic Development Authority.

The third option would be to adopt legislation giving WisDOT general authority to engage in activities and projects that would enhance the economic development of the state. The goal of this option is to avoid drawing scrutiny to ITS because, as noted in discussing Option 2, there are constituencies that might see giving WisDOT express authority to develop ITS as a threat to their interests. Of the four options, this approach would give WisDOT the most latitude in the types of projects in which it could engage.

This approach may not be practical because it is so broad. The state legislature is unlikely to give WisDOT authority over "economic development" that could be construed as extending beyond the transportation field. Furthermore, if it were adopted, by possibly giving WisDOT authority over areas in which it did not previously have authority, conflicts could arise between WisDOT and other state agencies. For example, the Department of Commerce already

has responsibility for economic development matters, under various statutes. *See, e.g.* Wis. Code §§ 560.08, 560.66. Even if WisDOT only exercised the new authority to promote ITS public-private partnerships, its actions might be subject to challenge if they infringed on an area in another state agency has been expressly delegated specific authority.

D. Option Four: Creation of Broad Authority To Engage in Innovative Transportation-Related Activities.

A fourth method of revising the existing statutory structure would be to adopt legislation that would give WisDOT broad authority to engage in innovative transportation-related arrangements, without specifically referring to ITS. This approach has many advantages and relatively few drawbacks.

For example, adopting a single provision that would authorize WisDOT to engage in various types of public-private partnerships would address the concern that state agencies have only those powers that are expressly granted to them or that are necessarily implied from the agency's statutory authority. Such a provision would alleviate the uncertainty on the part of both WisDOT and private investors regarding WisDOT's authority to engage in public-private partnerships for the deployment of ITS projects and make it unnecessary to find an implied grant of authority.

In addition, adopting general legislation would avoid both the problems associated with having to identify every change required in existing statutes raised by Option 1, and the problem of promoting a particular power or type of project raised by Option 2. Similarly, this option would avoid the drawbacks of Option 3. By granting broad authority that does not refer to ITS but is also limited to transportation projects, this approach may avoid drawing the attention of other interest groups, and does not expand WisDOT's authority into non-transportation areas.

The draft legislation we have proposed for Option 4 is modeled on legislation adopted by the State of Minnesota. The Minnesota legislation has been modified to account for a few differences in Wisconsin state law, the most important being that it grants authority to reinvest revenues generated by a project or to invest those revenues in other ITS projects. Using the Minnesota statute as a model offers several practical advantages. First, although it does not specifically refer to ITS, the Minnesota Department of Transportation has relied on the original legislation to develop numerous ITS projects. Therefore, if Wisconsin were to adopt similar legislation, explicitly based on the Minnesota version, WisDOT would be able to point to the application in Minnesota to support the position that the language encompasses ITS applications. Second, the Wisconsin legislature has often looked to the experience of Minnesota for models of other types of legislation, and legislation based on a statute that has been adopted and successfully applied in Minnesota would probably be viewed favorably by the Wisconsin legislature.

III. SUGGESTED STATUTORY LANGUAGE

We have prepared draft language for each of the four options. Except for Option 2, the language is presented in the form of amendments or additions to existing statutes; we have not attempted to draft actual legislation. New provisions or new language to be inserted in existing statutes is in bold italic print; deletions from existing statutes are stricken through.

A. Option One: Specific Amendments of Existing Statutes.

This option consists of amendments to those existing sections of the Wisconsin Code that were identified in the Task 2 Report as presenting potential obstacles to development of ITS projects. We also propose amending Section 84.01(30) (the existing build-operate-lease provision) to create some authority to engage in innovative arrangements, because simply removing obstacles may not be sufficient. In addition, amending many of the individual sections without reference to more general authority is almost impossible without knowing what types of projects WisDOT may pursue.

Wisconsin Code Section 84.01: Department powers and duties

> (30) Build-operate-lease or transfer agreements. The department may enter into build-operate-lease or transfer agreements with private entities for the construction of transportation projects, including any projects to be financed under s. 84.59 for transportation administrative facilities under s. 84.01 (28) and, for projects that are not purchased by the state upon their completion, for the maintenance and operation of such projects. ***The department may also enter into agreements with private entities or other governmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies and innovation in transportation. Such agreements may include provisions governing the sale or transfer of data or information from the department to private sector entities and the sale or transfer of such data or information to the public, provided that the sale or transfer of personally identifiable information relating to individuals shall not be permitted. Such agreements may also provide for the provision of in-kind compensation to the department, whether in the form of goods or services, as consideration for the right to use public property or data gathered at public expense. To the extent that an agreement may provide that an entity other than the department shall provide or purchase for the benefit of the project contemplated by the agreement, supplies, materials or other products usually subject to the requirements imposed by the Department of Administration in making purchases under chapter 16 of this Code, the provisions of Chapter 16 shall not apply The department shall develop appropriate procedures for entering into and administering such agreements.*** A project under this subsection may be constructed on state-owned land. An agreement under this subsection may not be entered into unless the department determines that the agreement advances the public interest, and the private entity has prior experience in design, construction, site development and environmental impact analysis and, for a project that is not expected to be purchased by the state upon its completion, has the capability of maintaining and

operating the facility upon completion of the project. The following provisions shall be contained in any build-operate-lease or transfer agreement under this subsection:

(a) A provision specifying that title is held by the private entity until title is transferred to the department pursuant to a lease with option to purchase at fair market value or purchase at fair market value of the constructed project upon its completion.

