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

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16. Abstract

These guidelines recommended an institutional approach to enhancing public/private partnerships for Intelligent Transportation Systems in Wisconsin. The institutional approach consists of a set of principles, an institutional architecture, and options for expanding statutory authority.

Nineteen guiding principles were developed that address the following: senior management leadership and commitment, development of an institutional architecture, development of a program plan, community outreach and buy-in, financial and business planning, proven and novel business models, professional capacity building, procurement and contracting, condition for public participation, conditions for private participation, risk reduction, strengthening economic viability, public-public partnerships, value chain analysis and market research, accessibility and fees for publicly owned data, using principles of competition, privacy and proprietary information, tort liability, and boundaries between public and private sector responsibility.

The recommended institutional framework consists of a set of building blocks. These building blocks are statutes, regulations, policies, procurement and contracting procedures, coordination among WisDOT headquarters units, coordination between WisDOT headquarters and Districts, public/private intermediaries, financial organizations, coordinating mechanism for state agencies, mechanisms for state-federal coordination, a public-public partnership of state agencies that can enter into public/private partnerships, similar public-public partnerships for local governments, regional agencies, and corridor entities, as well as mechanisms for coordination between Wisconsin and the international community.

The guidelines set out four options for establishing statutory authority for ITS public/private partnerships.

Finally the guidelines provide lessons learned regarding public/private partnerships organized by various topics.

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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.

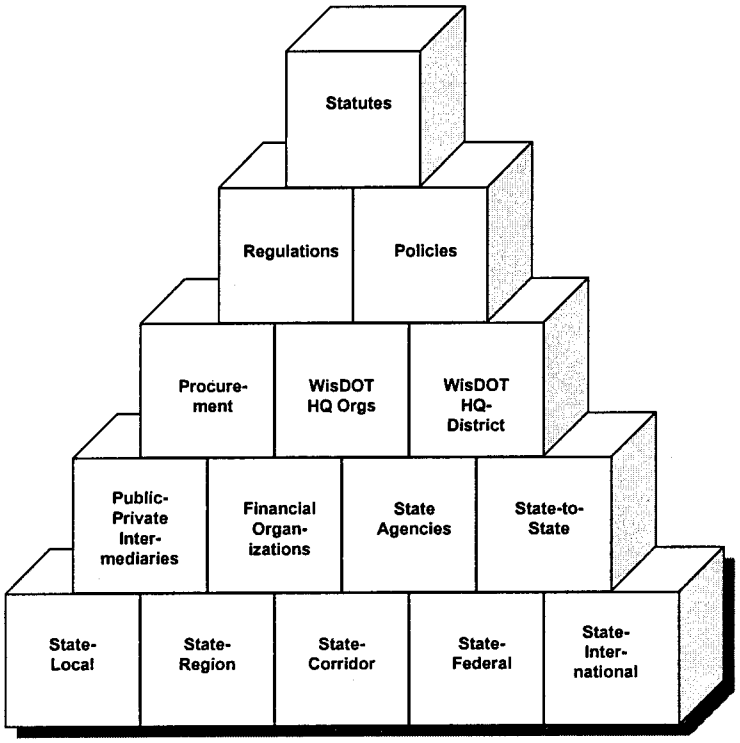

FIGURE E-1: BUILDING BLOCKS OF WISCONSIN INSTITUTIONAL ARCHITECTURE

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
- Venture capital
- Cooperative research and development agreements.

[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.

#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.

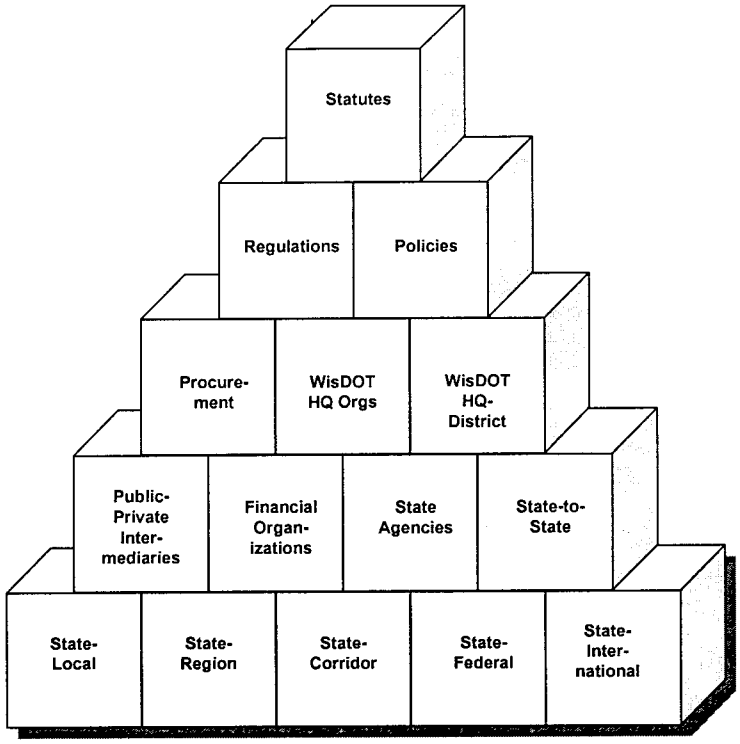

FIGURE 1. BUILDING BLOCKS OF WISCONSIN INSTITUTIONAL ARCHITECTURE

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.

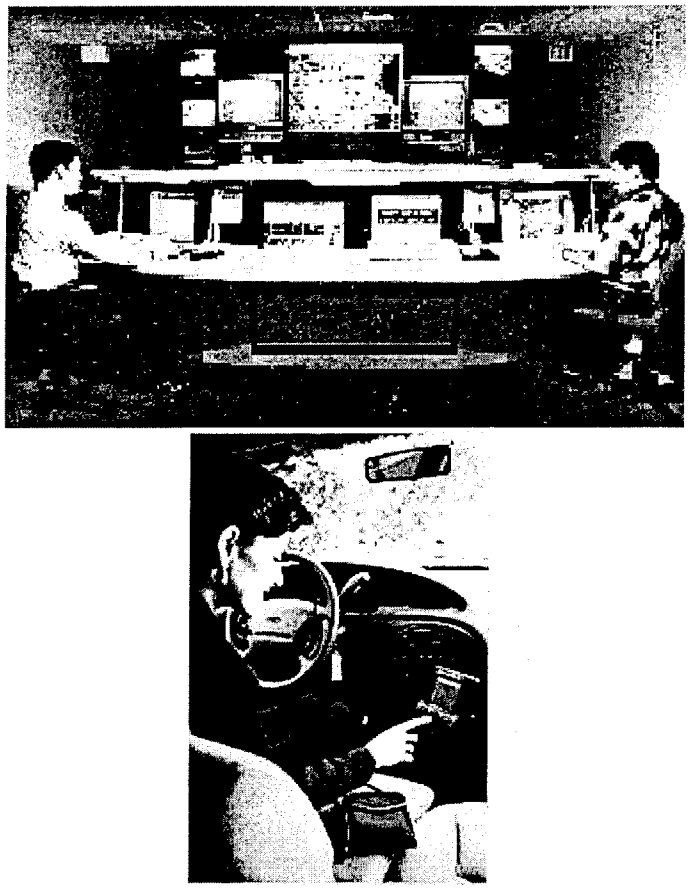

Figure 2. Real time In-vehicle navigation is a potential outcome of an ITS public/private partnership with extensive state and local coverage.

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:

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.