

New York State Department of Transportation

Intelligent Transportation System (ITS) Study for the Buffalo and Niagara Falls Metropolitan Area Erie and Niagara Counties, New York

**Identification of Institutional Issues
Working Paper # 2
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1.0 INTRODUCTION

Intelligent Transportation Systems (ITS) utilize advanced technology components on a local as well as a regional basis. On a regional basis, as is the case in this study, funding, knowledge and operations resources are often pooled from many sources. Within this framework, this paper surveys the institutional issues that may arise in the implementation of ITS in the Buffalo/Niagara Falls region.

1.1 Background

The regional transportation infrastructure (e.g., highways, transit systems, surface streets and bridges) is in essence mature, with the result that demands for movement of people and goods must be met by means other than solely new road and bridge construction. Increasingly, ITS has been used to improve the movement of people and goods. ITS increases the efficiency of the existing infrastructure by coordinating individual systems and roadway facilities into a regional network.

Efficient transportation across the region is critical to the economic development on both sides of the international border. On the United States side, the major governmental entities are Erie County and Niagara County, along with the cities of Buffalo, Niagara Falls and the towns of Amherst, Cheektowaga and Tonawanda. The two-county area has a population of almost 1.3 million people.

Major governmental bodies on the Canadian side (commonly called the Golden Horseshoe) include the Regional Municipalities of Niagara, Hamilton-Wentworth, and Halton, as well as the County of Brant. Major cities include Niagara Falls, St. Catharines and Hamilton. The population of the Golden Horseshoe is about 3.5 million people. Economic activity on both sides of the border is based on:

- automobile production
- natural resources
- tourism
- manufacturing
- international trade
- agricultural diversity
- commercial banking.

Several economic initiatives are underway in the region. In New York, the NYSDOT is studying improvements to the major north-south trade corridor, from the Peace Bridge to the Pennsylvania Line. This major U.S. / Canada economic corridor is designated part of the National Highway System (NHS), as a high priority segment. Two specific studies in the corridor are the Southtowns Connector and U.S. Route 219 Projects. In addition, the Peace Bridge is planning a \$70 million plus bridge expansion (from three lanes to six) to accommodate continually growing traffic.



Local development includes the recently opened Marine Midland Arena and entertainment complex, and the Roswell Park Cancer Research Institute is completing a \$220 million major expansion. In Niagara Falls, Ontario, a large casino is set to begin initial operations in December, 1996.

While these activities place demands on the regional transportation system as a whole, there are specific roles, needs and interests characteristic of each of the four major border crossings. For example, the Niagara Falls Bridge Commission serves primarily intra-regional shopping/recreational demand plus some commuter traffic across the Rainbow, Whirlpool and Lewiston-Queenston bridges, whereas the Buffalo & Fort Erie Public Bridge Authority (PBA) tends to serve longer-distance recreational or commercial users and commuters on the Peace Bridge. Accordingly, U.S. and Canadian customs are developing a new Commercial Office Facility and inspection center at the Peace Bridge crossing.

As will be noted in the following sections, there are a large number of public and private agencies that could potentially be involved with a regional ITS. These agencies include the New York State Department of Transportation, the New York State Thruway Authority, the Niagara Frontier Transportation Authority, customs and immigration services in both countries and the Ministry of Transportation of Ontario. Further details on these agencies can be found in Working Paper #1, *Transportation Systems and Deficiencies*. From a broad perspective, it is recognized that each agency will want to protect its specific interests while contributing to the development of the overall regional transportation system.

The following sections address the institutional issues which are expected to arise during any regional ITS implementation. Many of these issues are common throughout the country, but some are also unique to the Buffalo/Niagara frontier.

1.2 Scope

Section 2 of this paper addresses possible institutional issues that may arise to varying degrees in the planning, design, operation and maintenance of ITS in the region, and then identifies the various public agencies that may be involved. Sections 3, 4 and 5 address autonomy, privacy and legal issues that may arise when dealing with regional ITS implementation. Additional issues discussed in Sections 6, 7 and 8 include “corporate” cultures, representation of critical stakeholders, and private sector motivation respectively. Section 9, completed at the end of the ITS Study, summarizes developments with respect to these issues that occurred during the course of this project. Finally, Section 10 summarizes the working paper.

It may be noted that many of the issues in Sections 3 through 8 overlap and are closely interrelated. For example, privacy concerns also involve legal issues, and the idea of “corporate” cultures is closely linked to private sector concern with risk and profit potential. Thus it is important that the major institutional issues be considered simultaneously.