(b) If the agreement contains a lease that provides for payments to be made by the state from moneys that have not been appropriated at the time that the agreement is entered into, a provision containing the statement required under s. 16.75 (3).

(c) A provision specifying that the project shall be constructed in accordance with requirements and specifications approved by the department of administration or, if the project is not a transportation administrative facility, approved by the department of transportation.

(d) A provision permitting inspection by agents of the department of transportation until title transfers as provided under par. (a) or by agents of the department of administration during construction.

(e) If applicable, a provision specifying that any operation and maintenance under the agreement by the private entity shall be conducted in accordance with requirements and specifications approved by the department.

(f) A provision establishing a mechanism for the resolution of disputes.

(g) 1. In this paragraph, "park-and-ride facility" means a facility with a parking lot and, within reasonable walking distance, a station or transfer point where commuters access a mass transit system.

2. If the department determines that such a provision advances the public interest, a provision exempting the private entity from the restrictions under ss. 84.25(11) and 86.19(1), and specifying any requirements that the department determines will practicably advance the purposes of ss. 84.25(11) and 86.19(1). This subdivision applies only to park-and-ride facilities.

Wisconsin Code Section 25.40: Transportation fund.

*** * ***

(2) (a) Payments from the transportation fund shall be made only on the order of the secretary of transportation, from which order the secretary of administration shall draw a warrant in favor of the payee and charge the same to the transportation fund.

(b) The provisions of this subsection do not apply to appropriations authorized by s. 25.17 or to appropriations made by any of the following:

20s. Section 20.566 (1) (qm).
21. Section 20.566 (1) (u).
22. Section 20.566 (2) (q).
23. Section 20.855 (4) (q).
24. Section 20.855 (4) (s).
25. Section 20.855 (4) (t).
26. Section 20.855 (4) (u).

(c) The provisions of this subsection do not apply to funds or in-kind compensation received by the department pursuant to any agreement entered into pursuant to subsection 84.01(30). If such an agreement specifies that funds or in-kind compensation received by the department shall be dedicated for use in connection with any project established or operated pursuant to that agreement, such funds shall be deemed to have been clearly appropriated by the legislature and shall be deposited in a trust fund established by the department for the benefit of the project in question, in accordance with the terms of the applicable agreement. The receipt by the department of in-kind compensation pursuant to such an agreement shall not be deemed to require an appropriation of funds by the legislature.

Wisconsin Code Section 84.25: Controlled-access highways.

* * *

(11) Commercial enterprises. No commercial enterprise, except a vending facility which is licensed by the department of workforce development and operated by blind or visually impaired persons, or a commercial enterprise exempted from this subsection by an agreement under s. 84.01(30)~~(g)~~**,** shall be authorized or conducted within or on property acquired for or designated as a controlled-access highway.

Wisconsin Code Section 86.19: Highway signs, regulation, prohibition.

(1) Except as provided in sub. (1m) ***and sub. (1n)***, no sign shall be placed within the limits of any street or highway except such as are necessary for the guidance or warning of traffic or as provided by ss. 60.23 (17m) and 66.046. The authorities charged with the maintenance of streets or highways shall cause the removal therefrom and the disposal of all other signs.

(1n) Notwithstanding sub. (1), the department shall be permitted to place signs within the limits of any street or highway such as are necessary for the implementation and

conduct of projects described under s. 84.01(30), except that no sign may be placed in violation of federal law.

Wisconsin Code Section 84.07: Maintenance of state trunk highways.

(1) State expense; when done by county or municipality. The state trunk highway system shall be maintained by the state at state expense. The department shall prescribe by rule specifications for such maintenance and may contract with any county highway committee ~~or~~**,** municipality, ***or entity engaged in a project under s. 84.01(30),*** to have all or certain parts of the work of maintaining the state trunk highways within or beyond the limits of the county or municipality, including interstate bridges, performed by the county or municipality, ***or entity engaged in a project under s. 84.01(30),*** and any county or municipality may enter into such contract. General maintenance activities include the application of protective coatings, the removal and control of snow, the removal, treatment and sanding of ice, interim repair of highway surfaces and adjacent structures, and all other operations, activities and processes required on a continuing basis for the preservation of the highways on the state trunk system, and including the care and protection of trees and other roadside vegetation and suitable planting to prevent soil erosion or to beautify highways pursuant to s. 80.01 (3), and all measures deemed necessary to provide adequate traffic service. Special maintenance activities include the restoration, reinforcement, complete repair or other activities which the department deems are necessary on an individual basis for specified portions of the state trunk system.

Wisconsin Code Section 13.48: Long-range public building program.

*** * ***

(10) Approval by building commission.

