DRAFT FINAL REPORT

Transportation Operations Programs: Status & Critical Issues

Requested by:

American Association of State Highway
and Transportation Officials (AASHTO)
Standing Committee on Highways

TRANSPORTATION RESEARCH BOARD
NAS-NRC
LIMITED USE DOCUMENT

August 25, 2004

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The information contained in this report was prepared as part of NCHRP Project 20-7, Task 181, National Cooperative Highway Research Program, Transportation Research Board.

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Acknowledgements

This study was requested by the American Association of State Highway and Transportation Officials (AASHTO), and conducted as part of the National Cooperative Highway Research Program (NCHRP) Project 20-7 . The NCHRP is supported by annual voluntary contributions from the state Departments of Transportation. Project 20-7 is intended to fund quick response studies on behalf of the AASHTO Standing Committee on Highways. The report was prepared by (name and affiliation). The work was guided by a task group chaired by (name) which included (names). The project was managed by Ray Derr, NCHRP Senior Program Officer.

Disclaimer

CHAPTER ONE

INTRODUCTION

Background

The safe and efficient operation of the National Highway System involves coordination between state departments of transportation. These coordinated interstate highway operations have been effectively supported and enhanced through the development and administration of Multi-State Transportation Operations Programs (MSTOPs). Early MSTOPs included the I-95 Corridor Coalition and the Gary-Chicago-Milwaukee Corridor Coalition, both of which were ITS Priority Corridors enabled under the Intermodal Surface Transportation Efficiency Act (ISTEA) in the early 1990's. Emerging MSTOPs include:

- Northwest Passage Corridor (Wisconsin- Minnesota…Washington)
- High Plains Coalition (Colorado-Wyoming-Nebraska-Kansas)
- West Coast Corridor (California-Oregon-Washington-Vancouver)
- I-10 Corridor (California-Texas-Florida)

MSTOPs have proven vital to the surveillance, security, and reliability of key interstate corridors. Traffic incident management, emergency traffic operations, and transportation security capabilities, have been substantially enhanced through interstate relationships and partnerships that typically engage the transportation and public safety communities. These interstate partnerships have improved the detection of hazardous highway conditions and security threats, and the quality and timeliness of traveler warning and information services.

MSTOPs also offer an institutional framework for regional operations collaboration and coordination across state borders. MSTOPs are likely to be critical in the planning, deployment and operation of an expanding Integrated Network of Transportation Information (INTI), and related traffic management infrastructure. Notable early benefits that can be expected of MSTOPS through INTI include improved road weather surveillance, highway weather management strategies, and successful multi-state regional 511 systems and services.

Realizing the full national benefit of MSTOPs will require their programmatic maturity and administrative sustainability, as well as their geographic expansion. Ultimately, a nationwide "quilt" of active MSTOPs could be a core institutional component of a national transportation operations agenda.

The maturity and growth of MSTOPs will require more complete and structured knowledge to meet the following challenges:

- MSTOPs have developed in relative isolation with respect to one another.
- MSTOPs are generally not structured around a common nationwide organizational framework.
- MSTOP planning, program development, and administrative practices and protocols have not been designed in anticipation of national coordination – or even interface with adjacent MSTOPs.
- No national organization has emerged as the primary host of a forum for MSTOP executives and program managers.
- No uniform role or consistent set of expectations for MSTOPs has been developed with respect to INTI or transportation security along the National Highway System.
- Current Intelligent Transportation Systems (ITS) planning and architecture methodologies are limited in their ability to complement MSTOP planning and development, although multi-state corridor architectures have been developed.

Research Objective

Organizing and documenting national knowledge about MSTOPs is a necessary first step in clarifying and supporting the role of MSTOPs within a national transportation operations agenda. This project proposes to meet the following objectives in support of MSTOPs:

- Briefly summarize the status of existing and emerging MSTOPs.
- Enable "lessons learned" to be exchanged between current MSTOP executives and program managers.

- Establish a foundation for further research and training to accelerate the development of MSTOPS.

Specific questions to be addressed by this project include the following:

- How and why have MSTOPs been created, and what has influenced their growth and development?
- What geographic and programmatic areas have demonstrated success and failure in multi-state transportation operations, and what has contributed to this success or failure?
- What are the common dimensions or layers of MSTOPs? Do they include plans, deployment programs, organizational structures, funding mechanisms and structures, political relationships and support?
- What highway system operational performance targets might accelerate the development of MSTOPs? (For example, "no unexpected delay", "90-minute clearance of all traffic incidents", "traveler warnings available within 5 minutes of any hazard or security threat", etc.)
- What other federal or nationwide activities, incentives, or resources would support the enhancement or expansion of MSTOPs?
- What specific research, knowledge management, training, and awareness projects or activities should be completed by existing national organizations?

Methodology

The approach to the project consists of the following:

Literature and Case Studies

The first step is to perform a literature review and synthesis of existing information regarding MSTOPs. A comprehensive literature review will be performed that documents the history and status of existing and emerging MSTOPs and develops an understanding of the lessons learned in organizational behavior and formation. These agencies have traditionally formed as a result of some "critical issue" such as safety, congestion or financing that has resulted in a basis of communication and cooperation around a core issue to be engaged with some sense of urgency

in the desire to find a solution. The lessons learned through synergistic activities result in a roadmap of cooperation and enhanced communications that is supported by a local champion. Financial support of some form through direct contributions or a service-basis is also usually critical for success. The results of the documentation of existing literature and our experience with multi-jurisdictional partnerships, will allow us to better facilitate discussions amongst participants. This draft report provides a summary of the literature review through a Case Study Approach.

The following summarizes the outline used to formulate each of the case studies:

Summary

Organizational Background

Historical Perspectives

What Type Of Operational Environment Existed Before The MSTOP Formed?

Impetus For Formation Of The MSTOP

What Issue Or Need Generate The Interest Or Need For The MSTOP?

Geographic Areas Covered

On What Facilities Or In What Areas Are Services Provided?

Programmatic Areas Addressed

What Functions are Provided?

Does The Organization Address Multimodal Issues Such As Transit, Trucking Or Rail/Intermodal?

If An ITS Organization, What User Services Are Provided?

Organization Members And Structure

Name And Contact Of Member Organizations?

Is There An Organizational Charter Or Memorandum Of Understanding?

What Are The Responsibilities Of Each Member?

Is There A Formal Structure For Coordination? If, So Is There An Organization Chart?

Are There Committees? Do They Meet Regularly?

Financial Programs

How Is The Organization Funded?

What Are Resources Expended On?

Strategic Plans/Deployment Plans

Does Strategic Plan/Deployment Plan Exist On A Cooperative Basis? If So, How Is It Structured?

Goals And Objectives

Performance Measures And Benchmarks

Success In Achieving Goals And Objectives

Current Activities

What Are The Current Activities Of The Organization, And What Outcomes Are Being Pursued In The Short-Term?

Needs

What Are The Organizational, Operational, Financial, Technical, And National Program Coordination Needs Of The MSTOP?

Lessons Learned

What Are The Lessons Learned From This Organization That Can Be Valuable For Other Forming Or Existing Organizations?

What Are The MSTOP's Key Success And Failures?

What Are The Challenges That Are Being Addressed Today?

Recommendations

What Recommendations Can Be Made Based On The Review Of This MSTOP To Provide?

References

The following agencies were identified as the candidate organizations for the evaluation of MSTOPs:

- ARTIMIS- Cincinnati, OH/Covington, KY 511 Partnership
- AURORA Road Weather Information Systems Partnership
- California/Oregon Advanced Transportation System (COATS)
- CANAMEX Corridor Coalition
- Dynamic Road CDDC *
- Gary Chicago Milwaukee Corridor
- Greater Detroit Area 511
- Greater Yellowstone ATIS
- High Plains Corridor Coalition
- I-10 Freight Corridor Study
- I-69 Corridor
- I-95 Corridor Coalition
- MnDOT CARS *
- Multi-State AMBER Alert Partnership
- National Automated Highway Consortium *
- Norpass Electronic License Plates *
- North American International Trade Corridor Partnership *
- North American Superhighway Coalition
- North/West Passage Study
- Tri-State Working Group for 511 in Maine, NH, VT

* Found to be not applicable for this research project

Workshop

Conduct a workshop involving the research panel for this project and several MSTOPs at the TRB's Center in Irvine. The focus of this workshop will be to review draft case studies and literature review prepared by the research team and developing an initial set of recommendations for the coordination and support of the development of MSTOPs at a national level.

The proceedings of the workshop will then be documented and the lessons learned synthesized, to provide a single report with an executive summary that can be easily used by agency representatives in presentation to other officials, about the recommendations and issues identified through the project. We anticipate the briefing documents to include:

- An 11 inch by 17 inch folded brochure highlighting the results of the synthesis effort
- A PowerPoint presentation designed for a 10-15 minute delivery
- An executive summary of 5-10 pages with the lessons learned and recommendations

Interviews With MSTOPs

Because of the abbreviated schedule for this project and the limited involvement of MSTOPs in the workshop in Irvine, the research team will conduct a series of personal interviews with MSTOPs and attend working group meetings of the agencies to review the case study results, findings of the research, and recommendations for national program support of MSTOPs. These interviews will be completed prior to the completion of the project.

- The initial recommendations resulting from the Irvine workshop will be presented at an NCHRP 20-7/AASHTO Standing Committee on Research Committee meeting.

- The final reports and recommendations will be made available prior to the 2005 TRB Annual Meeting and a presentation shall be made as part of the Committee's session.

Organization Of This Report

This report is organized into the following sections:

- **CHAPTER ONE: INTRODUCTION –** This section provides a summary of the background, objective of the research, and methodology used.

- **CHAPTER TWO: FINDINGS**
    - Status of Existing and Emerging MSTOPS
    - What Are the Role of MSTOPs
    - MSTOPs link to National Operations Objectives
    - Benefits of MSTOPs
    - Lessons Learned

- **CHAPTER THREE: RECOMMENDATIONS**

    - **Recommendations To AASHTO Standing Committee on Highways** – As a summary to the research project, the recommendations for national and program level support for MSTOPs are identified.

- **CHAPTER FOUR: CASE STUDIES –** A series of case studies on MSTOPS is presented according to the methodology identified above.

- **Additional References -** a list of additional references is provided for additional reading.

CHAPTER THREE

SYNTHESIS OF RESEARCH

STATUS OF EXISTING AND EMERGING MSTOPS

This research study has identified a number of existing and emerging MSTOPs that have diverse needs, and exist in a wide range of operational environments for a variety of reasons. Table 1 provides a classification system or topology of the MSTOPs evaluated in this project.