2.0 TRANSPORTATION AGENCY ISSUES AND PARTICIPANTS

2.1 Planning and Design

Given the complexity of the region's existing transportation facilities and services, there are significant institutional and technical issues that must be recognized during the implementation of ITS. These issues reflect the increasing dependence on intraregional coordination for transportation improvement financing and the management of land use, congestion and air quality. Similarly, transportation modes and demand management strategies must be coordinated throughout the region and across borders.

The planning and design of a regionwide ITS should ensure systemwide compatibility. There are several ITS projects already operational within the Buffalo/Niagara Falls area, some of which are listed in Table 2-1. As Table 2-1 shows, more than one agency has implemented the same type of ITS. For example, both the New York State Thruway Authority (NYSTA) and the Buffalo & Fort Erie Public Bridge Authority have implemented variable message signs (VMS). Making these signs compatible requires these two agencies to agree on a mutually acceptable implementation and display policy and format. Future sign installations in the area thus need to consider the existing systems and any established policy and formats, or the agencies need to establish new policies and formats that are uniform.

In planning systems, it is helpful to build in extra capacity, particularly in the area of communications facilities, since future ITS application may use the extra capacity. Similar to reserved right-of-way, it is often much simpler and cheaper to provide excess infrastructure initially. In the short term, excess capacity may be leased to private interests and generate revenue, and the revenue may be used to develop more ITS projects. It is important to establish the mechanisms to allow excess capacity to be built in, as well as the mechanism to collect revenue from private entities.

Currently a portion of I-90, from NY 33 to US 219, is being slated for lane additions and reconstruction in the near future. The strategic plan for I-90 has slated a mid term project (1999+) that will require the installation of sub-grade conduit. Therefore, it would be advantageous if this conduit could be installed during the lane and reconstruction project and eliminate the need to excavate when the conduit project is implemented.

Project coordination among all ITS implementers regionwide is necessary to eliminate incompatible or redundant systems. ITS standards should be utilized wherever possible and where standards have not been developed, recognition of national trends and important issues should be incorporated. The ongoing National ITS Architecture Development Program, under the direction of the Federal Highway Administration (FHWA), should be a key input in this area.

Additionally, the National Transportation Communications for ITS Protocol (NTCIP) is an evolving initiative at the national level. Though initial activity is focused in the traffic signal control area, standards for other ITS elements such as variable message signs are anticipated in the near future.



The goal is to provide shared information and interoperability. The NTCIP thus defines interface and communication standards, as well as software and application standards for system elements. Internal communications standards will ensure that systems are able to “talk” to one another. External communications standards will ensure that the traveler is presented with a uniform message and can utilize a standard piece of equipment to receive the information (e.g., an in-vehicle display).

**TABLE 2-1
SAMPLE OF EXISTING ITS INSTALLATIONS**

INSTALLATIONS	OWNER	(Quantity) LOCATION
Variable Message Signs (VMS)	New York State Thruway Authority (NYSTA)	(1) I-190 across from Dunlop Bldg. (1) I-90 Buffalo Toll Barrier (1) Williamsville Toll Barrier (1) Lackawanna Toll Barrier
	Buffalo & Fort Erie Public Bridge Authority (PBA)	(1) Ramp N (U.S.) (1) I-190 (U.S.) (1) On bridge
Closed Circuit Television (CCTV)	Buffalo & Fort Erie Public Bridge Authority (PBA)	(1) Ramp B (U.S.) (1) Porter Ave. (U.S.) (3) Plaza (U.S.) (2) On bridge (4) Plaza & Truck Yard (Can.)
Automatic Toll Collection	Buffalo & Fort Erie Public Bridge Authority (PBA)	(1) Toll booth (U.S.)
	New York State Thruway Authority (NYSTA) (EZ-PASS)	(2) I-190 Grand Island Bridge (1) I-190 Buffalo Toll Barrier (1) I-190 Black Rock Barrier (1) Lackawanna Toll Barrier (2) Williamsville Toll Barrier
Highway Advisory Radio	New York State Thruway Authority (NYSTA)	1017 AM band

Note: See Working Paper #1, “Transportation Systems and Deficiencies,” for mapping of all existing ITS installations.