(a) No state board, agency, officer, department, commission or body corporate may enter into a contract for the construction, reconstruction, remodeling of or addition to any building, structure, or facility, which involves a cost in excess of $100,000, without completion of final plans and arrangement for supervision of construction and prior approval by the building commission. The building commission may not approve a contract for the construction, reconstruction, renovation or remodeling of or an addition to a state building as defined in s. 44.51 (2) unless it determines that s. 44.57 has been complied with or does not apply. This section applies to the department of transportation only in respect to buildings, structures and facilities to be used for administrative or operating functions, including buildings, land and equipment to be used for the motor vehicle emission inspection and maintenance program under s. 110.20. ***This section does not apply to the department of transportation in respect to projects conducted pursuant to s. 84.01(30), even if such a project involves buildings, structures and facilities to be used for administrative or operating functions.***

* * *

(12) Privately owned or operated facilities.

(a) Except as provided in par. (b), no state board, agency, officer, department, commission or body corporate which has authority to permit a privately owned or operated facility to be constructed on state-owned land may permit a facility that would be privately owned or operated to be constructed on state-owned land without prior approval of the building commission.

(b) This subsection does not apply to any of the following:

* * *

3. A facility constructed pursuant to ~~a build operate lease or transfer~~ ***an*** agreement under s. 84.01 (30).

.

Wisconsin Code Section 84.06: Highway construction.

* * *

(2) Bids, contracts.

(a) All such highway improvements shall be executed by contract based on bids unless the department finds that another method as provided in sub. (3) or (4) would be more feasible and advantageous. Bids shall be advertised for in the manner determined by the department. Except as provided in s. 84.075 the contract shall be awarded to the lowest competent and responsible bidder as determined by the department. If the bid of the lowest competent bidder is determined by the department to be in excess of the estimated reasonable value of the work or not in the public interest, all bids may be rejected. The department shall, so far as reasonable, follow uniform methods of advertising for bids and may prescribe and require uniform forms of bids and contracts. Except as provided in par. (b), the secretary shall enter into the contract on behalf of the state. Every such contract is exempted from ss. 16.70 to 16.75 16.755 to 16.82, 16.87 and 16.89, but ss. 16.52816.752 and 16.754 apply to the contract. Any such contract involving an expenditure of $1,000 or more shall not be valid until approved by the governor. The secretary may require the attorney general to examine any contract and any bond submitted in connection with the contract and report on its sufficiency of form and execution. The bond required by s. 779.14 (1m) (b) for any such contract involving an expenditure of less than $1,000 is exempt from approval by the governor and shall be subject to approval by the secretary. This subsection also applies to contracts with private contractors based on bids for maintenance under s. 84.07**.** ***This subsection does not apply to contracts with private contractors for projects conducted pursuant to s. 84.01(30).***

Wisconsin Code Section 133.07: Certain organizations and activities not forbidden.

* * *

(3) This subsection does not prohibit the grant of exclusive contracts for activities conducted pursuant to s. 84.01(30) if the grant of an exclusive contract is limited in duration to a period not to exceed twenty years and the Department of Transportation determines that the grant of such a contract is in the public interest and necessary to accomplish the goals of s. 84.01(30).

Wisconsin Code Section 85.15: Property management.

* * *

(2) The department shall credit to the appropriation account under s. 20.395 (4) (ew) the amount, if any, by which moneys received in any year from the sale or lease of property acquired by the department exceeds $2,750,000. The department shall use 50% of any proceeds credited to this appropriation account from the sale or lease of any property to supplement the costs of management and operations of the district office of the department that initiated the sale or lease of that property. ***This section shall not apply to moneys received from projects conducted pursuant to s. 84.01(30).***

Wisconsin Code Section 24.40: Easements; annexation.

(1) Every board, commission, department and agency of the state having real estate belonging to the state under its control may grant easements in said property for public utility service through, over, along or to said property, including without limitation by enumeration the necessary poles, wires, structures, lines, conduits, pipes or pipe lines for heat, light, water, gas, sewer, power, ***provision of services provided pursuant to agreements under s. 84.01(30),*** telecommunications, telegraph and transmission of messages.

Wisconsin Code Section 19.35 Access to records; fees.

* * *

(g) Paragraphs (a) to (c), (e) and (f) do not apply to a record which has been or will be promptly published with copies offered for sale or distribution. ***Paragraphs (a) to (c), (e) and (f) do not apply to a record held or created pursuant to a project established under Section 84.01(30), unless the record consists entirely of information gathered or produced by a government department or political subdivision of the State of Wisconsin.***

B. Option Two: Creation of Specific ITS Authority.

This option is based on model legislation developed by the American Legislative Exchange Council ("ALEC"). ALEC's original draft was aimed primarily at toll roads and other construction projects, but this draft attempts to incorporate other kinds of projects. These provisions would not be amendments or additions to existing sections, but would probably be adopted as a new ITS section of the Code. It may be advisable to address some of the issues addressed in Option 1 by importing specific language from that option. In addition, this option attempts to define the term "intelligent transportation system" in a relatively traditional way. within WisDOT, however, the term ITS is often used more broadly, to include a broad range of innovative contracting and partnership arrangements, even if no ITS application is involved.