Table 1 – Classification of MSTOPs By Focus Area

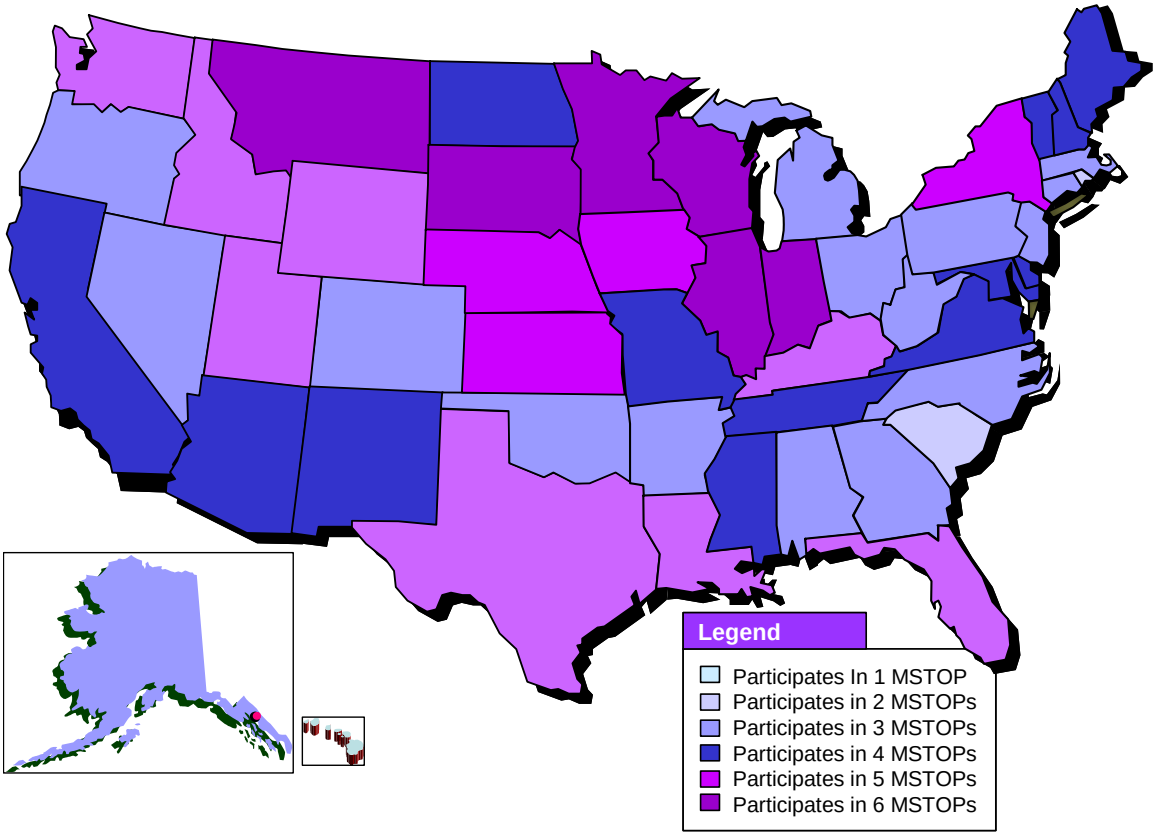
Metropolitan Area With Multiple Jurisdictions	Interstate Corridor	Partnerships For A Specific Technical Or Operational Issue
ARTIMIS	High Plains Corridor Coalition	AMBER Alert System
Greater Detroit 511	CANAMEX	Aurora Weather Information
	North American Superhighway Corridor Coalition	Multi-State Security Partnerships
	Northwest Passage Corridor Coalition	National Automated Highway System Consortium
	I-10 Freight Corridor	Norpass and PrePass CVO
	I-5 CASCADIA Freight ITS	Trio 511 Partnership
	I-69 Corridor	CARS/Enterprise Partnership
I-95 Corridor Coalition		E-Z Pass Electronic Toll Collection
Gary-Chicago-Milwaukee Corridor Coalition		Meridian 511
		Yellowstone ATIS

Table 2 (next page) provides a summary of the states participating in each of these MSTOPs and Figure 1 provides a map summarizing the number of MSTOPs in which each state participates.

Table 2 – Active MSTOPs

Multi-State Transportation Operations Program	Participating States
ARTIMIS	Kentucky & Ohio
AURORA	Alaska, Illinois, Indiana, Iowa, Minnesota, New York Pennsylvania, Tennessee, Virginia & Wisconsin
I-5 CASCADIA Freight ITS Corridor Coalition	California, Oregon & Washington
CANAMEX Corridor Coalition	Arizona, Idaho, Montana, Nevada & Utah
Detroit/Windsor 511 Partnership	Michigan & Windsor Ontario
Gary-Chicago-Milwaukee Corridor Coalition	Illinois, Indiana & Wisconsin
Greater Yellowstone Advanced Traveler Information System	Idaho, Montana, Utah & Wyoming
High Plains Corridor Coalition	Colorado, Kansas, Missouri, Nebraska, Utah, Wyoming
I-10 Freight Corridor Study	Alabama, Arizona, California, Florida, Louisiana, Mississippi, New Mexico & Texas
I-69 Corridor	Arkansas, Indiana, Kentucky, Louisiana, Michigan, Mississippi, Tennessee & Texas
I-95 Corridor Coalition	Connecticut, Delaware, District of Columbia, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont & Virginia
Enterprise Condition Acquisition and Reporting System (CARS)	Alaska, Florida, Iowa, Kentucky, Minnesota, New Hampshire, New Mexico, Vermont & Washington
Norpass CVO or PrePass CVO	Alabama, Alaska, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, District of Columbia, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Utah, Virginia, Washington, West Virginia, Wisconsin & Wyoming
North American Superhighway Corridor Coalition	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, North Dakota, Oklahoma, South Dakota & Texas
Northwest Passage Corridor Coalition	Idaho, Minnesota, Montana, North Dakota, South Dakota, Washington, Wisconsin & Wyoming

Figure 1 – Number of MSTOPs In Which Each State Participates



In addition to these more mature MSTOPS, several emerging MSTOPs were identified that are not currently active. There were also several organizations that were developed to support evaluation or demonstration of a specific technology, that fulfilled its purpose as through a field operational test, and then did not continue as a result of lack of funding or commitment to continue the program. An example of this type of multi-state partnership includes the National Automated Highway Consortium.

Although not specifically reported through case studies in this report, several Southeastern states and Gulf Coast states have had joint workshops in recent years regarding hurricane evacuation and emergency preparedness. Hurricane Floyd in 1998 provided an impetus for this cooperation as more than 3 million people evacuated their counties of residence and unto interstate and intrastate destinations that created gridlock on intercity travel routes in Florida, Georgia, South Carolina, and North Carolina. No formal organizations or agreements other than informal

agreements to work together during these emergencies were identified. These ad-hock organizations were not addressed in this study.

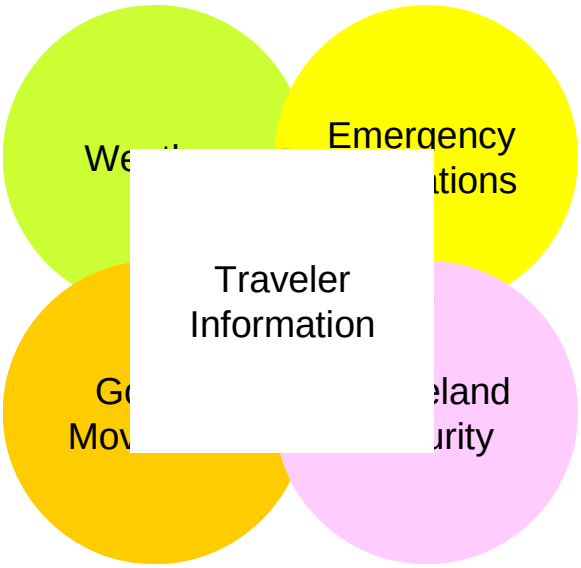
WHAT IS THE ROLE OF MSTOPS?

MSTOPs provide wide range of activities and technical programs. Some of the more mature organizations that function in highly congested interstate corridors, involving multiple jurisdictions, coordinate multimodal and intermodal services. However, most of the MSTOPs have found success by joining together to share information on weather - and accident - induced road closures and to coordinate emergency management of personnel to respond to and address these issues. Coordination of homeland security and commercial vehicle operations are another common role for MSTPs. These partnerships usually then result in a cooperative approach to providing traveler information through 511 services or roadside traveler information services such as dynamic message signs and highway advisory radio. The benefits from these programs include:

- Improving the efficacy of agency operations
- Reducing agency operating costs
- Reducing congestion delays
- Improving safety
- Improving customer service by providing better traveler information
- Enhancing national security and preparedness
- Enhancing personal security and safety
- Improving the efficiency and reliability of the movement of commerce
- Managing risk and sharing benefits from new technology applications
- Improving environmental quality

Figure 2 show the common roles and functions of MSTOPs.

Figure 2 – Role of MSTOPs



MSTOPS LINK TO NATIONAL OPERATIONS OBJECTIVES

Substantial progress toward achieving the national goal of deploying ITS infrastructure in the nation's largest metropolitan areas by 2005 has been made. As we look beyond the goal of addressing metropolitan congestion and traveler information needs to create a national infrastructure of intelligent transportation systems, MSTOPs are needed to provide coordinated, reliable, and cost-effective operations management on the key interurban and interstate routes that connect these metropolitan population and economic centers.

The following highlights several of the US DOT's ITS Program Objectives for 2004.

Mobility Services for All Americans - *Improved transportation services for the elderly and disadvantaged. Increased mobility, accessibility, and ridership will be achieved by integrating transportation services, via ITS transit technologies, and extending transit service partnerships beyond the health and human service community to other federal funding agencies.*

Integrated Corridor Management Systems - *A model corridor management system will be developed to demonstrate how ITS technologies can efficiently and proactively manage the movement of people and goods in major transportation corridors within and between large*

metropolitan areas. The model corridor management system will demonstrate how proven and promising ITS technologies can be used to improve mobility and productivity in these corridors.

Nationwide Surface Transportation Weather Observation System - *Reduce the impact of adverse weather for all road users and operators by designing and initiating deployment of a nationwide, integrated road weather observational network and data management system.*

Emergency Transportation Operations - *Effective management of all forms of transportation emergencies through the application of ITS resulting in faster and better-prepared responses to major incidents; shorter incident durations; and quicker, more accurate and better-prepared hazmat responses.*

Universal Electronic Freight Manifest *Improved operational efficiency and productivity of the transportation system through the implementation of a common electronic freight manifest.*

Specifically, MSTOPs have demonstrated the successful combination of human and technological infrastructure, across jurisdictions to achieve many of the U.S. Department of Transportation's ITS Program Office's Objectives for 2004. Consider the following examples:

I-95 Corridor Coalition – *Mobility Services for All Americans*

In the early 1990's a visionary leadership was critically needed to address transportation problems in the Nation's heavily populated northeastern corridor. The corridor's transportation network was pushed to capacity limits and the economic and physical health in the region was in jeopardy. This was due to the region's rapid housing development growth, population shifts from urban to sprawling suburban areas, increased commercial vehicle travel, and congestion delays. State transportation leaders in the corridor recognized that new cooperative approaches were required to address these developing and complex transportation challenges. They believed that existing capacity could be better utilized and management and operation of the entire transportation network could be improved through institutional cooperative arrangements and technology systems. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 provided initial funding to support the formation of this ITS corridor coaltion.

The I-95 Corridor Coalition has now expanded its areas of cooperation and communication to include freight movement and mobility needs of all travelers. Several port and rail operators are active participants in the I-95 Corridor Coalition's Program Track Committees. Ports in the Corridor from Norfolk to New Jersey/New York to Maine receive over 575 million tons of goods each year (about 2 million tons each day) that must be carried by rail or truck to and from various destinations throughout the country. AMTRAK and several regional transit agencies now also participate in the Program Track Committees to address the total mobility needs of travelers within the corridor.

Gary-Chicago-Milwaukee Corridor Coalition – *Integrated Corridor Management*

Since 1993, when the Gary-Chicago-Milwaukee (GCM) Intelligent Transportation Systems (ITS) Priority Corridor was designated, the states of Illinois, Indiana, and Wisconsin have worked together closely on solutions to transportation problems in this 130-mile-long, 16-county corridor that is home to more than 10 million people. Through the deployment of advanced technologies, the use of existing transportation services and infrastructure, and the cooperative efforts of several transportation and planning agencies in the three states, the GCM Corridor Program is making transportation in the corridor smarter, safer, better coordinated, and more efficient. By taking a coordinated multistate approach, the three states have been able to integrate ITS programs beyond their borders, pool funds, and deploy projects that benefit the entire region. The corridor managed was defined to allow for a wide range of solutions throughout the corridor, including tollways, public transit, and CVO. This corridor coalition has acheived success through developing an overall strategy for the corridor and having a more streamlined program that focuses effort and resources on a defined set of activities and investments.

Aurora – *Surface Transportation Weather Information*

The Aurora Program is a consortium of agencies focused on collaborative research, evaluation, and deployment of advanced technologies for detailed road weather monitoring and forecasting. The 13 members of Aurora, which include representatives of two foreign nations and the private sector, seek to implement advanced road weather information systems (RWIS) that fully

integrate state-of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures. Aurora's projects are designed to improve the efficiency of highway maintenance operations and distribute effective real-time information to travelers. These initiatives have resulted in technological advancement and improvement of existing RWIS to reduce the congestion and improve safety resulting from adverse winter driving conditions.

HighPlains Corridor Coalition – *Emergency Transportation Operations*

The High Plains Corridor Coalition includes six midwest states that coordinate responses to consist of emergency transportation operations and share resources to respond to roadway closures due to adverse weather. The agency has successfully reduced the costs of emergency transportation operations for the member organizations and demonstrated the safety benefits and travel time savings to travelers and commercial vehicle operations through more reliable operations and providing traveler information.

BENEFITS OF MSTOPS

Improving the Efficacy of Agency Operations

The High Plains Corridor Coalition led the development of a shared-resource agreement between several states to allow maintenance crews to cross state lines and clear roadway in adjacent jurisdictions during road closures. This successful partnership has saved each agency significant time and resources and results in a higher quality of service to travelers during weather-related and other emergency operations.