2.2 Operations And Maintenance

Interagency considerations for the operation and maintenance of common ITS include staffing, component compatibility, incident management response and system credibility. For staffing, operational responsibilities may need to be shared across agencies to spread costs. Cooperating



agencies often require remote access to system controls. Component compatibility is addressed by the use of standards, as discussed in Section 2.1. Likewise, common responses for incident management will need to be developed. Incident management procedures must be planned and agreements worked out for many, if not all, possible incident locations and scenarios. Preplanned responses to incidents or special events are desirable. It is also necessary to work out agreements regarding traffic rerouting, such as how freeway traffic is rerouted onto local roadways, and vice versa.

Sources of information to the public or media can often be conflicting. To be credible, it is important to provide a single information source. This may necessitate a “clearing house” that is responsible for sorting and merging travel data.

Each of these items in turn can create institutional issues between agencies since each has followed their own direction in the past. In the future they must develop a common direction with the other agencies. For instance, in the VMS example given in Section 2.1, it would be desirable for owners of VMS signs to allow regional control of the VMS as a part of an incident response plan when a systemwide incident management program becomes operational. Operational control between multiple agencies therefore will need to be addressed.

2.3 Organization/Budgets

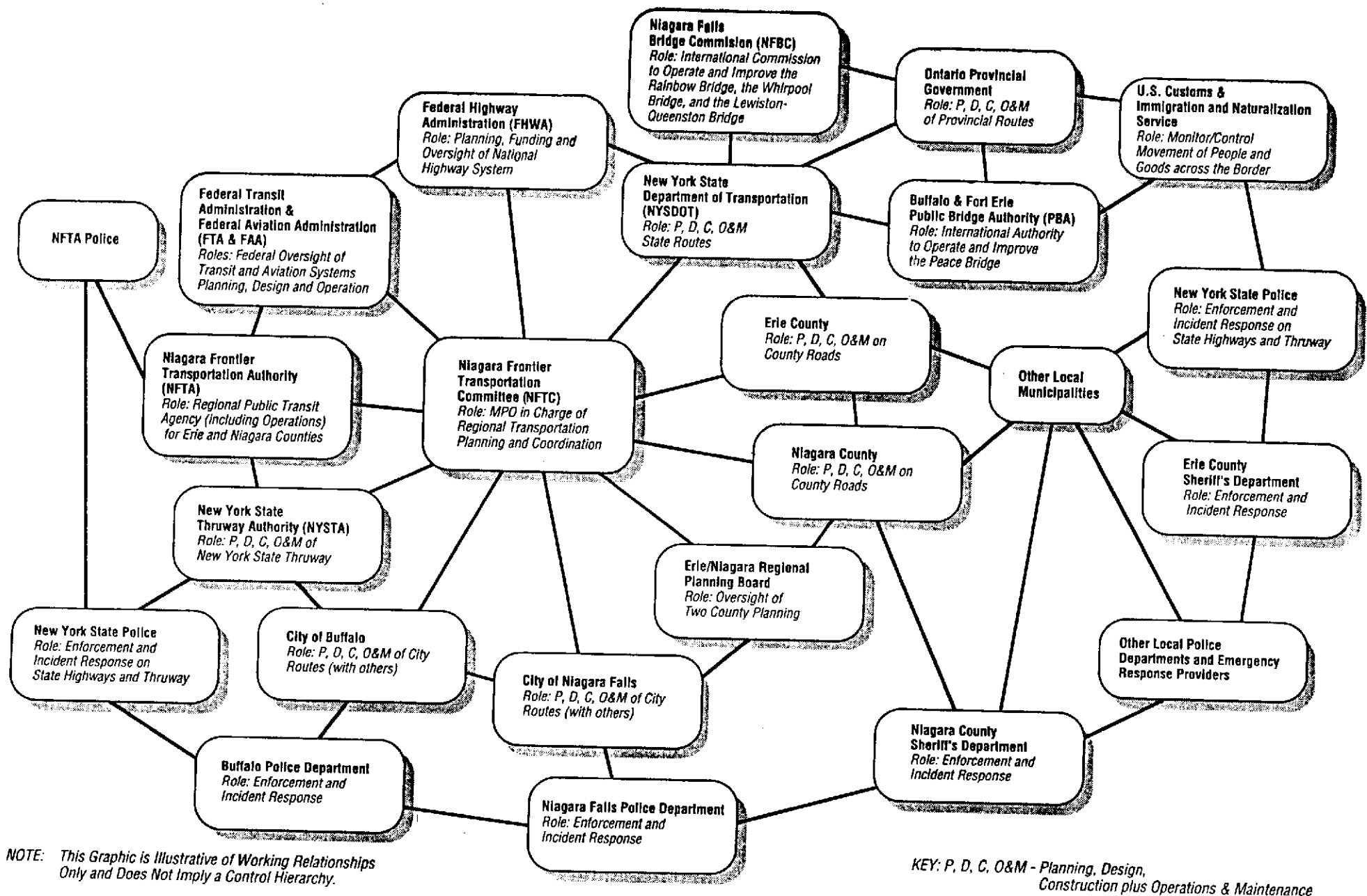
Public funding for ITS is competing with other infrastructure projects, such as pavement and bridge improvements. Current budgets may also not reflect ITS needs. Prior to the advent of ITS, public agency budgets focused on capital funding for infrastructure, with smaller amounts set aside for maintenance and even smaller amounts set aside for operations. However, a large proportion of ITS projects require a transportation operation center, which often requires a significant operations and maintenance budget. For successful implementation, agencies need stable sources of funding for operations and maintenance.