Section 1. Legislative Findings. The legislature hereby finds and declares:

(A) It is essential for the economic, social, and environmental well-being of the state and the maintenance of a high quality of life that people of the state have access to efficient infrastructure facilities and advanced transportation systems. Recent developments in technology have made deployment of intelligent transportation systems an important method of accomplishing this goal.

(B) The ability of the state and its localities to provide efficient infrastructure facilities and intelligent transportation systems will be enhanced by a public-private program enabling private entities to undertake all or a portion of the study, planning, design, development, financing, acquisition, installation, construction or improvement, operation, and maintenance of infrastructure facilities or intelligent transportation systems.

(C) A public-private partnership program will provide benefits to both the public and private sectors. Such a program will provide the Department of Transportation with increased access to property development and project opportunities, financial and development expertise, and will supplement state and local infrastructure funds, allowing the Department of Transportation to use its limited resources for other needed projects.

(D) The Department of Transportation should be permitted and encouraged to stimulate private investment in infrastructure facilities and intelligent transportation systems through the use of innovative agreements with the private sector. The Department of Transportation should be vested with the authority to solicit, evaluate, negotiate, and administer public-private agreements with the private sector relating to the planning, construction, upgrading, or reconstruction of infrastructure facilities and intelligent transportation systems.

(E) The Department of Transportation should be encouraged to take advantage of new opportunities provided by federal and state legislation as such opportunities become available to leverage available public funds as a means for attracting private sector capital.

Section 2. Definitions

(A) As used in this chapter, "infrastructure facilities" means capital-related improvements and additions to state or local transportation infrastructure, including but not limited to highways, roads, bridges, vehicles and equipment, marine-related facilities, vehicles, and equipment, park and ride lots, transit stations and equipment, airports or aviation facilities, infrastructure management systems, and other infrastructure-related investments.

(B) As used in this chapter, "intelligent transportation system" means the application of specialized information processing, communications and electronics technologies to address transportation problems in the areas of commercial vehicle operations, traffic management, emergency incident management, traveler information services, public transportation management, electronic payment, or vehicle safety systems through innovative financing arrangements and cooperative agreements between the Department of Transportation and private sector and other governmental entities.

(C) As used in this chapter, "project" means the implementation of an agreement entered into pursuant to this chapter that is related to infrastructure facilities or intelligent transportation systems.

Section 3. Project Selection

(A) The Department of Transportation may solicit proposals from, and negotiate and enter into agreements with, private entities and other public entities both within and without the State of Wisconsin to undertake as appropriate, together with the Department of Transportation and other public entities for research and experimentation, or for sharing facilities, equipment, staff, data, or other means of providing services, the study, planning, design, construction, operation, and maintenance of infrastructure facilities and intelligent transportation systems, using in whole or in part private sources of financing.

(B) Each proposal shall be weighed on its own merits, and each agreement shall be negotiated individually, and as a stand-alone project.

(C) Projects may be selected by the Department of Transportation and private entities at their discretion.

(D) All projects designed, constructed, conducted or operated under this authority must comply with all applicable rules and statutes, in existence at the time the agreement is executed accept as provided herein.

(E) The Department of Transportation may consult with legal, financial, and other experts within and outside government in the negotiation and development of the agreements.

(F) A project shall be exempt from the restrictions of ss. 84.25 (11), 86.19, 84.07, 13.48(12), and 84.06(2) if the Department of Transportation determines that such an exemption would advance the public interest. The Department may also specify any requirements that the Department determines will practicably advance the purposes of ss. 84.25(11) and 86.19.

Section 4. Terms of Agreement

(A) Agreements may provide for private ownership of a project or facilities related to a project during the construction period.

(B) After completion and final acceptance of each project or discrete segment thereof, the agreement may provide for public ownership of the infrastructure facilities and lease to the private entity unless the Department of Transportation elects to provide for ownership of the facility by the private entity during the term of the agreement.

(C) The Department of Transportation may lease a project, or applicable project segments, to private entities for operating purposes for up to fifty years per segment.

(D) The Department of Transportation may exercise any power possessed by it to facilitate the development, construction, financing operation, and maintenance of projects under this chapter.

(E) Agreements entered into under this section may provide for payment of compensation for services rendered by public entities or facilities or property made available by them for use in a project. Such compensation may be in cash or in kind, and may be in any amount or form that is lawful and agreed to by the parties.

(F) Agreements for police services under the agreement may be entered into with any qualified law enforcement agency, and shall provide for reimbursement for services rendered by that agency. Such reimbursement may be in cash or in kind.

(G) The Department of Transportation may provide services for which it is reimbursed, including but not limited to preliminary planning, environmental certification, and preliminary design.

(H) The plans and specifications for each project constructed under this section shall comply with the Department of Transportation's standards for public projects, as adjusted to accommodate innovative techniques.

(I) In the case of state transportation facilities, a facility constructed by and leased to a private entity is deemed to be a part of the state highway system for purposes of identification, maintenance, and enforcement of traffic laws and for the purposes of applicable sections of this title.

(J) Upon reversion of a facility to the Department of Transportation, the project must meet all applicable standards reasonably established by the Department of Transportation.