Reducing Congestion Delays

Incident management systems are one of the fundamental building blocks of MSTOPs. These programs reduce the effects of incident-related congestion by decreasing the time to detect incidents, the time for responding vehicles to arrive, and the time required for traffic to return to normal conditions. Incident management systems make use of a variety of surveillance technologies, often shared with freeway and arterial management systems, as well as enhanced communications and other technologies that facilitate coordinated responses to incidents. A

study of the Coordinated Highways Action Response Team (CHART) in Maryland found that the system reduced average incident duration 57% in 2000 and 55% in 1999. Delay savings identified in studies of systems in Minnesota, Colorado, and Indiana yield benefits of $1.2-$1.8 million/yr. Motorist assistance patrols, an important component of many incident management systems, are well received by the public. The Virginia Department of Transportation has published hundreds of "thank you" letters received regarding its Safety Service Patrol. Incident management programs are key elements of many of the MSTOPs identified in this study including: the I-95 Corridor Coalition and Gary-Chicago-Milwaukee Corridor Coalition.

Improving Safety

Road weather management activities that are coordinated by MSTOPs such as the Northwest Passage Corridor Coalition and High Plains Corridor Coalition include road weather information systems (RWIS), winter maintenance technologies, and coordination of operations within and between state DOTs. ITS applications assist with the monitoring and forecasting of roadway and atmospheric conditions, dissemination of weather-related information to travelers, and weather-related traffic control measures such as variable speed limits and both fixed and mobile winter maintenance activities. An Idaho DOT study found significant speed reductions when weather-related warnings were posted on dynamic message signs. During periods of high winds and snow-covered pavement, vehicle speeds dropped 35% to 35 mph when warning messages were displayed, compared a 9% drop to 44 mph without the dynamic message signs. Washington State DOT has implemented three highway advisory radios along the Blewett/Stevens Pass to provide weather and road condition information to travelers and maintenance crews.

Improving Customer Service by Providing Better Traveler Information

In 1999, the Governors of Montana, Idaho, Utah, Nevada, and Arizona created the CANAMEX Corridor Coalition to spur economic development along the corridor. It has been shown that the number one need of travelers is *information*: what are the traffic and weather conditions on the road, what can we do, and where can we stay along the way? The Smart Tourist Corridor developed by CANAMEX uses a combination of emerging technologies and interstate/interagency coordination to provide seamless safety and tourism information to

corridor travelers. This program has positive benefits in the order $506 million of benefits that will result from a $71 million program, or a 7.1:1 benefit-to-cost ratio.

Enhancing National Security and Preparedness

The National System of Interstate and Defense Highways (Interstate System), established under the leadership of President Eisenhower in 1957, recognized the importance of a reliable surface transportation network to our nation's security and preparedness. As the Interstate System nears completion, many of the anticipated benefits of the national "interstate" system for national defense and preparedness have been eroded through urban traffic congestion. Being able to rapidly deploy and respond to major incidents and events is critical to our nation. In the event of a mobilization resulting from a man-made or natural disaster, MSTOPs can successfully support the scale and magnitude of issues involved. The I-95 Corridor Coalition has identified this as a critical success factor and recognizes that I-95 would be a lifeline through which personnel and freight would have to deploy quickly. Much of this movement would be to support the deployment of personnel and materials to the northeast's major air and seaports for subsequent movement overseas. Military bases such as Fort Lee and Fort Eustis in Virginia and Fort Drum in New York and the Navy Complexes in Hampton Roads, Virginia, are all-important installations from which military operations would be staged.

Enhancing Personal Security and Safety

The AMBER Alert System began in 1996 when Dallas-Fort Worth broadcasters teamed with local police to develop an early warning system to help find abducted children. AMBER stands for America's Missing Broadcast Emergency Response and was created as a memorial legacy to 9-year-old AMBER Hagerman. Other states and communities soon set up their own AMBER plans as the idea was adopted across the nation. The AMBER Plan Program encourages use of the most effective methods to communicate with the public on behalf of abducted children. CMS is not always the most effective or safest method to disseminate information related to child abductions. The CMS can convey only a limited amount of information to motorists. When there is a need to provide extensive information to motorists, it is critical that other types of traveler-information-based media (e.g., 511, highway advisory radio, web sites, commercial radio) be used or that the messages displayed on a CMS supplement these other media.

As of March 1, 2004, 48 states have adopted and implemented AMBER Plans. Since 1999, 129 children have been recovered due in part to AMBER program alerts.

Improving the Efficiency and Reliability of the Movement of Commerce

Thomas J. Donohue, President and CEO, U.S. Chamber of Commerce and President, National Chamber Foundation stated in 2002, "*The nation's transportation system is the lifeblood of our economy. Without additional investment in our infrastructure, our system of commerce is impaired, our mobility is restricted, our safety is threatened, our environment is endangered, and our way of life is compromised."*

North America's Superhighway Coalition (NASCO) is a not-for-profit corporation that supports the development and management of a NASCO Corridor to become North America's premier trade, security, and transportation corridor. The corridor that all NASCO members are working for will combine smart planning, good maintenance, and the latest technology to secure U.S. borders, promote safer travel, increase business efficiency, and improve the infrastructure and quality of life of U.S. communities. In the process, the NASCO Corridor will be transformed into a high-technology highway system that will give the U.S. and its North American partners, Canada and Mexico, a head start on their global competition. NASCO's mission statement calls for the agency to maximize economic opportunity and investment in the North American mid-continent corridor through development and advocacy of an efficient, seamless, intermodal trade and transportation system.

Through the development of International Trade Processing Centers (ITPCs), NASCO will enable intermodalism and encourage the application of leading-edge technology (international trade data systems and Intelligent Transportation Systems). Possible locations are Des Moines, Kansas City, Oklahoma City, Dallas/Fort Worth, and San Antonio.

Managing Risk and Sharing Benefits From New Technology Applications

The Aurora Program is a collaborative research, development, deployment, and advocacy venture to deploy advanced road weather information systems (RWIS) that fully integrate state-of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather

monitoring infrastructures and with the National ITS Architecture. The primary need for Aurora is to help save lives, preserve property, and significantly reduce the adverse impacts of winter driving conditions. The primary users of RWIS information are highway maintenance staff and the traveling public, many of whom have little or no knowledge of meteorology and how to interpret weather information to make effective decisions. Aurora members design and implement decision support systems, which transform weather and road condition data into an easily understandable format such as color-coded graphical displays to allow for informed decision-making capabilities. The primary component of RWIS is the provision of weather and road condition information to the general public to allow for informed travel decisions.

The Aurora Program has been highly successful in testing new technologies and sharing the risks associated with these investments and the benefits resulting from successful tests. Numerous research institutions, private-sector vendors, and the National Center for Atmospheric Research participate. The program has been so successful that international partners have joined the program including Quebec Ministry of Transportation, Ontario Ministry of Transportation, Meteorlogic Society of Canada, Swedish National Road Administration, and Swedish Meteorlogic and Hydrologic Institute. The Aurora Program has successfully completed eleven projects.

Improving Environmental Quality

ARTIMIS (Advanced Regional Traffic Interactive Management and Information System) in metropolitan areas of Northern Kentucky and Cincinnati, Ohio, consists of closed-circuit television cameras (CCTV), portable dynamic message signs (DMS), highway advisory radio (HAR), freeway and ramp reference markers, freeway service patrols, time-saving incident investigation equipment, and advanced traveler advisory telephone services using 511. This MSTOP successfully demonstrated significant benefits to environmental quality through coordination operations. Hydrocarbon emissions were reduced by 3.8 percent during the A.M. peak period and 3.6 percent during the P.M. peak period. Carbon monoxide emissions were reduced by 3.8 percent during the A.M. peak period and 3.6 percent during the P.M. peak period. Nitrogen oxide emissions were reduced by 4.7 percent during the A.M. peak period and 4.5 percent during the P.M. peak period.

LESSONS LEARNED

The case studies provided in this report identified several of the more mature and well established MSTOPs. Of these programs the following themes were identified:

- Funding for the continuous communication and coordination of transportation operations are essential for the sustainability of a MSTOP. The funding of the well established MSTOPs have come from a variety of sources including FHWA Pooled Fund programs, ITS Early Deployment Programs, Federal demonstration program grants, and metropolitan or state operating programs and grants.
- Organizing to support a one-time funding grant does not necessarily lead to a sustainable operation. The most successful MSTOPs committed early to a sustainable organization and institutional framework that is flexible for all member organizations and easily accommodates growth.
- Demonstrating early winners are needed to gain the political momentum and interagency support needed to expand programs beyond a single project related focus or interest. These early winners can be used as examples within the member organizations and political partnerships necessary to achieve a sustainable program.
- Involving metropolitan planning organizations (MPOs) was a common theme for the successful metropolitan oriented MSTOPs. The MPOs had the institutional framework and access to federal funding programs to promote effective MSTOPs. The leadership and continued focus of these agencies are important for the long-term sustainability of MSTOP.
- Sensing urgency associated with an operational program and deployment has a direct impact on the efficacy and sustainability of MSTOPs. When coordination and cooperation are needed to address an issue or operational concern that has some urgency, and a sustained approach to management and operations are required, a more stable and long-term framework has been more sustainable. Organizations without a clear focused mission, those that organize simply to communication about operations, have less momentum and are less likely to be sustainable.

- Developing a memorandum of organization or organizational charter that is agreed to by executives of the participating organizations, is an important step in creating a sustainable organization framework and outlining the roles and responsibilities of each member. The act of "chartering" these organizations led to more reliable commitment of resources and funding to support sustained communications and coordination.
- Providing a structure that linked policy decision makers between member organizations and a separate layer that linked the personnel who are responsible for operational issues in the organizations, is important in making the right connections between decision layers at various layers in the member organizations. Issue driven subcommittees that may or may not contain both types of decision makers were also common. These committees existed for both on a continuous basis for regular operational coordination and a short-term or limited basis to formulate a solution to a specific or problem.
- Involving law enforcement and emergency management personnel are critical for the success of organizations due to the critical role they play in incident management, evacuation programs, etc. In the case of the AMBER program, law enforcement was the driving factor in establishment of the partnerships.
- Involving both private sector and public sector organizations were seen as key success factors for several organizations. The infusion of talent, resources and perspectives enriches and enhances the organization's efficacy and the robustness of programs.
- Committing dedicated staff, either through member organizations personnel or consultants, was a critical step for the larger and more mature MSTOPs. Having the resources available full time leads to a critical mass of activity and coordination that can not be achieved through personnel who have part-time responsibilities.
- Providing training and technical project support across jurisdictions were highly successful. It is likely that these training sessions and the technical support not only supported specific technical issues, but helped to develop the relationships of trust that led to greater synergistic effects than technical knowledge alone.
- Establishing research and development programs consisting of limited proof-of-concept studies for operational tests of new technologies, that interest all or most of the member organizations, were a significant way to share risk and test unproven technologies or applications.

- Building on mature ITS networks, usually freeway management systems and advanced traveler information systems including 511, lead to greater sustainable success for a MSTOP. These programs can be focused on a specific corridor or in a metropolitan area that involved multiple jurisdictions.
- Agreeing to common standards, specifications, and interfaces between jurisdictions in ITS deployments assisted in the efficacy of joint programs. These agreements on standards, specifications, and interfaces have led to joint procurements for technology and resources in more successful MSTOPs.
- Developing a set of agency or operational performance measures that can be used to evaluate the efficacy of programs is not widespread. Those that have adopted performance measures are focused on common measures for ITS systems including output measures such as 511 calls and outcome measures such as travel times, delays, and incident response times.
- Expanding the role of the MSTOPs beyond highways is a secondary step in most cases. The MSTOPs identified for evaluation in this project were all highway focused. Several of the MSTOPs evaluated did include multimodal issue task forces and information sharing programs. These were primarily focused on advanced traveler information systems for airports and transit. Several MSTOPs also included a CVO/CVISN component.
- Addressing the needs of homeland security and infrastructure vulnerability are significant concerns. A workshop was held in April of 2004 involving several Midwestern States highlighting the importance of interstate cooperation and coordination of information and responses, to support homeland security.
- Supporting the importance of efficient and reliable transportation operations in economic development and sustainability. Our nation's highways move 80 percent of all goods in the US and continued operations and management of these facilities are vital for our economy.