Agencies also need to establish training programs to ensure knowledgeable operators who can keep ITS processes running smoothly and also ensure smooth operations during deployment. Along with the basic staffing requirements is the need for continuity of staff for documentation and continuity of the project. Support staffing is required for administration, cost accounting, procurement, project management and scheduling. Agencies also need to establish outreach and coalition building efforts.

In summary there is a need for public agencies to modify how they have done business in the past, if ITS is to be a major factor in the future.

2.4 Buffalo/Niagara Agencies in Transportation

Figure 2-1 identifies key agencies or departments in the Buffalo/Niagara Falls region and their interrelationships.



NOTE: This Graphic is Illustrative of Working Relationships Only and Does Not Imply a Control Hierarchy.

Figure 2-1: Public Agencies in Transportation Planning
Buffalo / Niagara Falls Region
Buffalo/Niagara Falls ITS Study
PIN 5804.08



3.0 ISSUE: AUTONOMY

3.1 Overview

The basic autonomy issue is the need to share information versus the desire to retain control. For example, toll operators who share conditions or travel time data may lose revenue if they report to travelers less congested alternate routes that are not toll roads. For areawide mobility, travel may become more balanced with rerouting of travelers to less congested roadways. In reality however, benefits may accrue to toll operators. With prompt notification of an incident, traffic may divert, allowing the toll operator to more quickly remove the incident and return conditions to normal, allowing for more throughput and hence more tolls collected.

3.2 Incident Management

Systemwide response plans may need to be generated to handle accidents, breakdowns or other incidents. Personnel who are not normally responsible for response in a particular roadway section sometimes may be in the best position to respond with the most appropriate equipment. Thus, protective liability legislation is needed to limit exposure of agency personnel acting outside of their normal jurisdiction. "Move-it" laws to relocate vehicles involved in accidents off of the traveled way are a prime example where such legislation may be needed. Arrangements need to be developed with both the operating and response agencies to allow for a coordinated response and a sharing of liability. In the project area, the Western New York Incident Management Team (WNYIMT) has already addressed many of these issues.

3.3 Control Center Architecture

The type of control center architecture impacts capital outlays and operating budgets, as well as autonomy and legal issues. The most basic choice is a centralized architecture with one control site versus a distributed architecture with many control sites.

3.4 Agency Structure

A multitude of agencies and divisions create a complex organizational challenge. Major concerns are the need to define and delineate agency roles and coordination. Generally, it is best to have a structure based on functional processes and applications.

Communication, command and control for traffic management and incident management must be carefully developed. The agency relationships must reflect the partnership's staffing and funding commitments to the project. An important perspective for all participants is to maximize the regional ITS impact of local initiatives.



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4.0 ISSUE: PRIVACY

The institutional issue of privacy has both internal and external components. Internally, the issue is the security of the system, while externally the shared data or end use of the system must be addressed, as discussed below.

4.1 Internal - System Security

Any regionwide ITS implementation requires information sharing between data collection agencies. Access to system hardware and software then becomes an institutional issue. To maintain system security, agencies need to consider the following: physical access, passwords, data screening, one-way data flows, intermediate computers, and interagency agreements. Regarding intermediate computers, they can be used within a distributed architecture traffic operations center, where access to an entire computer network would not be desired. Each intermediate computer would have limited data, command or control functions, as appropriate to its users. The system would periodically download pertinent data to the intermediate computer and external agencies would have system access only through the intermediate computer.