(K) Agreements shall address responsibility for reconstruction or renovations that are required in order for a facility to meet all applicable standards upon reversion of the facility to the Department of Transportation.

(L) For the purpose of facilitating projects and to assist private entities in the financing, development, construction, and operation of infrastructure facilities and intelligent transportation systems, agreements may include provisions for the Department of Transportation to exercise its authority, including:

(i) the lease of facilities, rights of way, and airspace, including airspace next to, above or below the right of way associated or to be associated with a private entity's project facilities,

(ii) exercise of the power of eminent domain,

(iii) authority to negotiate acquisition of rights of way in excess of appraised value, and

(iv) granting of development rights and opportunities,

(v) granting of necessary easements and rights of access to state owned property controlled by the Department of Transportation, issuance of permits and other authorizations, leasing existing rights of way or rights of way subsequently acquired with public or private financing,

(vi) protection from competition,

(vii) remedies in the event of default of either of the parties,

(viii) granting of contractual and real property rights,

(ix) liability during construction and the term of the lease, and

(x) other provisions deemed necessary by the Department of Transportation.

(M) Agreements under this section may include any contractual provision that is necessary to protect the project revenues required to repay the costs incurred to study, plan,

design, finance, acquire, build, install, operate, enforce laws, and maintain infrastructure facilities and intelligent transportation systems.

(N) Agreements under this section must include provisions requiring that liability insurance coverage be secured and maintained in amounts appropriate to protect the project's viability and may address Department of Transportation for design and construction liability where the Department of Transportation has approved relevant design and construction plans.

(O) Nothing in this chapter shall limit the right of the Department of Transportation to render such advice and to make such recommendations as it deems to be in the best interests of the state and the public.

Section 5. Financial Arrangements

(A) The Department of Transportation may enter into agreements using federal and public entity financing in connection with projects, including without limitation, grants, loans, and other measures authorized by federal and state law, and to do such things as necessary and desirable to maximize the funding and financing, including the formation of a revolving loan fund to implement this section.

(B) Collections of the Department of Transportation under this provision may be reinvested in a project, in which case they shall be exempt from the requirements of ss 25.40 and 85.15.

(C) Agreements entered into under this section may authorize a private entity to lease project facilities from the Department of Transportation and to impose user fees, tolls or other reasonable charges to allow a reasonable rate of return on investment, as established through a negotiated agreement between the Department of Transportation and the private entity.

(D) Agreements may require that, over the term of the agreement, user fees, toll revenues, or other reasonable charges may be applied to payment of the private entity's capital outlay costs for the project, including interest expense, the costs associated with operations, collection of user fees, toll revenues, and other charges, maintenance and administration of the facility, reimbursement to Department of Transportation for the costs of project review and oversight, technical and law enforcement services, establishment of a fund to assure the adequacy of maintenance expenditures, and a reasonable return on investment to the private entity.

(E) Agreements may provide for sharing of revenues or profits between private sector entities, the Department of Transportation, and any other public sector participants.

(F) The use of any excess revenues or fees may be negotiated between the parties.

Section 6. Public Records.

Any information collected pursuant to a project established under this Act, that may constitute a public record as defined in Section 19.32 (2), is hereby exempt from the provisions of Section 19.35.

Section 7. Sunset Provision.

The authority granted by these Sections 1 through 5 shall expire three years after the effective date of this section.

C. Option Three: Creation of Broad Economic Development Authority.

This model gives WisDOT broad new economic development authority. The proposed language would probably appear as a new subsection at the end of Wisconsin Code Section 84.01.

84.01(31) Economic development.

a. To promote and encourage economic and technological development in the State of Wisconsin, the Department may enter into agreements or establish cooperative programs with governmental or non-governmental entities for research and experimentation, or for sharing facilities, equipment, staff, data, or other means of providing services; and may take other steps that promote efficiencies in providing governmental services or that further development of innovation in technology and economic growth for the benefit of the citizens of Wisconsin.

b. The authority granted by this Subsection 84.01(31) shall expire three years after the effective date of this Subsection.

c. The department shall promulgate rules to implement and administer this subsection.

D. Option Four: Creation of Broad Authority To Engage in Innovative Transportation-Related Activities.

As noted above, this option is based closely on Minn. Stat. § 174.02. The proposed language would probably appear as a new section at the end of Section 84.01. It may also be possible to incorporate these provisions as an amendment of Section 84.01(30).