NEEDS AND CHALLENGES FACING MSTOPS

On June 1, 2004 a workshop was held with members of the research team and panel for this project. During this workshop, significant discussion on the needs and challenges facing MSTOPs. The following common themes/issues were identified:

- Sustainable Funding – Finding sustainable sources of funding was the key to long-term success of the MSTOPs evaluated. Although not summarized through case studies, several emerging MSTOPs have either failed or not been able to sustain operations.
- Defining Success – MSTOPs need to define early in their programs what defines success for their organization and work toward this mission.
- Early Winner – Having early winners to build from make for more sustainable organizations.
- Sense of Urgency – MSTOPs that were organized to address a specific need or issue that had some urgency where a solution was needed. The success of working together in a partnership then led to other more broader communications and coordination.
- Goals, Objectives and Performance Measures – Tying organization goals and objectives to measurable outcomes is key success factor for any MSTOP. Linking specific project measures to goals and objectives creates a culture for success and results. Goals, objectives and measures should focus on both outputs (things performed by the MSTOP) and outcomes (experiences of the traveler).
- Technology Maturity – Several MSTOPs have focused on bringing technical maturity to a specific technological/operational approach.
- Knowledge Base – Many MSTOPs have been successfull through promoting increased knowledge and understanding of the benefits of coordinated operations.
- Champions/Leadership – Most successfully MSTOPs have had at least one strong champion or leader who promoted the organization and was committed to making the partnership sustainable. This included transitioning the leadership from one generation to the next.
- Funding – Sustainable funding through special federal programs or pooled-funds is a critical issue for all MSTOPs.

ORGANIZATIONAL APPROACHS AND NEED FOR GUIDANCE

MSTOPs are facing many challenges for in their organization approaches and have needs for the development of a set of best practices and/or guidelines to assist future MSTOP development and to advance the state of the practice through shared lessons learned.

- Incremental Approach – developing an incremental approach to formation of MSTOPs were recommended as a best practice. This approach will usually follow these steps:

    - Agree to Discuss – The first step in forming a MSTOP is for the potential member organizations to simply agree to participate and to make joint decisions through the partnership
    - Develop A Charter/MOU – As organizations mature and take on new roles and address expanding agendas, the process of developing a charter document or a memorandum of understanding is very valuable in defining the mission, scope and objectives of the organization. The benefits of this document are in the process of preparing the agreement to refine expectations and then to have a record of those agreement for future personnel. The elements of this charter should include the following:
        - Who Should Be Involved
        - Geography
        - Programs
        - Roles and Responsibilities
        - Decision Making Process
        - How Actions Will Be Taken
        - What Needs To Be Done
        - Structure For Action
        - Identifies Funding Sources And Participation Levels
        - Business Model
        - Business Functions
        - Contracting
        - Procurement
    - Match Layers In Organizations –Combining operational personnel and policy personnel are key elements in the success of an organization. These audiences have different perspective and objectives that are meaningful to them in the development of the MSTOP. It is also important for them to find opportunities to work together in solving problems and developing shared experiences, but

aligning the groups of an organization by purpose is the most effective to achieve long-term results.

- Involve MPOs/DOT Planning – MPOs and DOT planning personnel are experienced in developing partnerships and understand the complexities associated with funding programs that can support and sustain the organization.
- Involve Law Enforcement & Public Safety – These personnel are the ultimate beneficiaries in the coordination of operations and synergies created by MSTOPs. Involving them early and often in the organization is critical to keeping the organization on target and relevant. The key players identified in this community for participation in MSTOPs include: law enforcement, emergency medical/rescue, emergency management, evacuation coordination, fire/rescue, and towing and recovery.
- Involve Private Sector – MSTOPs that have involved the private sector have benefited from the infusion of time, talent and experience that the private sector can bring to the discussion.
- Dedicate Staff – Successful MSTOPs have dedicated staff with the primary function to support the sustainability of the MSTOP. This dedicated staff can serve as the single point of contact who understands the web of communications that will likely result and can "convene" the appropriate personnel to address issues. This person is also a leader/champion in the organization who promotes strategic leadership and assesses priorities on a regular basis.
- Focus On Key Program Areas Initially – Several common program areas were common to successful MSTOPs and comprise a short-list of the program areas emerging MSTOPs should consider as follows:
  - Support Training Programs – either through financial or development support or simply sharing information about training programs, these activities provide a significant benefit for MSTOPs
  - Support Focused Research – applications that lead to advancements of the practice and beneficial technologies that can be rapidly implemented are a key activity for successfully MSTOPs.

- Build On ITS Networks – MSTOPs that are formed around an existing ITS network, such as a freeway management system, are more sustainable than those that organize to promote the development of new systems.
- Address All Hazards – MSTOPs that address all threats to public safety and the traveling public including homeland security, hazardous materials transport, emergency response, and evacuation coordination have been the most successful.
- Recognize Importance Of Reliable Operations: The Economy – One of the most easily translatable benefits of the coordinated operations resulting from MSTOPs are improvements to the reliability of traffic operations. As the Florida Chamber of Commerce recently published "Commerce Can't Move Standing Still". The link between reliable and sustainable transportation operations and the economy has become better understood in the business community, transportation operations community, and elected and appointed officials.
- Look To Mutual Benefits For Mutimodal – Most MSTOPs are formed to address highway-related issues, but shared benefits for multimodal transportation are important considerations and should be considered where applicable.

- Expand Role Only When Demonstrated Success – The MSTOP should focus on a few program areas initially and then only consider expanding its role once success has been achieved.
- Support Shared Standards/Approach – By coordinating the procurement of technologies and operations procedures, the synergistic effects of shared resources and economies of scale can be leveraged to become more cost effective and create seamless operations. One of the building blocks in this process can be the development of an ITS architecture for the MSTOP. These ITS architectures address the interfaces, processes, standards, and requirements for sharing information amongst the various partners and users.

- Internalize Benefits – Save Resources For DOTs – Many MSTOPs focus only on the savings resulting to travelers, but sharing resources, knowledge and procurements can lead to significant internal benefits to the departments of transportation and agencies involved in the MSTOP.
- Funding and Financial Management – Successful MSTOPs require organizations that have funding and financial management skills to develop long-term sustainability. In addition, MSTOPs need sustainable funding. Several programs were developed under one-time funding grants but did not lead to sustainable organizations. Current funding sources for MSTOPs include:

    - Early Deployment Program
    - Demonstration Program
    - FHWA Pooled Funds
    - MPO Programs

    Critical funding needs for MSTOPs include:

    - Maintenance Programs for ITS operations and field elements maintenance
    - Communication networks
    - Awareness programs to maintain the perception of importance and relevancy with elected and appointed officials.

    Specific technical tools need to support funding program support include technical tools and reference to support pursuing operations funds that compete with highway capacity and maintenance funding and outline the benefits of operations programs.

CHAPTER FOUR

RECOMMENDATIONS

This project was funded through the AASHTO Standing Committee on Research and the following recommendations were developed by the Research Panel for this project to this committee:

- **Need For A National Framework For Defining MSTOPs** – With the progress in advancing ITS in the nation's 78 largest metropolitan areas, the next logical step in the national deployment of the Integrated Network of Transportation Infrastructure (INTI) is the deployment of intercity and interstate corridors that link these critical population and industrial centers of the U.S. By defining a national framework to manage and coordinate operations on the key corridors, the U.S. leadership in mobility and economic prosperity can be maintained.

- **Financial Management –** Guidance related to funding and financing of MSTOPs is needed including the funding programs that MSTOPs may be eligible for in the future federal transportation legislation. These guidelines should focus on providing dedicated and sustainable funding.

- **Guidelines For MSTOP Organization and Operations –** The need for guidelines to help emerging MSTOPs form and operate were identified, but these guidelines should be balanced with flexibility to achieve the objectives of the MSTOP in the most effective way for the member organizations. As part of these guidelines a set of agency performance measures and strategies would be a valuable tool.

- **Peer Network Development** – There is not a current national network for the development of MSTOP. Investments in supporting a peer network on an ad-hoc or with regular frequency would provide opportunities for shared experiences and success to

assist emerging MSTOPs and more established MSTOPs maintain their relevance. Some of the activities that were discussed as part of this peer networking included:

- Meeting/Conference Tracks – This strategy includes MSTOPs on agenda for national meetings and/or developing program tracks at conferences to support MSTOP cooperation and coordination.
- National Summit – Conducting a national summit on MSTOPs will lead to the development of peer networks to support MSTOP development and be tailored specifically to their needs.
- Guidance Document – Preparation of a guideline in the form of a handbook or other reference material that combines many of the ideas and recommendations from this study were discussed as a logical next step in provide guidance and technical support to MSTOPs. This guidance document should identify best practices in operations, organizational approaches and project planning/program development and procurement.

CHAPTER FIVE

CASE STUDIES

I-10 Freight Corridor Case Study

SUMMARY

The purpose of the I-10 Freight Corridor Study was to identify ways to meet freight movement demand along the I-10 Corridor (Florida to California), given expected increases in freight and traffic volumes, and the resulting congestion by 2025. The study objectives were to:

- Assess the importance of freight moving on Interstate 10 to the economy of the corridor states and to the rest of the nation;
- Identify current and future traffic operations and safety problems along the I-10 Corridor which impede freight flow;
- Identify and evaluate strategies, including multimodal strategies, needed to facilitate freight flow within the corridor.

The states involved in the I-10 corridor include: California, Arizona, New Mexico, Texas, Louisiana, Mississippi, Alabama and Florida. Public meetings were held in each state to elicit public input. The objectives of the study include:

- Gather information about freight movements
- Assess the overall physical condition of the interstate
- Identify operational problems for all motorists on I-10
- Determine improvements to ease congestion
- Determine improvements to enhance safety
- Elicit information about truck traffic affects on air quality, highway safety, road maintenance, and the economies and job markets in the communities linked to I-10.

The study also looked at roadways that feed I-10 from large freight moving areas, such as manufacturing and distribution centers, sea ports, air cargo facilities and railroad intermodal yards.

The primary recommendations of the study are to increase the use of rail and expansion of I-10. Other findings included:

- Freight transportation is central to the performance of the US economy.
- Continued trend toward a service economy will increase volume of freight traffic at a projected pace nearly twice that of the automobile by 2025.
- Highways are essential to the efficiency of other freight transportation system elements.
- Single best way to lower highway congestion is to increase capacity in high volume corridors by road expansion and incorporation of ITS/CVO technologies.
- Increased funding is required to guaranteeing freight continues to move efficiently.
- Freight transportation demand transcends urban and state boundaries.
- Decisions for funding improvements should consider strategic gateways and corridors that facilitate freight movement.

The I-10 Partnership efforts should continue to:

- Highlight role of transportation in economic prosperity
- Make case for increased national investment in transportation (all modes)
- Develop and implement a consensus ITS architecture integrated with corridor improvements
- Help shape Future Strategic Highway Research Program agenda to reflect need to improve freight movement
- Help coordinate investments along I-10 Corridor with increased emphasis on jurisdictions that bridge the corridor.

ORGANIZATIONAL BACKGROUND

Historical Perspectives

A multi-state partnership with steering committee existed prior to the formation of the MSTOP. The I-10 Freight Corridor Study was performed to address congestion impacts on freight movements, determine importance of freight movement to corridor and national economies, assess operational issues and assess environmental issues.

Geographic Areas Covered

I-10 from Florida to California (Alabama, Mississippi, Louisiana, Texas, New Mexico, Arizona) and I-60 in California

Programmatic Areas Addressed

Freight movement, traffic operations, safety, and ITS/CVO are the primary program areas that were addressed through the study.

The I-10 Freight Corridor Study is not an ITS organization *per se* but the study recommendations call for coordinated ITS/CVO technologies to be made part of facility capacity expansion efforts.

Organization Members and Structure

National I-10 Freight Corridor I-10 Partnership
1-866-4-I-10 FWY (1-866-441-0399)
National I-10 Freight Corridor Study
11301 Olympic Boulevard #413
West Los Angeles, CA 90064
www.i10freightstudy.org

A memorandum of understanding was developed to support the development and participation in the study; however, no known formal agreements exist for a continued cooperation. Informally,

the state departments of transportation communicate about projects and improvements along the corridor that affect borders.

The responsibilities of each member of the corridor study are to facilitate local and national I-10 considerations in their respective states and to elicit public input on the project.

There is a steering committee that met regularly and has proposed to continue to meet but no formal structure or agreements have been reached.

Financial Programs

The study was funded through FHWA. Funding for the continued efforts of the I-10 Partnership is unknown. The study funds were used to conduct the National I-10 Freight Corridor Study. Any continuing funds, if made available, will be used to support the partnership's goals identified above.

STRATEGIC PLANS/DEPLOYMENT PLANS

The final study and recommendations have been published and include recommendations for several deployments; however, the status of the recommendations for deployment is unknown.