4.2 External - Shared Data and End Use

If an ITS service or technology has the ability to identify a specific traveler or vehicle, the public reaction may be negative. To maintain public acceptance, agencies need to address the following considerations:

- the degree to which travelers must be identified
- storage of this information
- primary use of this information
- access to this information
- secondary uses of this information.

Agencies need to formulate and apply principles and safeguards for privacy. Some states, for example, have a policy of never recording video, using live video only. Resolution involves trade-offs between technology and privacy rights.



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5.0 ISSUE: LEGALITIES

5.1 Interagency Agreements

The development of interagency agreements requires that legal staff be involved in the process early on. The development of such agreements is often difficult and time consuming. Though public/private partnerships are highly desirable, there are no national guidelines regarding how to legislate the working relationship. In some cases, existing local laws strictly prohibit key aspects of the partnership, such as the ability of private interests to use public right-of-way, or the ability of private interests to contribute to public projects. A specially created revenue pool with outside auditors may be required to facilitate the deposit and disbursement of funds.

Another basic concern is liability sharing between public agencies and private firms. The inherent operating risks with “state-of-the-art” technology may limit private and public investment. One approach is for public agencies to indemnify contractors by providing insurance at a reasonable cost. Risks for the public agencies can be limited by using national standards as much as possible.

The roles of the public and private sectors may vary but it is generally felt that the public agencies should provide ITS infrastructure (public and privately funded), coordinate deployments, and pursue national compatibility to help encourage private sector participation. The private interests should provide research and development, specific products and associated marketing.

ITS projects often cross city, state and international boundaries. Partnerships across the different levels of government can be a major stumbling block and need to be addressed. Cooperating jurisdictions may have conflicting legal requirements that need to be resolved.

5.2 Regulations/Requirements/Statutes

A variety of regulations concerning cooperative agreements must be investigated with respect to new public/private endeavors. Examples pertain to Equal Employment Opportunity (EEO), drug-free workplaces, audits and Federal Acquisition Regulations (FARs).

5.2.1 Auditing

By law, a state may be required to audit a contracting agency to verify billings. Some private entities, however, have a policy that prohibits any type of public auditing of their books. This issue has arisen with naturally protective defense contractors who have tried to diversify into non-defense work, or suppliers who have not sold directly to the government in the past, and may result in termination of a project if it cannot be resolved.

5.2.2 Intellectual Property

Intellectual property is a major concern for vendors developing ITS products. Vendors want to retain the rights to sell the products they develop. Often a private vendor will not want to place computer



code, trade secrets, certain data, financial data and perceived proprietary information into the public domain. This can become a stumbling block when public funds are used to support the project for which the item is developed. A balance needs to be achieved between the authors' rights to the code and an agency's fear of being stuck with a "black box" and a "closed" architecture.

Addressing the concern may mean developing a policy and method of requesting or approving waivers to intellectual property rights claims. It may also be necessary to allow specific partners to fund different aspects of the project, as opposed to pooling the funding, so that their interests are protected. A partner may not want to lose control of a particular aspect of the project, though this arrangement may result in complicated tracking and accounting of funds.

5.2.3 Procurement

Procurement is the search for and selection of a qualified contractor, vendor or professional service for the provision of products or services. Procurement codes have been developed by public agencies to ensure publicly funded projects are awarded to the lowest responsible or most economical bidder in a fair manner, while maintaining product and service quality and fostering competition.

There are many types of procurement including competitive, non-competitive, cost-plus-fixed-fee, fixed price, unpriced, lump sum and negotiated. Each type fulfills a specific contracting need. Historically, procurement has been geared to foster competition. Most projects require technical specifications, sealed bids and low bid selection. To the detriment of intellectual property rights, the selected contractor's bid documents become public record. Each state may have a written legal bias towards procurement of products manufactured in that state.

In the past, transportation infrastructures have been provided solely through public funds. Personal and commercial vehicle use has increased substantially in recent years, creating a high demand on public funds to maintain, improve and increase capacity on the nation's network of roads and bridges. ITS projects can require large fund amounts due to the extensive equipment required and the need, in some instances, to construct entirely new ITS infrastructures from nothing.

ITS equipment is often sophisticated technology, and the need for systems integration services often leads to different ways of purchasing engineering materials and supplies. Vendors have little or no opportunity to substitute alternate solutions or to "shop around." Service and materials are time-sensitive, and rapidly advancing technology is constantly changing the state-of-the-art.