> ***84.01(31) Innovative agreements, receipts, appropriation. To facilitate the implementation of intergovernmental efficiencies, effectiveness, and cooperation, and to promote and encourage economic and technological development in transportation matters within and between governmental and non-governmental entities and notwithstanding any other provision of law:***
>
> > ***(a) The Department may enter into agreements with other governmental or non-governmental entities for research and experimentation; for sharing facilities, equipment, staff, data, or other means of providing transportation-related services; or for other cooperative programs that promote efficiencies in providing governmental services or that further development of innovation in transportation for the benefit of the citizens of Wisconsin.***
> >
> > ***(b) The department shall promulgate rules to implement and administer this subsection.***
> >
> > ***(c) In addition to funds otherwise appropriated by the legislature, the Department may accept and spend funds and in-kind compensation received under any agreement authorized in paragraph (a) for the purposes set forth in that paragraph, subject to a report of receipts to the Department of Revenue at the end of each biennium and, if receipts from the agreements exceed $200,000 or equivalent value in each biennium, the Department shall also notify the governor and appropriate committees in the senate and the assembly.***
> >
> > ***(d) Funds received under this subdivision must be deposited in the transportation fund established by s. 25.40, provided, however, that an agreement entered into under the authority of paragraph (a) may provide that funds received pursuant to that agreement shall be dedicated for use in connection with any project established pursuant to that agreement, in which case such funds shall be deemed to have been duly appropriated by the legislature and the provisions of s. 25.40(2) shall not apply.***
> >
> > ***(e) The receipt by the Department of in-kind compensation under this subdivision shall not be deemed to require an appropriation of funds by the legislature.***
> >
> > ***(f) The authority granted by this Subsection 84.01(31) shall expire three years after the effective date of this Subsection.***

ATTACHMENT A

ISSUE SURVEY MATRIX

(TASK 6 REPORT:OPTIONS FOR STATUTORY CHANGES TO ENHANCE PUBLIC-PRIVATE PARTNERSHIPS FOR ITS IN WISCONSIN)

Issue/Barrier	Option[1]			
	1	2	3[2]	4[3]
Ability to clearly establish rationale for a public/private partnership, namely the public purpose.	H	P[4]	P[4]	P[4]
Ability to attract private capital to augment public sector resources and the opportunity for the private sector to earn a profit.	P	P	P	P
Ability to enter a broad range of public/private partnerships for sharing risks, costs, and rewards	P	P	P	P
Ability to enter into various types of multi-jurisdictional cooperation (joint powers, public/public partnerships, pooled-funded projects, lead contracting agency representing multiple jurisdictions, preemption of home rule.)	P[5]	P[5]	P[5]	P[5]
Ability to form special districts (similar to redevelopment agencies, housing finance authorities, transportation corridor agencies, and other special purpose authorities) which would have authority to issue tax-exempt bonds to assist in ITS financing.	H[6]	H[6]	H[6]	H[6]
Ability to delegate to implementing agencies (whether a state or local agency, or special purpose district) to negotiate or enter into agreements with private entities containing financial incentive arrangements.	H[7]	H[7]	H[7]	H[7]
Ability to enter into experimental public/private relationships.	P	P	P	P

[1] Options Three and Four are broad grants of authority, unlike the first two options which are more limited but expressly confer certain abilities on the DOT. Because Options Three and Four may not expressly allow the DOT the ability to address the issues listed, if a particular issue is of great enough concern the DOT may wish to add the more detailed provision from one of the first two options that will address this issue.

[2] In general, Option Three is a broad grant of authority to the DOT. While there may be no express provision which deals with each of the issues listed, the broad grant of authority should give the DOT the same ability as the other more detailed options, however, as in all the options presented, such factors as the project itself and the state's common law may impact the DOT's ability in a particular circumstance.

[3] Option Four, like Option Three, is a broad grant of authority to the DOT. While there may be no express provision which deals with each of the issues listed the broad grant of authority should give the DOT the same ability as the other more detailed options. As in all the options presented, however, such factors as the project itself and the state's common law may impact the DOT's ability in a particular circumstance.

[4] Each of these options expressly indicates that there is a "public purpose" for the project. However, the question of whether there is a public purpose will depend upon the project, and is subject to judicial review. The requirement that there be a public purpose is a constitutional requirement.

[5] The proposed language does not permit the DOT to force local authorities to comply with DOT projects, i.e. the proposed language does not permit the DOT to preempt local authority over local rights-of-way for ITS projects. Such a provision would raise many complex statutory, political and constitutional issues related to local home rule powers.

[6] Municipalities currently have the authority to form special districts. In addition, the Building Commission has the authority to issue bonds for ITS financing. Also, Section 20.866 (Public debt) of the Wisconsin Code provides that "There are irrevocably appropriated to the bond security and redemption fund and to the capital improvement fund, as a first charge upon all revenues of this state, sums sufficient for payment of principal, interest and premium due, if any, on public debt contracted under subchs. I and IV of ch. 18."

[7] The proposed language does generally give the DOT the authority to promulgate implementing rules, but it does not expressly permit the DOT to delegate the negotiation of ITS contracts to other agencies or organizations.

KEY: E=Existing statutory authority says WisDOT can do it; **P**=Proposed statutory authority says WisDOT can do it; **N**=No-cannot do it because of statutory or constitutional provision --please indicate if there is a constitutional problem; **H**=Hole, not addressed so far.