The study objectives were to:

- Assess the importance of freight moving on Interstate 10 to the economy of the corridor states and to the rest of the nation;
- Identify current and future traffic operations and safety problems along the I-10 Corridor which impede freight flow;
- Identify and evaluate strategies, including multimodal strategies, needed to facilitate freight flow within the corridor.

Performance Measures

No formal performance measure programs are established based on the information available. However, within the findings of the study, the following key points were provided that could be used to design and implement a performance measure program.

- Freight transportation is central to the performance of the US economy.
- Continued trend toward a service economy will increase volume of freight traffic at a projected pace nearly twice that of the automobile by 2025.
- Highways are essential to the efficiency of other freight transportation system elements.
- Single best way to lower highway congestion is to increase capacity in high volume corridors by road expansion and incorporation of ITS/CVO technologies.
- Increased funding is required to guaranteeing freight continues to move efficiently.
- Freight transportation demand transcends urban and state boundaries.
- Decisions for funding improvements should consider strategic gateways and corridors that facilitate freight movement.

The status of deployment of activities to support these findings is not available.

Successes in Achieving the Study Goals

The following study objectives were accomplished through completion of the National I-10 Freight Corridor Study:

- Assess the importance of freight moving on I-10 to the economy of the corridor states and to the rest of the nation;
- Identify current and future traffic operations and safety problems along the I-10 Corridor which impede freight flow;
- Identify and evaluate strategies, including multimodal strategies, needed to facilitate freight flow within the corridor.

CURRENT ACTIVITIES

Recommendations were made for the future roles of the I-10 Partnership as part of the study, however, we were unable to confirm that these activities are progressing in any formal way.

The I-10 Partnership efforts should continue to:

- Highlight role of transportation in economic prosperity
- Make case for increased national investment in transportation (all modes)
- Develop and implement a consensus ITS architecture integrated with corridor improvements
- Help shape Future Strategic Highway Research Program agenda to reflect need to improve freight movement
- Help coordinate investments along I-10 Corridor with increased emphasis on jurisdictions that bridge the corridor.

NEEDS

No specific needs were identified in the case study other than those associated with support of the deployments identified above.

LESSONS LEARNED

To be added based on additional interviews with MSTOP team.

RECOMMENDATIONS

To be added based on additional interviews with MSTOP team.

REFERENCES

AASHTO Freight Transportation Network

http://freight.transportation.org/rail_corridors.html

I-10 National Freight Study Home Page- Official Web Site:

Spanning 8 States Coast-to-Coast, the National I-10 Freight Corridor faces growing challenges—In recent years, truck traffic gas has grown almost 8% annually on some segments of I-10. The numbers continue to rise, with demands spreading across our entire transportation network.
To read more go to : http://www.i10freightstudy.org/

State Freight Profiles

* National Freight Analysis Overall Framework * (Facts Sheet w/ Maps): Facts Sheet & Maps
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/faf-%20overview.pdf

I-10 Freight Corridor (Region Including: CA, AZ, NM, TX, LA, MS, AL, FL)
a.) Freight Transportation Profile –California Freight Analysis Framework: CA
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/CA2.pdf

b.) Freight Transportation Profile –Arizona Freight Analysis Framework: AZ
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/AZ2.pdf

c.) Freight Transportation Profile –New Mexico Freight Analysis Framework: NM
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/NM3.pdf

d.) Freight Transportation Profile –Texas Freight Analysis Framework: TX
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/TX3.pdf

e.) Freight Transportation Profile –Louisiana Freight Analysis Framework: LA
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/LA2.pdf

f.) Freight Transportation Profile –Mississippi Freight Analysis Framework: MS
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/MS3.pdf

g.) Freight Transportation Profile –Alabama Freight Analysis Framework: AL
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/AL3.pdf

h.) Freight Transportation Profile –Florida Freight Analysis Framework: FL
http://www.ops.fhwa.dot.gov/freight/publications/state_profiles/FL2.pdf

The I-10 Corridor Association

http://www.i10corridor.org/association.html

I-10 Corridor Exit Now

http://www.i10corridor.net/

APPENDIX

Frequently Asked Questions

Q: Who requested the National I-10 Freight Study?
A: The eight states involved in the study recognize the current bottlenecks and safety issues in certain places along I-10. These states also realize traffic is continually growing; and an investigation to determine congestion relief alternatives is needed. The eight states agreed to join together in conducting this investigation.

Q: Why doesn't each state take care of its own section of I-10?
A: The nature of freight movement along the entire corridor requires examination of the full length of I-10 as a transportation system. It is likely that recommendations will be specific to each state. Those recommendations will consider how activity in one state affects travel and traffic in the adjacent states.

Q: Who will pay for I-10 improvements?
A: At present, this is undetermined. Based on previous transportation projects, it likely will be a combination of state and federal funds.

Q: Who will make the I-10 improvement decisions?

A: Each state's transportation department will decide which recommended improvements will be implemented in their respective states. The decisions, however, will consider input from the communities along I-10 and the activities occurring in other states.

Q: Is this study intended to increase the number of trucks on the road or allow increases in truck sizes and weights?
A: This study is intended to reduce congestion, enhance safety and improve traffic flow. One form of transportation will not be favored over another.

Q: When will the I-10 Study recommended improvements be implemented?
A: The planning horizons identified in the study are 2008, 2013 and 2025. The exact timeframe for any one improvement will depend on the availability of funding and other transportation project priorities in each state.

I-95 Corridor Coalition

SUMMARY

The I-95 Corridor Coalition (Coalition) is a partnership of major public and private transportation agencies, toll authorities, and industry associations, serving the northeastern corridor of the United States from Maine to Virginia. Built on a foundation of cooperation, consensus, and coordination, the Coalition members come together to address ITS solutions to shared transportation problems and challenges. By leveraging resources, sharing information and coordinating programs, the Coalition adds value to the individual member organization's activities, and provides a synergy for more dynamic and seamless transportation solutions throughout the Corridor.

The Coalition began as an informal group of transportation professionals working together in the early 1990's to reduce the operational and institutional barriers to coordinated incident management within their jurisdictions. Limits on the region's capacity to expand transportation infrastructures made it an excellent candidate for Intelligent Transportation Systems (ITS). However, the geographical boundaries of 12 states made implementation of ITS difficult without a coordinating body.

Following passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in December, 1991, the U.S. Department of Transportation designated the region as an ITS "Priority Corridor." This designation was in response to the Corridor's higher than average traffic density, severe or extreme ozone levels, variety of transportation facilities that serve its residents and businesses, and limits on its expansion capacity. The "Priority Corridor" designation has enabled the Coalition to receive specific Federal Highway Administration (FHWA) funding for initiatives to help improve the conditions in the Corridor. In 1993, the Coalition was formally established to enhance mobility, safety, and efficiency across all modes and transportation facilities that serve the region. In recognition of the Coalition's past efforts to improve freight and passenger movements throughout the region, Federal support for ITS activities in the I-95 Corridor in the northeastern United States continued with passage of the

Transportation Equity Act for the 21 st Century (TEA-21) in June, 1998. As a result, Coalition initiatives continue to be advanced through an established business planning process.

The Coalition brings to the table the key decision and policy makers that have or will influence the operation of the Corridor including:

- State and Local Departments of Transportation,
- Transportation Authorities,
- Transit and Rail Agencies,
- Motor Vehicle Agencies,
- State Police/Law Enforcement,
- US Department of Transportation,
- Intercity Passenger and Freight Transportation Providers
- Transportation Industry Associations.

Geographic membership in the Coalition includes the boundaries of:

- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Maine
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- North Carolina
- Pennsylvania
- Rhode Island
- South Carolina
- Vermont
- Virginia

Coalition activities are currently engaging a broader base of both public and private partners and bring them together in an increased spirit of cooperation. These partners range from law enforcement agencies, some of which are already participating in Coalition activities, to new partners in areas such as economic development, regional and local transportation, emergency services, and defense logistics. An important manifestation of this is increasing emphasis on

working cooperatively with organizations involved in moving passengers in non-highway modes, and in moving freight through the Corridor.

For the first five years of the Coalition's program, the focus was on a series of specific projects that helped to accomplish the broader strategies of the Coalition. From many of these projects, actual field operational tests (FOT's) were designed to test certain concepts, usually across several states and multiple agencies. In 1997, the structure of the Coalition changed to organize the Coalition Program into parallel, but interrelated Program Tracks. (1)

ORGANIZATIONAL BACKGROUND

Historical Perspectives

In the early 1990's a visionary leadership was critically needed to address transportation problems in the Country's heavily populated northeastern corridor. The corridor's transportation network was pushed to capacity limits and the economic and physical health in the region was in jeopardy. This was due to the region's rapid housing development growth, population shifts from urban to sprawling suburban areas, increased commercial vehicle travel, and congestion delays.

State transportation leaders in the corridor recognized that new cooperative approaches were required to address these developing and complex transportation challenges. They believed that existing capacity could be better utilized and management and operations of the entire transportation network could be improved through institutional cooperative arrangements and technology systems.

The federal government also recognized the strain on the northeast transportation network. In late 1992, the U.S. Department of Transportation included a 12-state region from Maine to Virginia as one of four designated "Priority Corridors" in the United States.(5)

The I-95 Corridor is an essential functional link in the nation's transportation system that affects the commerce, defense preparedness, and quality of life of tens of millions of citizens every day. Nearly 25% of the U.S. population work, play, travel and commute in only 6.2% of its landmass.

Increasingly, the Corridor's 13 major airports, more than two dozen rail stations, 11 major seaports and 30,000 miles of interstate and primary highways need thoughtful, coordinated management across multi-jurisdictional lines. This concentration of people, facilities, and goods makes this region the most congested in the United States. This reality is the driving force behind ITS needs in the Corridor, and defines the challenges for the I-95 Corridor Coalition.(1)

Geographic Areas Covered

Interstate 95 and links to important intersecting routes.

Geographic membership in the Coalition includes the boundaries of:

- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Maine
- Maryland
- Massachusetts
- New Hampshire
- New Jersey
- New York
- North Carolina
- Pennsylvania
- Rhode Island
- South Carolina
- Vermont
- Virginia

Programmatic Areas Addressed

There are several major functions that the corridor fulfills:

An Intra-Regional Commuting Corridor

The urban highway and transit networks of our member agencies support a heavy load of commuters on a daily basis. These networks will be further tested as the population in the Corridor grows. In fact, five of the top fifteen states that will grow by more than a million people between 1995 and 2025, are in the I-95 Corridor. Traveling between their residences and work or among places of business during the workday, these commuters generate enormous transit and traffic volumes, pollutants, and unplanned incidents. The volume of transfers between methods of travel in most of these urban centers is high. Yet planners and operations personnel still must

strive to further increase the use of multiple modes travel, to provide relief to the highway networks. Over 144,000 cars cross the Delaware River bridges into Philadelphia each morning from New Jersey; a million commuters drive through tunnels and over bridges into New York City daily from New Jersey, Connecticut, or other parts of New York State. In Boston, nearly 300,000 commuters from Massachusetts, Rhode Island, and other New England states drive into the urban area, using highways, bridges, and tunnels. Highways in the Washington D.C. metropolitan area have been rated as some of the most congested in the country as workers from Maryland and Virginia commute to their jobs. In each of these cases, commuter rail/bus transit systems such as NJ Transit, SEPTA, MARC, MTA, as well as subways, ferries, and AMTRAK are used as alternatives to personal vehicles. In addition, because highway movements have become the commercial routine of each major urban area, significant relief will not occur unless and until the dependence upon trucks for domestic commerce takes on an entirely different character.

An Inter-Regional Business And Leisure Corridor

Of all regions in the U.S., the eastern seaboard experiences the highest proportion of through-and to-state long-distance highway travel and among the highest person-miles of such travel. With its compact geography, the Corridor faces a high level of inter-regional business and leisure traffic every day, compounding the problem of intra-regional commuting. Additionally, the volume of weekend and holiday leisure and recreation traffic between urban regions is a major source of congestion and incidents. Philadelphia, Washington, New York City, and Boston are common destinations for family and group trips because of the historical, commercial, special events and other recreational attractions. Additional highway and rail traffic into New York City for the Christmas season, for example, competes with the traffic already generated by the workforce. Tourists by the bus and carload, coming to see the nation’s capital in the spring and summer, add to the congested bridges, streets, and subways. The exact route for weekend travel around urban areas is often planned according to whether a special event, such as a home team game at a stadium, is scheduled. Many of these regions can be served by customized ITS solutions to mitigate the problem.