Private industry often possesses a thorough expertise in high technology areas, which can prove to be of great benefit for the design and implementation of ITS projects. However, public agency organizational structures may not be set up for public/private ventures. Government record keeping requirements and administrative requirements may need to be revised. Additionally, before procurement can begin, the working relationship between any public and private entities needs to be clearly defined.



A starting point in ITS projects is to acknowledge ITS is different and procurement may be unique, requiring new rules to be developed. The procurement process must anticipate political involvement plus the potential need to revise legislation.

5.3 Control and Budgets

With interagency projects, if no one agency has the lead responsibility and processes are not in place to establish decision making, disagreements may lead to gridlock. It is imperative that project control be decided in advance.

5.3.1 Budget

The key questions are who pays for what, what determines a contribution and how is it valued? If an item is paid for by another, then intellectual property rights or patents may be put in jeopardy.

5.3.2 Funding Cycles and the Nature of the Work

"Cutting edge" technology may necessitate a flexible schedule, but funding may not be flexible. If money runs out for the task, it may be difficult to reallocate other money to cover it.

5.3.3 Artificial Contributions

A donated product or service may not exactly match what is needed, hence the project may need to be redefined to allow its use or only a portion of the contribution allowed. Worse yet, the donated service may turn out to add cost by requiring system modifications to incorporate the service. Careful attention to interface and data requirements should minimize the problem.



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6.0 ISSUE: “CORPORATE” CULTURES

ITS developers strive for a “seamless” transportation network where motorists traveling between jurisdictions are unaware of information source changes. Therefore ITS projects require information to be shared between jurisdictions and agencies to maintain a close working relationship with one another. Specific types and forms of information, as well as particular methods of operation, represent an agency’s “corporate” culture.

These cultures need to be compatible for information to be shared between agencies. Cultural issues involve the unique practices or rules of a particular agency with regard to other partnering agencies. The obstacles should be initially addressed in partnership development with final resolution in the procurement process. Examples include the legal authority of a state to delegate or participate in traffic management coordination and consolidation activities, plus command and control structures that may be different between agencies.

Biases and stereotypes between public agencies, academics and private enterprise must be addressed, prejudices and opinions must be put aside, and agreements must define terminology clearly. Commonly used terms may have different meanings. For example, an audit in the public sector is sometimes not the same as an audit in the private sector. When an audit is necessary, it may be appropriate to go a step further and define the specific audit requirements. Similarly, schedules and deliverables must be clearly defined.



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7.0 ISSUE: REPRESENTATION OF CRITICAL STAKEHOLDERS

Aside from the participating agencies, there are typically critical stakeholders whose interests must be addressed to fairly allocate costs, benefits, control and liability. Representation of the stakeholders must be defined at the outset and refined as project planning, design and implementation take place. Generally, the desired approach is to survey all potential critical stakeholders to identify both their concerns and their level of commitment to resolve the concerns. Each project or organization is unique, but the goal should be to establish a fair and equitable mechanism that balances and trades off competing stakeholder interests.



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8.0 ISSUE: PRIVATE SECTOR MOTIVATION

8.1 Prospect Development

Public agencies need to identify potential ITS products and services for private sector involvement. In addition, public agencies should inform the private sector of potential benefits and emerging markets. Public entities and coalitions should consider possible private sector contributions and determine whether the area-wide system would benefit. In this case, conceptual design can proceed with the intent of utilizing private interests, keeping in mind the need for a profit motive and for minimizing risk. Private sector expressions of interest must always be closely reviewed to assure compatibility with the intended ITS goals.

In determining the amount of private sector contribution, some difficulties may be encountered in defining the amount of the contribution. In some cases, if a product is contributed, there may not be a similar product on the market to allow price comparison. In other instances, a private sector contribution may involve donation of labor and the aforementioned issues relating to auditing may arise.

8.2 Risk Factors

Public agencies find it difficult to invest in projects or products that are unproven. New technology is risky and the investment of public funds in a risky venture is not politically sound. It is important to have standards that give guidance on technology and functionality. In addition to reducing risk, standards improve compatibility of systems operated by other organizations, or systems developed piecemeal.

As a matter of course, private interests try to quantify the market risk involved in ITS investments, and then how soon investments can be recouped. Private companies also want to know that their products and services will be compatible with technologies that will ultimately dominate public infrastructure. In other words, they want their product to sell in as wide a market as possible.