Issue/Barrier	Option[1]			
	1	2	3[2]	4[3]
Ability of government agency to maintain sufficient control over the use of publicly owned assets (e.g. highways, traffic signal systems) when such assets are involved in public/private partnership.	E	E	E	E
Ability to contract out or privatize responsibility for various phases of deployment over the ITS lifecycle (planning, design, build, operate, maintain, disposal)	P	P	P	P
Ability to sell, lease or transfer ownership of publicly owned ITS components for suitable compensation (e.g. Traffic Operations Center, traffic detection and surveillance equipment.)	E	E	E	E
Ability to use a broad range of procurement procedures conducive to public/private partnerships (e.g. Performance Based Contracting, Request for Partnership Proposals, Open Solicitation (e.g. Call for Projects), Fixed Price, Cost Plus Fixed Fee, Design-Bid-Build, Design-Build-Operate-Maintain).	P	P	P	P
Ability to request analysis of business feasibility, including market research, business plan, and evaluation by financial institutions such as a bond rating agency.	E	E	E	E
Ability of public agency to offer a subsidy or to pay for complimentary services provided by the private sector for a limited time period for the duration of the agreement when the public/private partnership is not expected to earn a profit.	P	P	P	P
Ability to receive competitive bids based on creative ideas and overall net value versus low bid contracting.	P	P	P	P
Ability to phase public/private partnership procurements in a variety of ways (Notification of Interest, Request for Qualifications, Request for Preliminary Business Plan, Request for Partnership Proposals, Design Phase, Build in Phases, Operation and Maintenance Phase, other phasing.)	P	P	P	P
Ability to receive and/or commingle funds from public and private organizations and use for ITS.	H	H	P[8]	P
Ability to share revenues and to use a variety of revenue sharing formulas (e.g. percentage of gross revenues or share revenues to the point of public and/or private sector cost recovery).	E/P	E/P	E/P	E/P
Ability to reinvest revenues received by public/private partnerships in ITS.	P	P	P	P
Ability to share risks (financial, technical, liability).	E[9]	E[9]	E[9]	E[9]
Ability to share costs (funds, in-kind contributions).	P	P	P	P

[8] The proposed language, which grants broad authority to the DOT, may permit the DOT the ability to do so, however, it is possible that a court may interpret the proposed language in a narrower manner which would not permit the DOT to do so.
[9] The sharing of liability will once again depend upon the DOT's ability to use a sovereign immunity defense.

KEY: E=Existing statutory authority says WisDOT can do it; **P**=Proposed statutory authority says WisDOT can do it; **N**=No-cannot do it because of statutory or constitutional provision --please indicate if there is a constitutional problem; **H**=Hole, not addressed so far.

Issue/Barrier	Option[1]			
	1	2	3[2]	4[3]
Ability to match and use federal aid.	E/P[10]	E/P[10]	E/P[10]	E/P[10]
Ability to take advantage of various federal programs of Innovative Finance.	E[11]	E[11]	E[11]	E[11]
Ability to establish a revolving fund, state infrastructure bank, local infrastructure bank, escrow accounts, and other financial repositories that permit leveraging and effective management of funds.	H	H	P[12]	P[12]
Ability to grant to the private sector access to or use of public property (rights-of-way, communication towers, other facilities, equipment, hardware).	E[13]	E[13]	E[14]	E[14]
Ability to sell publicly generated information or data according to a variety of fee policies (e.g. cost recovery, marginal cost pricing, average cost pricing, basic service vs. value added pricing, flat fees, volume rates.)	E/P[15]	E/P	E/P	E/P
Ability to grant various degrees of exclusivity (i.e. competition) to increase the economic feasibility and profitability of public/private partnerships.	P[16]	P	H[17]	H[17]
Ability to control or regulate rate of return, return on investment, market entry, and market exit of public/private partnerships granted monopoly or partial monopoly privileges.	P[17]	P[18]	P[17]	P[17]
Ability to delegate to other state or local agencies, especially a Public Service Commission or Public Utility Commission, responsibility for regulation of a monopoly or partially exclusive business enterprises.	H[19]	H	H	H
Ability to safeguard the public interest including public health and welfare.	E	E	E	E
Ability to impose public interest obligations in return for economically valuable rights or concessions granted to private firms participating in a public/private partnership.	E	E	E	E
Ability to balance market viability of public/private partnerships versus issues of equity, universal access, and social justice.	E	E	E	E

[10] To the extent that federal law permits federal aid to be used for such projects.
[11] To the extent that federal law permits the public-private partnership to do so.
[12] The proposed language, which grants broad authority to the DOT, may permit the DOT the ability to do so, however, it is possible that a court may interpret the proposed language in a narrower manner which would not permit the DOT to do so.
[13] Proposed language will deal with the few exceptions to this particular issue, i.e. access to controlled access highways and sign placement.
[14] This option does not deal with the exceptions such as access to controlled access highways and sign placement.
[15] The question of whether the DOT may restrict access to the information to only the private partner in such a project is a different question which is to some extent covered in the proposed public record exemption language.
[16] Although the revised language of this provision permits the grant of exclusive contracts for ITS projects, the project will most likely remain subject to state antitrust and unfair trade regulation. Whether such an exclusive arrangement reaches the level of a monopoly or restraint of trade will depend upon the project itself.
[17] These provisions do not expressly permit exclusive contracts. Whether such authority would be implied is unclear, and would depend on the court's interpretation of the intended breadth of authority granted under these two options.
[18] The proposed language gives the Department the ability to "control or regulate" to the extent that it may negotiate such things with the private party.
[19] Such agencies will either have such authority or will not under state law. DOT has no inherent power to make such a delegation, only the Legislature can do that.