While the Corridor is chiefly known as a chain of urbanized regions, equally important within the Corridor are significant reaches of largely rural areas along the major highways. Member agencies share common difficulties in serving the safety and mobility needs of the rural travelers, such as quickly identifying accidents in less populated areas, or providing en-route information about back-ups, or delays at choke-points along the rural route. Many normally unpopulated rural areas are overwhelmed periodically with traffic to major recreation destinations such as the beaches along the coast from Virginia to Maine. Because the beach economy is vital to all the shoreline states, managing the transportation systems to those resources is critical to the economic health of the Corridor.

A Freight Movement Corridor

The northeast is the nation's most intensively populated corridor. It is sustained by a vast volume of freight movement, bringing life sustaining goods to the urban and rural areas, and distributing the goods manufactured in those areas. Coupled with these manufacturing and distribution movements, are the seaport's shipping, receiving, and transfer nodes through which significant volumes of freight are processed. Improving the efficiency of freight movements in the Corridor is a major initiative for the Coalition, a focal element of this Plan, and an untapped area within range of ITS applications. Ports in the Corridor from Norfolk to New Jersey/New York to Maine receive over 575 million tons of goods each year (about 2 million tons each day) that must be carried by rail or truck to and from various destinations throughout the country.

A Defense Support Corridor

In the event of a defense or natural disaster mobilization, the Corridor will be a lifeline through which personnel and freight will have to quickly deploy. Much of this movement will be to support the deployment of personnel and materials to the northeast's major air and seaports for subsequent movement overseas. Military bases such as Fort Lee and Fort Eustis in Virginia and Fort Drum in New York are all-important installations from which military operations would be staged.

Not only does the Corridor support all of these functions, it must support them efficiently and simultaneously. On any given day, a mixture of transportation demands on the Corridor result in

extreme congestion, incident-based delays, and unhealthy levels of air pollution – all leading to loss of lives, time, and money in addition to driver and agency frustration. As travel demands continue, the Coalition will continue to identify and promote solutions that address the various problems stemming from these demands. There is a direct correlation between diverse ITS deployments within and between our member agencies and efficient management of traffic and incidents within the corridor. Through Coalition and agency efforts, the mobility of people and goods will continue to improve. (1)

Examples Projects

Information Systems

The Coalition develops systems that provide easier access to information that will assist member agencies with system management and operation, and support future investment decisions. The Coalition's Information Exchange Network was one of the nation's earliest successes at electronically sharing information about incidents and construction zones among multiple transportation operating agencies across a broad geographic area. The Coalition continues to improve this system to enhance usage and accessibility. The Integrated System for Corridor Operations and Management, currently under development, will provide information on region-wide passenger and freight movements and travel times, and analysis tools to support member agency decisions on operations and capital investments. The Coalition is also looking broadly towards developing a system architecture that provides for the consolidation and sharing of information relevant to the planning and operation of coordinated transportation management and traveler information services throughout the region. Deployment of this architecture would greatly facilitate information exchange during emergency management situations.

Intermodal Passenger Travel Information System

Working with AMTRAK, Greyhound and other public and private organizations, the Coalition has embarked upon the development of a capability that will provide information on modal options, routes, travel times and costs to long-distance intercity travelers from trip origin to destination. Mid-Atlantic Rail Study - This is an excellent example of cooperation across public and private sector organizations involving the pooling of resources among the Coalition; five

states (Delaware, Maryland, New Jersey, Pennsylvania, and Virginia); and three railroads (AMTRAK, CSX and Norfolk Southern). This effort is unlikely to have occurred without the umbrella of Coalition sponsorship and collaboration. This project looked at rail bottlenecks and proposed a program of potential solutions in the southern portion of the region. The Coalition is currently exploring next steps in regard to rail transportation in the corridor, in cooperation with the Northeast Association of State Transportation Officials (NASTO), the Coalition of Northeastern Governors (CONEG), the US Department of Transportation, and the railroads.

Commercial Vehicle Information System Network (CVISN) Deployment Assistance

CVISN refers to the information systems that support commercial vehicle operations functions. The Coalition has provided resources to assist states in meeting parts of the US DOT's CVISN Level 1 deployment requirements related to roadside safety inspections, electronic credentialing, and electronic screening. The Coalition has sponsored CVISN training sessions and workshops that states must attend to qualify as CVISN states. The Coalition has provided technical advisory services for CVISN program development. As a result, all of the Coalition states are scheduled to meet the basic Level 1 deployment requirements, with a number of the states significantly exceeding these requirements.

Electronic Screening Interoperability

This activity builds upon the work of the ITS America E Commerce Blue Ribbon Panel towards establishing the framework and business case for national interoperability of electronic toll collection systems for commercial vehicles. The project leverages the popularity of the E-Z Pass electronic toll collection (ETC) systems in the region to increase motor carrier participation in the electronic screening of commercial vehicles. Through use of the Mark IV Fusion® transponder, motor carriers will be able to use a single transponder for both ETC and E-Screening applications. Through a phased approach, the goals of the project are to build upon efforts initiated in Maryland to first expand participation to a larger (10,000) vehicle population.

Incident And Emergency Response

The Coalition has dramatically improved coordinated responses to both small and large-scale incidents and emergencies. These improvements are a direct result of the learning, information

sharing, and personal relationships established during regular meetings of the Coalition's Highway Operations Groups. This was particularly evident during and in the aftermath of the September 11, 2001 attacks ,when the trust rooted in personal relationships established over the last decade through the Coalition helped expedite the response effort. TRANSCOM, a not-for-profit organization that collects and disseminates travel information in the Connecticut/New Jersey/New York metropolitan area, also operates the Information Exchange Network (see above) on behalf of the Coalition and its member agencies. During and after the tragic events of 9/11, TRANSCOM used the Information Exchange Network to provide critical information on transportation conditions to operating agencies throughout the Coalition region. The Coalition continues to coordinate with transportation, emergency, medical, and telematics organizations throughout the region to improve incident and emergency response capabilities and support transportation security.

Intermodal Freight Movement

The Coalition is supporting the extension of concepts developed in the Port Authority of New York and New Jersey's Freight Information Real-time System for Transport (FIRST). This system provides timely information on ship/rail arrivals and departures, cargo status, drayage operations, and traffic conditions to improve landside access to New York and northern New Jersey ports. The Coalition is also supporting the creation of a direct interface between the FIRST website and database, and the information management systems of feeder ports and inland distribution hubs.

Container Security

The Coalition will provide a forum for coordinating state, local municipalities and other transportation organizations to assist USDOT efforts to enhance container security through use of technology, information systems, and business practices that will monitor the movement of containers and trailers and improve security.

Organization Members and Structure

There are four types of membership within the Coalition: Full Membership, Affiliate Membership, Associate Membership and Friends of the Coalition.

Full Membership entitles the organization to a seat on the Executive Board, along with representation on the Steering Committee, Program Track Committees, and/or any special task forces. A full member is any organization who owns or operates a major regional system or who is an agency of the United States Department of Transportation (USDOT). Each full member is accorded one vote, when voting is required.

Affiliate Membership entitles the organization to representation on the Steering Committee, Program Track Committees, and/or any special task forces. They would include any organization that is a transportation-related association, such as a Metropolitan Planning Organization (MPO) or other transportation planning agencies/organizations.

Associate Membership entitles the organization to representation on the Program Track Committees, and/or any special task forces. This category includes; any organization that owns or operates a local transportation system; is otherwise eligible to be a Full or Affiliate member but is outside the geographic boundary of the Coalition; or is a partner agency, such as State Police, other law enforcement organizations, and motor vehicle agencies. Partner agencies typically contribute to the content and implementation of the Coalition's program, but are not part of a public transportation department or authority.

Friends of the I-95 Corridor Coalition entitles the organization to receive Coalition newsletters, notices of Requests for Proposals (RFP's), the Business Plan, the Strategic Plan, and copies of Coalition final deliverables (if requested). Organizations or individuals not eligible for Full, Affiliate or Associate membership would fit this category 2.

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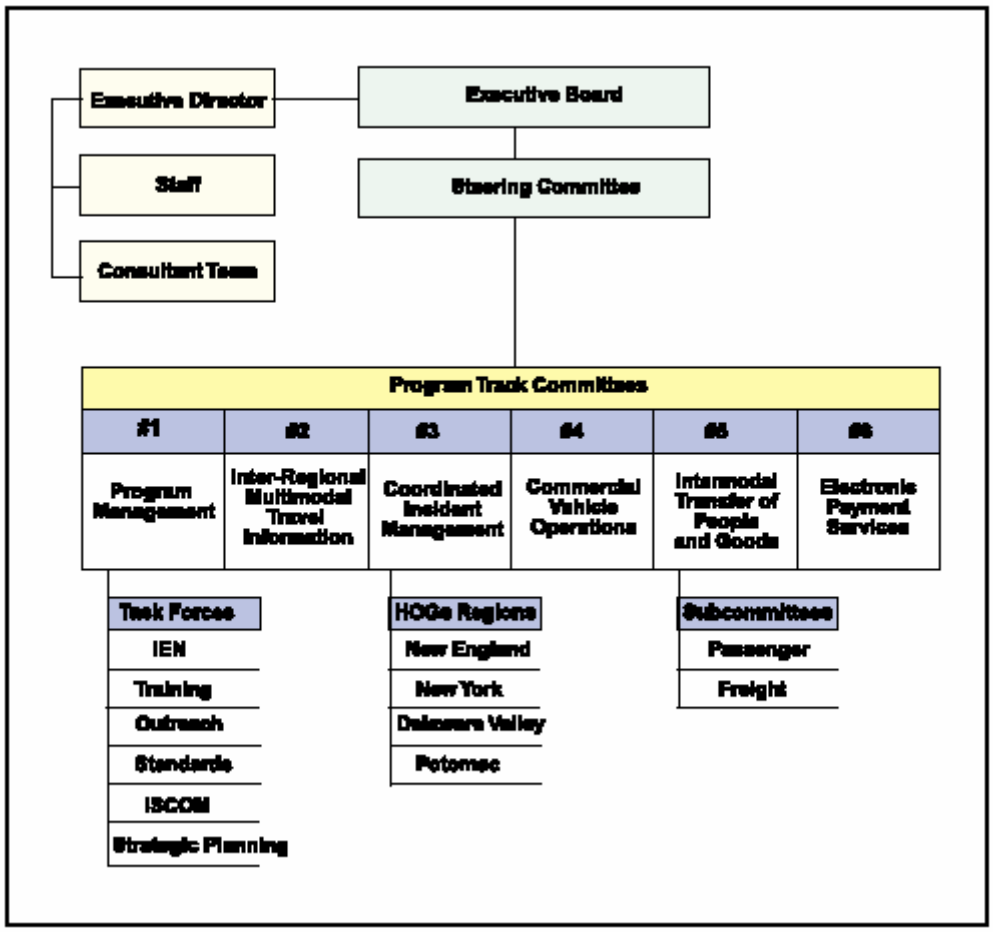
Member agencies, Coalition staff, and private partners, carry out the Coalition's business plan within an organizational framework that defines specific responsibilities and roles. Figure 1 on the next page provides an organization chart for the coalition. The overall structure includes:

Executive Board

The Executive Board is made up of Chief Executive Officers or their designee from each of the Coalition's full member agencies. The Executive Board is the policy making body for the Coalition. It meets twice a year or as needed, to provide policy guidance to the Coalition and to approve the Coalition's Business Plan and annual program. The Executive Board looks at the implication of long term trends, and frames the long term missions and goals accordingly. It must also approve the Strategic Plan and any organizational restructuring. A chair and one or more vice-chairs lead the Executive Board. The chair and the vice-chairs form an Executive Leadership group (known as the Executive Committee) which meets as necessary to consider policy level issues and to develop the agenda for regular scheduled meetings. The Executive Committee decides what issues must go to the full Board for consideration, and may choose to take an action as the leadership without a full Board meeting.

Figure 1 – I-95 Corridor Coalition Organization Chart



Steering Committee

The Steering Committee is made up of senior policy or technical representatives from each member of the Coalition. It meets as needed and deals with all aspects of the Coalition's activities including technical, institutional, organizational, program, funding, policy and internal and external relations. The Steering Committee is led by a chair and vice chair or two co-chairs. The Steering Committee coordinates and guides Coalition programs, gives guidance on the direction of the Coalition and oversees business operations to insure that the interests of member agencies are met. The chairs of the Steering Committee also participate in guiding the day-to-day management of the Coalition. The Co-Chairs decide what issues must go to the full Committee for consideration, and may choose to take an action as the leadership on a case-by-case basis.