Given the likelihood of a reasonable return, companies are willing to take risks. The initial step is to provide as much information as possible to assist the private interests in assessing the market and developing the appropriate product.



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9.0 STATUS UPDATE

Throughout this study, various institutional issues were raised. This section highlights any changes or updates to issues that occurred during the course of this project.

9.1 Planning and Design Standards

Section 2.1, Planning and Design, stresses the importance of implementing a compatibility policy to standardize ITS deployments throughout the region. The Niagara International Transportation Technology Coalition (NITTEC) has organized the Technical and Operations Subcommittee to work on the development and introduction of regionally compatible technologies.

Communications standards are extremely important for the Buffalo/Niagara Falls region since one of the main goals in the development of the ROC is the regional coordination and control of member agencies' ITS elements. This means the ROC must be able to share data and facilitate control of ITS elements of different manufacturers and capabilities.

9.2 Operations and Maintenance

One issue cited in Section 2.2 is staffing of the ROC. The NITTEC Technical and Operations Subcommittee is addressing this issue. The subcommittee recently presented NITTEC with staffing options which are under review. The options address the use of FHWA operations funding and means to obtain the necessary matching funds.

The Ministry of Transportation, Ontario has volunteered to provide one person to staff the ROC twenty hours per week (or half time). The MTO staff person would need a remote operator terminal to enable coordinating and controlling the region's ITS elements. The hardware and software issues associated with the remote capabilities are to be addressed in the ROC upgrade project (see Working Paper #7).

9.3 Budgets

Funding for ITS deployment projects often requires major expenditures. NITTEC has tried to establish a \$5 million revolving fund. If established his fund could be used by member agencies specifically for deployment and operation of ITS that promote integration and coordination within the region.

9.4 Critical Stakeholders

A list of Critical Stakeholders was developed for this ITS Study. The stakeholders performed reviews of the various working papers and provided overall project guidance in terms of regional needs, objectives and goals. The stakeholders were also involved in the three project workshops and were able to "fine tune" the ITS Strategic Deployment Plan to reflect the specific needs of the region. During the course of the project, the stakeholder list was refined to add the CJ Tower Group,



as well as U.S. Customs and Immigration. Each of these agencies provided insight into the issues related to international border crossings.

The Critical Stakeholders have been involved in the development of ROC capabilities. The extent of regional coordination and control the ROC would perform has been discussed and is still being negotiated. At issue is control of the various ITS elements.

Along with the stakeholders identified for the ITS Study, NITTEC has formed its own list of stakeholders. These separate stakeholders will be informed about important information NITTEC receives and will also be invited to be present at the NITTEC meetings. NITTEC feels that involving these stakeholders is very important to receiving the necessary input from those individuals affected by the implementation of this project. The list of NITTEC stakeholders is presented in Table 9-1.

9.5 Private Sector Motivation

There are several public/private partnership projects currently underway or being investigated in the region. The Peace Bridge Teleport System is one example. The PBA is investigating the development of a teleport facility with several communications companies. By providing right-of-way across the Peace Bridge for private use, the PBA could gain a valuable communications commodity for ITS use.

Another public/private partnership project is the Automated Collision Notification (ACN) system. This system involves vehicles equipped with sensors which will determine crash severity and vehicle location. The sensors will then dispatch the information to the necessary emergency services. This project is currently undergoing demonstration in Erie County. If the results are positive from this project auto manufacturers will need to become involved to help determine feasibility, installation, and cost of equipping vehicles with the ACN system.

The NYSTA and MFS Communications, a private fiber optics firm, have also created a public/private partnership contract. This 20 year contract has MFS Communications designing, integrating, and supporting a fiber optics communication system for the entire 640 mile length of the Thruway (in NYSTA right-of-way). The system will be provided in a 4-inch conduit, and MFS will lease out 144 strands to various agencies.

9.6 International Cooperation

Along with the public/private efforts currently under way with this project, there are other opportunities for international cooperation between Canadian and American agencies, as follows.