KEY: E=Existing statutory authority says WisDOT can do it; **P**=Proposed statutory authority says WisDOT can do it; **N**=No-cannot do it because of statutory or constitutional provision --please indicate if there is a constitutional problem; **H**=Hole, not addressed so far.

Issue/Barrier	Option[1]			
	1	2	3[2]	4[3]
Ability to safeguard intellectual property rights (copyrights, patents, trademarks).	E[20]	E[19]	E[19]	E[19]
Ability of government to safeguard proprietary information received from private firms (especially from Freedom of Information (FOI) requests).	P	P	P[21]	P
Ability to allow private sector participants of public/private partnerships to establish separate cost centers, separate business units or other organizational structures to facilitate any audit requirements and safeguard proprietary information.	P	P	P	P
Ability to limit the liability of the state and the private sector participating in public/private partnerships while safeguarding the public's health and welfare.	E[22]	E[21]	E[21]	E[21]
Ability to protect privacy.	E[23]	E	E	E
Ability to adequately safeguard against antitrust violations while effectively fostering public/private partnerships.	P[24]	P[22]	H	H

[20] We are not aware of any statute or regulation that would restrict the DOT's ability to address intellectual property issues as it sees fit with respect to a particular project.
[21] The proposed language, which grants broad authority to the DOT, may permit the DOT the ability to do so. It is possible, however, that a court may interpret the proposed language in a narrower manner which would not permit the DOT to do so. Unlike the proposed language of Options One and Two, Options Three and Four do not expressly exempt information collected from these projects from the public access requirements of Section 19.35.
[22] Under existing case law, which construes a Constitutional provision, the DOT may in many circumstances be able to avail itself of the sovereign immunity defense, however it may do so only if the public-private partnership created for that purpose does not constitute "an agency with independent proprietary powers or functions." It will not be possible to extend the state's sovereign immunity to any private sector partners.
[23] This objective may be met through explicit agreements with the private sector partner, or through regulations governing a particular type of project, or both.
[24] The proposed language exempts ITS projects from the provisions of the Wisconsin code prohibiting exclusive contracts but the project may remain subject to state antitrust and unfair trade regulation. Whether such an exclusive arrangement reaches the level of a monopoly or restraint of trade will depend upon the project itself.

KEY: E=Existing statutory authority says WisDOT can do it; **P**=Proposed statutory authority says WisDOT can do it; **N**=No-cannot do it because of statutory or constitutional provision --please indicate if there is a constitutional problem; **H**=Hole, not addressed so far.

ATTACHMENT B

FEASIBILITY OF SELECTED BUSINESS MODELS

Model	Comments
Open Solicitation Process	Current law permits, at least for some procurements. All four proposed options permit, with varying degrees of specificity.
Open Solicitation Process for all Transportation Entities	No prohibition. Would probably require putting cooperative agreements in place.
Wisconsin ITS Test Beds	Current law permits.
Shared Resource Project -- Exchange Access to ROW for Bandwidth	Current law does not clearly permit in-kind compensation. Options 1 and 2 expressly permit; Options 3 and 4 implicitly.
Shared Resource -- Access to Towers for Bandwidth	Same as previous.
Shared Resource – Access to Towers or Land for Traffic Monitoring Services	Same as previous.
Statewide Traffic Surveillance System	Depends on precise nature of arrangement; could be contracted for using current procedures. Public records law might raise issues.
Integrated RWIS and Traveler Information System	Same as previous.
Statewide Traffic Monitoring System Using Autolocation Technology Probes	Same as previous.

Publicly-Funded Traffic Surveillance System, Privatized Traveler Information System	Public records law might raise issues, but principal issues have to do with exclusive access to data (if any) and revenues from sale of data (if any). Current authority uncertain, but all options address in some fashion.
Public/Private Highway Corridor FM Broadcast Radio Station	Depends an actual structure. No apparent prohibition in current law.
Integrated Statewide Traveler and Tourist Information	Again, depends on actual structure. All options would permit.
Electronic Clearance of Commercial Vehicles	Current law permits; could be standard procurement.
Streamline CVO Permitting Oversize/ Overweight Loads	Same as previous.
One-Stop CVO Credentialing	Same as previous.
International Trade Data System	Same as previous.
Digital Certificates for Personal ID	New authority probably required if providing nontransportation service.
Air Pollution Credits Based on Tele-Commuting Certificates	New authority may be required.

Integrate Traveler Information Systems With Job Placement Information	Probably permitted under current law; again, depends on exact structure.
Optimal Transit and Paratransit Vehicle Utilization	No apparent barriers, other than limitations imposed by different transportation program funding sources.
Fixed, In-Place Anti-Icing Systems	Could be done under existing procurement laws; depends on exact structure.
Mayday Services	Same as previous.
Congestion Pricing	May not be permitted under current law. Options do not expressly address, but arguably permit.
Traveler Information Systems with Accident Rates and Insurance Premium Reductions	Again, depends on exact structure. Public records law issues.