Program Track Committees

Program Track Committees have been established as the core structure through which the Coalition's program will be implemented. Program Track Committees are established for each of the program tracks identified in the Business Plan. The role of a Program Track Committee is to guide the Coalition activity within that area of ITS program emphasis and expertise. These committees meet on a frequency determined by need within the Committee. Membership is from the Coalition agencies, but participation is open to anyone with an interest in the goals of the committee, including representatives of private or corporate entities. The committee may have co-chairs, but at least half the leadership must be from a member agency. Program Track Committee Chairs are approved by the leadership of the Steering Committee.

Program Management Committee

The Program Management Committee has a dual role in the Coalition structure. Its members are individuals with a broad perspective on Coalition and member agency ITS needs, and are designated by Steering Committee members. All Program Track Committee leaders are automatically members of the Program Management committee. A primary role is to serve as the committee that reviews and recommends actions to the Steering Committee on issues related to strategic planning, budget development, overall program coordination and management, new or changed policies, and development of the annual business plan update and resulting work plan. The other role is to serve as the Program Track Committee for the cross-cutting program issues dealing with support of member agency ITS programs, the general support services to the Coalition and emerging ITS issues of interest to members.

Financial Programs

Coalition members have brought over $48 million to the Coalition table to match FHWA funds. During the Coalition's first five years under ISTEA, the match credit requirement was 20% of our total work plan or $8.9 million. This was more than satisfied by the $14.8 million in "match credit" pool of agency-funded ITS projects. Members again exceeded the match requirement under TEA-21 funding, which was increased from 20% to 50% or $12.3 million, by contributing $33.2 million in match for Years 6-8.

Currently, member agencies and other participants are required to satisfy the 50% project-specific match requirements for any ITS Deployment Program funding provided for all Coalition projects. A project is defined as efforts other than general support activities provided to the Coalition. "Pooled" match credits are used to satisfy requirements for general support activities, training, studies, etc. This blend of project specific and pooled program-wide approach recognizes that Federal ITS Deployment Program funds also support the overall Coalition program of ITS activities.

Member agencies also invest in the Coalition through staff participation in leadership roles, working groups, field operational tests, projects, technical committees, and task forces. They also host the consultant support and other project specific contracts and loan their staff for full-time Coalition staff assignments. Currently, three of the four staff members are assigned from member agencies. The financial investment associated with this participation is not reflected in the above $48 million in member match and further demonstrates the strong link between member and Coalition success. Members' interest is more clearly identified through our organizational structure of specific program track areas and task force missions. This has significantly increased the number of volunteers. Members also recognize that there is a direct correlation between coordination of ITS deployments within and between our member agencies and efficient management of traffic and incidents throughout the Corridor. (1)

STRATEGIC PLANS/DEPLOYMENT PLANS

The Coalition maintains a working business plan on a cooperative basis that organized around a set of goals and objectives. The Coalition's objectives include the following:

1. Facilitate Deployments across Jurisdictions and Modes.
    - Promote multimodal and intermodal coordination
    - Encourage interoperability among jurisdictions
    - Foster adoption of standards and procedures that promote deployment
    - Coordinate information exchange to enhance the speed of deployment and seamless operations

2. Learning and Information Sharing
   - Facilitate communication and learning among members and partners
   - Conduct forums and provide training on topics of critical importance
   - Foster networking in support of sharing experiences and mutual education

3. Information Management
   - Provide easier access to information for system management and operation
   - Provide a source of long-distance travel information that will be disseminated to the traveling public
   - Provide a source of information to support future investment decisions of the Coalition and its member agencies

Performance Measures and Benchmarks

Attention is now given to outcomes rather than outputs. Prior Coalition efforts primarily produced study and operational test results, information exchanges, and a corridor-wide network for sharing information. Currently, the successes of Coalition activities are increasingly measured by their impact on the Corridor's transportation system effectiveness. The Coalition will continue to sponsor evaluations of all its major activities that will focus on assessing the benefits of potential improvements to regional passenger and freight movements, and the regional economy.

Successes in Achieving Goals and Objectives

The Coalition has had a strong track record of success since it's inception. It has added new members in the Florida, Georgia, South Carolina and North Carolina this year encompassing the entire I-95 corridor. There is continued coordination and cooperation on projects and programs such as CVO/CVISN throughout the corridor and the agency is working to achieve it's goals.

CURRENT ACTIVITIES

Emphasis is now directed to:

- Allowing the public and shippers to smartly plan trips between major origin and destination points in the Corridor by providing a comprehensive source of information on all modes of travel
- Achieving the productivity and safety goals associated with implementing the Commercial Vehicle Information Systems Network (CVISN) throughout the Corridor
- Allowing travelers to seamlessly pay electronic tolls throughout the Corridor and supporting achievement of national ITS program goals related to interoperability of electronic toll and commercial vehicle operations applications.

Currently, the six Program Tracks provide the structure through which the Coalition's strategies are accomplished. Each track focuses on a functional or support category of work that the Coalition intends to pursue during the next five-year period. Every track links to some or all of the strategies. The Business Plan identifies the specific goals, objectives and activities/tactics that will be used by the participants in each Program Track to implement the strategies. The specific tactics in this update represent ongoing initiatives and those already under development for the next two to three years.

Program Management

Goal #1- To manage and/or coordinate activities that cut across the other program tracks or involve more than a single program track.

Objectives:

- Initiate and manage task forces to address crosscutting issues.
- Develop and monitor crosscutting projects in support of member agency programs or issues of mutual interest.
- Create effective mechanisms for the transfer of lessons learned and technical information among member agencies.
- Identify and monitor national ITS standards development activities and recommend Coalition actions to address them.

- Conduct periodic forums on issues and topics of broad interest to members.
- Develop programs and activities to educate member agencies and the traveling public about the Coalition.

Goal #2 - To provide policy development, program management, strategic and business planning, and budget advice to the Steering committee.

Objectives:

- Assess the effectiveness of the program as it impacts travel in the northeast corridor.
- Lead strategic, business planning, and policy development activities.
- Identify and monitor emerging issues related to ITS and recommend Coalition actions to address them.
- Identify alternative funding sources.
- Increase membership participation.
- Monitor and keep Coalition informed of relevant legislative issues.
- Review and recommend ready-to-go project requests.
- Provide advice on document Coalition policies and procedures.
- Monitor budget formulation and execution.

Inter-Regional Multimodal Travel Information

Goal - To support the development of a seamless, transparent network of regional, multimodal traveler information systems.

Objectives:

- Organize and support ATIS-related projects and activities.
- Encourage private sector investment in new markets or geographic areas.
- Support existing public and private sector ATIS efforts.
- Identify opportunities to work closely with other program track committees.

Coordinated Incident Management

Goal - To facilitate, support, and enhance the coordination and implementation of interagency efforts in response to major incidents and special events of regional significance along the I- 95 Corridor to minimize adverse impacts on the public.

Objectives:

- Promote the coordination and cooperation among all organizations involved in incident management including state, county and local transportation departments, toll road authorities, law enforcement agencies, emergency service providers and other operating agencies within the Corridor.
- Foster and facilitate the continued development and implementation of regional incident management initiatives.
- Educate the public and responders to the benefits of incident management.
- Encourage technology and resource sharing, where possible.
- Coordinate the development of training programs to support member agency's incident management programs and activities.
- Demonstrate and evaluate the application of innovative procedures and technologies to enhance incident management activities.

Commercial Vehicle Operations

Goal - To promote the funding and cost effective deployment of ITS/CVO technologies and systems.

Objectives:

- Remove institutional barriers.
- Advance measures that allow safe and legal carriers to operate without unnecessary regulatory and administrative burdens.
- Target enforcement efforts on identifying non-compliant and unsafe carriers.
- Promote the electronic exchange of commercial vehicle information.
- Support the integration of ITS and ITS/CVO.

Intermodal Transfer of People and Goods

Goal - To promote reliable, efficient, and balanced intermodal transportation throughout the Coalition states by supporting leadership, information technology, and operations that improve the intermodal movement of freight and passengers.

Objectives:

- Provide leaders with an overview of the contribution, needs, issues, and opportunities of intermodal transportation.
- Foster effective partnerships among state, regional, and local agencies, between public and private sector transportation providers, and between freight and passenger interests to address intermodal issues and opportunities.
- Develop a cadre of informed agency and private-sector leaders to champion and implement intermodal freight and passenger policies, programs, and initiatives.
- Support and advance the development of intermodal information systems architecture, data interchange standards, and interoperable technologies that benefit intermodal freight and passenger movement.
- Organize and support public and private ITS/intermodal operational tests to explore ITS applications, determine costs and benefits, identify the baseline need for an intermodal information system architecture, and build partnerships.
- Organize and support public and private ITS/intermodal operations groups to build partnerships, identify needs and solutions, formulate project ideas, and coordinate initiatives.

Electronic Payment Services

Goal - To foster the implementation of interoperable, Corridor-wide, multimodal electronic payments systems (EPS).

Objectives:

- Promote common applications and technological requirements for electronic payment systems. Minimize the use of different payment methods and devices among the various modes of transportation.
- Advance the utilization of electronic payment systems beyond its present use of highway tolls and transit fares.

- Reduce the administrative burden of interoperability among different transportation jurisdictions, different modes of transportation, and different applications and functions.
- Promote the discussion of different electronic payment devices and try to unify deployment within the Corridor.
- Promote interoperability and reciprocity within the Corridor and between regions.

NEEDS

Coordination and Communication of The Institutional Issues and Programs

The challenge for developing a responsive program has remained the same since the beginning of the Coalition. The twelve-state area is a corridor of many regions, many modes, and many needs. Progress is at different stages across the Corridor, and it remains a challenge to develop a program that has something of value for everyone and is consistent with national goals. Program assessment and regular strategic planning that is focused on outcomes are critical to accomplish this, along with continued reassessment and adjustment of structure and processes. Setting priorities and providing guidance at the Executive level must continue.

Funding Remains A Constant Challenge

The Coalition program has paralleled the National ITS program in many ways and will continue to do so. Modest amounts of money have gone a long way, and continued Federal support makes sense in terms of progress. The Coalition's Chairman has characterized the organization as the glue that binds together Northeast transportation leaders as they use new technological approaches to improve mobility and safety within the regions. The primer that has allowed that to happen is the Federal support of the programs.

It is likely that if the technology available today had been at that same stage in 1992, the Coalition and its member agencies would have made different decisions about their programs. That will always be the case with technology advancement, and is one of the reasons that the Coalition has an ongoing effort focused on emerging issues. The impact of Internet and wireless

communication on how the public seeks information has changed the business approach to providing traveler information. Staying up with the technology curve is critical for the Coalition.

LESSONS LEARNED

The lessons learned through this case study include:

- Bringing to the table the key decision and policy makers that have or will influence the operation of the Corridor, is important for the success of the organization.
- Coordination and cooperation among public and private agencies is crucial to the success of the coalition. These partners could range from law enforcement agencies to partners in areas such as economic development, regional and local transportation, emergency services, and defense logistics.
- Sponsoring training sessions and workshops and providing technical advisory services helps states meet their expected objectives and help them deploy projects on time and on budget.
- Program Track Committees are a good asset to the coalition as they are the core structure through which the Coalition's program is to be implemented. The role of a Program Track Committee is to guide the Coalition activity within that area of ITS program emphasis and expertise.
- Encouraging member agencies' staff participation in leadership roles, working groups, field operational tests, projects, technical committees, and task forces is beneficial in reducing funding needs.

Throughout its existence, the Coalition has benefited the traveling public and member agency personnel in numerous ways. The Coalition's projects and activities will continue to focus on providing the benefits associated with coordinated and seamless transportation management and operations services.

Benefiting the Traveling Public

The public experiences fewer unnecessary delays and fewer secondary accidents due to dramatically improved coordinated responses to both small and large-scale incidents and

emergencies. These improvements are a direct result of the learning, information sharing, and personal relationships established during regular meetings of the Coalition's Highway Operations Groups. This trend was particularly evident in the aftermath of the September 11, 2001 tragedies when the trust rooted in personal relationships established through the Coalition helped overcome the overload and destruction of communications systems. The Coalition is working with its members and other groups and organizations to continue to improve incident and emergency response capabilities by improving coordination among transportation, emergency, medical, and telematics organizations throughout the region.

Coordinated Operations

Travelers will increasingly be able to obtain advance notice of operational problems and experience fewer delays as the Coalition helps to coordinate traffic management and traveler information services throughout the region by developing an expanded, enhanced, and more accessible information system architecture. This architecture will allow transportation agencies to automatically obtain or share travel times, the locations and impacts of construction activities and major incidents, roadway condition data, and other important travel information. This activity leverages the investments made in the Coalition's existing IEN and the transportation management and traveler information systems of member agencies.