Table 9-1 NITTEC Stakeholder List

Ambulatory:

Niagara Region
Niagara County

Fire Departments:

St. Catharines
Niagara Falls
Ft. Erie
Niagara on Lake
Erie County
Niagara Falls, NY
City of Buffalo

Police:

Ontario Provincial Police
Niagara Parks Police
Niagara Regional Police
Niagara Falls, NY
Niagara County
City of Buffalo
Erie County
NYS Traffic Police
NYS Police Troop A
NYS Police Troop T

Emergency Measures:

Region of Niagara
CANUTEC
Canada Customs
Erie County
NYS Police Emergency Management
NYS Dept. of Conservation

Towing and Recovery:

Empire State Towing and Recovery
Association
Region of Niagara Towing Association

Tourism Ontario/Travel Information:

Niagara Region Economic and Tourism
Incorp.
Ft. Erie
Niagara Falls
St. Catharines
CAA
AAA
NFTA
Niagara Frontier Transport. Comm.
Buffalo/Niagara Frontier Safety Council

Transit:

Canada Coach Lines

Trucking:

Ontario Trucking Association

Media (Print):

St. Catharines Standard
Ft. Erie Times
Welland Tribune
Niagara Falls Review

Media (Radio):

CHOW
CJRN
CHSC

Media (Adelphia Cable):

Communications
Metro Networks
Yearke Graphics



9.6.1 MTO Remote ROC Operations

Due to the majority of the funding being provided by FHWA, the ROC will be located on the American side of the Niagara/Buffalo region and therefore will be predominately staffed by employees of NYSDOT. To assist in this project, the MTO has volunteered to provide one employee to staff the ROC from a remote terminal on the Canadian side of the Buffalo/Niagara region. This will allow both countries to share the operations of the ROC and allow NYSDOT and MTO operators to exchange information about the best ways to utilize the ITS systems in each of the two countries.

9.6.2 Overweight Truck Enforcement

Among NITTEC members, it has been discussed that the introduction of ITS technology into the region provides an excellent opportunity for increased enforcement in dealing with overweight trucks through international cooperation. This cooperation may be carried out by sharing information obtained at fixed scales on bridges and provincial highways, the New York State Police activity, and newly implemented weigh-in-motion (WIM) installations. WIM utilizes in-pavement sensors to record the weight of moving trucks, and notification can be made to the proper agency (U.S. or Canadian) if trucks are above allowed weight.

9.6.3 Intelligent Transportation Border Crossing System (ITBCS)

The ITBCS Project is designed to create cooperation between the Canadian and American border authorities, beginning at the Peace Bridge. The goal of this project is to create a seamless border for both commercial and passenger vehicles, harmonize the ITS systems, and integrate electronic toll collection utilizing the Thruway's EZ-Pass System for entering both the United States and Canada.



10.0 SUMMARY

This working paper has reviewed institutional issues associated with ITS implementation in the Buffalo/Niagara Falls region. Some issues are general to any large ITS effort while others are specific to the region.

Addressing institutional issues must begin at the planning and design level and be followed through operations and maintenance. Funding will always be a major challenge. The base agencies involved in regional transportation have been identified in Figure 2-1. Six institutional issues have then been reviewed as follows:

- Autonomy deals with the need to share information in competition with the desire to maintain control. It is reflected in incident management, control center architecture, and agency structure decisions.
- Privacy consists of internal security aspects such as physical access and data screening, plus the external aspect of the end use of shared data. Internal security is a technical issue, while external security involves both technical and policy concerns of society in general.
- Several legal issues arise with ITS including interagency agreements, regulations and rules such as audits, and intellectual property rights. This is an evolving area nationally and must be carefully developed for the region.
- “Corporate” cultures deal with conflicting values and ways of doing business. Particularly with the common emphasis on public/private partnerships, there is real concern about blending disparate parts into a unified team.
- All critical stakeholders must be fairly and equitably represented in the development of ITS and reasonable compromise should be the goal.
- Involvement of the private sector is often critical and must realistically represent profit incentives. Risk assessment is part and parcel of both public sector and private sector activity.
- Overall, the institutional issues overlap and are interrelated. They therefore must be considered simultaneously to address the concerns.

For an initial overview of major institutional issues in the Buffalo/Niagara Frontier, see Working Paper # 1, *Transportation Systems and Deficiencies*, Section 8.2 and 8.3. Those sections summarize a written survey from 33 representatives of regional transportation agencies and follow-up interviews with most of the critical stakeholders.

During the course of this ITS Study, progress has been made in several institutional areas. Perhaps the most important has been an increased awareness among several of the Critical Stakeholders that



only by working together can major ITS initiatives be pursued. With several implementation projects now on the immediate horizon it is key that this cooperative spirit continue.