The IEN was one of the nation's earliest successes at a regional architecture through which information is electronically shared among multiple transportation agencies—at a geographic scale still unprecedented.

Traveler Information

Travelers avoid delays associated with planned construction activity through the Coalition's popular Traveler Alert Map. More than 300,000 copies of the Map are distributed twice a year to the traveling public and transportation companies at rest areas and welcome centers, and by member agencies' public affairs offices. Travelers can also gather information through Web sites and other methods as a result of seed funding that the Coalition provided to help establish systems in New England and along the I-81 Corridor. Travelers will be able to easily obtain current travel information as the Coalition works with its members to coordinate the implementation of the national 511 travel information telephone number across state boundaries.

Travelers will also be able to make better long-distance travel decisions as the Coalition encourages establishment of a capability that will allow intercity travelers to pick the best options for their trips based on factors such as travel time, cost, and mode.

Intermodal Passenger Movements.

Passenger movements between Newark International Airport and local, regional, and national rail services, were improved when the Coalition supported AMTRAK, New Jersey Transit, and the Port Authority of New York and New Jersey in preparing for the opening of the Newark Airtrain rail station. The Coalition prepared guidelines for integrating communications among rail operators during significant delays and led orientation sessions about the new intermodal link and customer service needs given to more than 600 employees and airport service providers. The Coalition is continuing to assist by assessing the potential for further integration with other passenger information systems in the area.

Freight Movement Safety and Efficiency

Working in cooperation with the Federal Highway Administration and the Federal Motor Carrier Safety Administration in the U.S. Department of Transportation, the Coalition improved the safety and reduced the cost of freight movements on commercial vehicles. The Coalition accomplished this by sponsoring training courses and workshops and by providing technical assistance services for CVISN program development. For example, the Coalition enabled participating states to rapidly implement the U.S. DOT's SAFER system software into commercial vehicle safety inspection programs. Information that previously took as long as 9 months to reach the national database that identifies carriers with poor safety inspection and accident histories is now uploaded in real time. The Coalition also enabled the development of One-Stop Credentialing and Registration in New York. This is a Web-based interface to four legacy systems that allows commercial vehicle operators to apply for and receive credentials much more efficiently than New York's previous system.

The Coalition will increase motor carrier participation in the CVISN program by sponsoring a pilot program that demonstrates the use of a single transponder that supports both electronic toll collection and commercial vehicle electronic screening applications. The Coalition will reduce

the cost of freight movement by investing in the development and use of port and rail information management systems. The Coalition plans to improve security by investing in the testing, evaluation, and deployment of technologies related to vehicle safety and vehicle and driver identification for safety and security screening.

Benefiting Member Agencies

Information Sharing

The Coalition Connection Web site (www.i95coalition.org) offers a wealth of information to personnel in member agencies; other professionals; and, via links to other Web sites, directly to travelers in the region. The Coalition's e-mail forums provide a convenient way for transportation operations personnel throughout the region to collect information on specific questions or topics of general interest.

Learning

The Coalition's Information Exchange Forums, typically attended by 75 to 100 participants, offer opportunities for personnel from member agencies to learn and share information on important topics. Past Forums have addressed issues such as public relations, staff hiring and retention, telecommunications resource sharing with private providers, and techniques for clearing incidents quickly. To further enhance learning among transportation professionals, the Coalition provided seed money to form the Consortium for ITS Training and Education (CITE). Led by the University of Maryland, in conjunction with more than 70 university partners worldwide, CITE uses distance learning to train graduate students and transportation professionals in system management and operations. In addition to those offered through CITE, the Coalition supports training activities in areas such as innovative incident management techniques, new national standards, and traffic management center operator training.

Reducing System Deployment Risk

The Coalition has been lowering the cost and risk of implementing transportation management systems by advancing the development and use of national standards through various testing, evaluation, and training activities.

Improving Transportation Analyses

The Coalition is helping to improve the multi-jurisdictional analysis of proposed capacity-enhancing and operational improvements, by sponsoring the development of information systems that will assist member agencies in analyzing the movement of people and freight across jurisdictions. (3)

REFERENCES

1. I-95 Corridor Coalition, Business Plan 2000
2. Program Management Committee, I-95 Corridor Coalition Procedural Guidelines, May 2001
3. I-95 Corridor Coalition Strategic Plan
4. Testimony of the I-95 Corridor Coalition, submitted to the Subcommittee on Transportation, Infrastructure and Nuclear Safety of the Senate Environment and Public Works Committee, May 2002.
5. John Baniak, A Decade of Partnership, Evolution and Growth- The I-95 Corridor Coalition
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AMBER Alert System Program

SUMMARY

The AMBER Alert System began in 1996 when Dallas-Fort Worth broadcasters teamed with local police to develop an early warning system to help find abducted children. AMBER stands for America's Missing Broadcast Emergency Response, and was created as a legacy to 9-year-old AMBER Hagerman, who was kidnapped while riding her bicycle in Arlington, Texas, and then brutally murdered. Other states and communities soon set up their own AMBER plans as the idea was adopted across the nation.

The AMBER Plan Program is a voluntary program through which emergency alerts are issued to notify the public about abductions of children. The FHWA recognizes the value of the AMBER Plan Program and fully supports the State and local governments' choice to implement this program. These child abduction alerts may be communicated through various means including radio and television stations, highway advisory radio, changeable message signs (CMS), and other media.

The AMBER Plan Program encourages use of the most effective methods to communicate with the public on behalf of abducted children. CMS is not always the most effective or safest method to disseminate information related to child abductions. The CMS can convey only a limited amount of information to motorists. When there is a need to provide extensive information to motorists, it is critical that other types of traveler information based media (e.g., 511, highway advisory radio, web sites, commercial radio) be used, or that the messages displayed on a CMS supplement these other media.

If public agencies decide to display AMBER Alert or child abduction messages on a CMS, FHWA has determined that this application is acceptable only if (A) it is part of a well-established local AMBER Plan Program, and (B) public agencies have developed a formal policy that governs the operation and messages that are displayed on CMS.

(A) A local AMBER Plan Program would include written criteria for issuing and calling off an AMBER Alert, procedures on issues to coordinate with local agencies and other interests, and

conforms to the recommendations of the national program (www.missingkids.org). Specific criteria for issuing an Alert and the associated procedures may include:

1. Confirmation that a child has been abducted,
2. Belief that the circumstances surrounding the abduction indicate that the child is in danger of serious bodily harm or death, and
3. Enough descriptive information about the child, abductor, and/or suspect's vehicle to believe an immediate broadcast alert will help.

(B) The formal public agency policy and procedures relating to displaying AMBER Alert or child abduction messages on CMS must address the following issues:

1. The criteria under which CMS will be used for AMBER Alerts.
2. Clear identification of the law enforcement agency responsible for issuing the alert (e.g., State police, local police department, etc.).
3. Agencies, interests, and persons to be contacted and information to be disseminated to initiate or call off an AMBER Alert.
4. Specific recognition that traffic messages, such as lane closures, fog alerts, detours, etc., are the highest priority, and circumstances under which the AMBER Alert message could or could not be displayed.
5. Length of time to display the message (should be of short duration, typically a few hours).
6. Geographic area over which the information is to be displayed (should be limited to a reasonable search distance that is reachable within a few hours).
7. Circumstances that would cause the discontinuation of use of the CMS if the AMBER Alert message creates an adverse traffic impact such as queues, markedly slowing of traffic, etc.
8. Format and content of the messages to be displayed. Agencies should follow the recommended national CMS practices related to the development, use of text, manner in which messages should be displayed, and how CMS are operated.

ORGANIZATIONAL BACKGROUND

Historical Perspectives

The AMBER Alert System began in 1996 when Dallas-Fort Worth broadcasters teamed with local police to develop an early warning system to help find abducted children. AMBER stands for America's Missing Broadcast Emergency Response and was created as a legacy to 9-year-old Amber Hagerman, who was kidnapped while riding her bicycle in Arlington, Texas, and then brutally murdered. Other states and communities soon set up their own AMBER plans as the idea was adopted across the nation.

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Geographic Areas Covered

Table 1 on the next page summarizes the active AMBER programs by State and locality.

Table 1 – AMBER Programs By State

State	Area	Name
Alabama	Statewide	AMBER Plan
Alabama	Tuscaloosa County	AMBER Plan
Alabama	Dothan	AMBER Alert Plan
Arizona	Statewide	Arizona AMBER Alert
Arkansas	Statewide	Morgan Nick AMBER Alert
California	Statewide	California AMBER Alert
California	Corcoran	To Rescue Abducted Children Immediately (TRACI)
California	Sacramento	Child Abduction Regional Emergency Alert (CARE)
California	San Francisco	Bay Area AMBER Alert Plan
California	Orange County	Child Abduction Regional Emergency Alert (CARE)
Connecticut	Statewide	Connecticut AMBER Plan
Colorado	Statewide	Colorado AMBER Plan
Delaware	Statewide	AMBER Plan
Florida	Statewide	Florida AMBER Plan
Georgia	Statewide	Levi's CALL
Hawaii	Honolulu	MAILE Alert
Hawaii	Maui County	AMBER Alert Plan
Idaho	Statewide	AMBER Alert
Idaho	Boise	AMBER Alert
Idaho	Madison County	AMBER Alert
Iowa	Statewide	AMBER Alert Plan
Illinois	Statewide	Illinois AMBER Plan
Illinois	Belleville	St. Louis Area Regional Abduction Alert
Indiana	Statewide	AMBER Alert
Indiana	Allen County	AMBER Plan
Indiana	Portage	Missing Child Alert Plan
Indiana	Southeastern	Child Abduction Alert Program (CAAP)
Kansas	Statewide	AMBER Plan
Kansas	Topeka (Jefferson Cty)	AMBER Alert
Kansas	Wichita	AMBER Alert
Kentucky	Statewide	Kentucky AMBER Alert System
Kentucky	Northern	Child Abduction Alert Program (CAAP)
Louisiana	Statewide	AMBER Plan
Maine	Statewide	AMBER Alert Program
Maryland	Statewide	AMBER Plan
Massachusetts	Statewide	AMBER Alert Plan

State	Area	Name
Michigan	Statewide	Michigan AMBER Alert
Minnesota	Statewide	Minnesota AMBER Plan
Mississippi	Statewide	AMBER Alert
Missouri	Statewide	ALERT Missouri
Missouri	Kansas City	AMBER Alert
Missouri	St. John	St. Louis Area Regional Abduction Alert
Missouri	Northwestern	Northwestern Missouri AMBER Plan
Missouri	St. Louis	St. Louis Area Regional Abduction Alert
Missouri	Southwest	Child Abduction Alert System (CAAS)
Montana	Statewide	Montana AMBER Alert
Nebraska	Statewide	AMBER Plan
Nevada	Statewide	Nevada AMBER Alert Child Abduction Plan
Nevada	Reno	AMBER Alert
New Hampshire	Statewide	Child Abduction Emergency Alert Plan
New Jersey	Statewide	AMBER Plan
New Mexico	Statewide	AMBER Alert
New Mexico	Albuquerque	AMBER Alert
New York	Statewide	AMBER Alert
North Carolina	Statewide	AMBER Alert System
North Carolina	Raleigh	NC Child Alert Notification System (NC CAN)
North Carolina	Stokes County	AMBER Alert
North Dakota	Statewide	AMBER Alert Plan
North Dakota	Fargo	JEANNA Alert
Ohio	Statewide	AMBER Plan
Ohio	Cincinnati	Child Abduction Alert Program (CAAP)
Ohio	Mid-Ohio Region	Mid-Ohio Stranger Abduction Alert
Ohio	Tuscarawas County	AMBER Alert Plan
Ohio	North Central Ohio	AMBER Alert
Ohio	Northern Ohio	Northern Ohio AMBER Alert Program
Ohio	Miami Valley	AMBER Alert
Ohio	East OH & West PA	Mahoning Valley AMBER Alert
Oklahoma	Statewide	Oklahoma AMBER Plan
Oregon	Statewide	AMBER Plan
Oregon	Lane County	AMBER Plan
Oregon	Washington County	AMBER Plan
Pennsylvania	Statewide	AMBER Alert
Rhode Island	Statewide	AMBER Alert

State	Area	Name
South Carolina	Statewide	AMBER Alert
South Dakota	Statewide	AMBER Alert
South Dakota	Yankton	AMBER Alert
Tennessee	Statewide	AMBER Alert Plan
Tennessee	Knoxville	East Tennessee AMBER Alert Plan
Tennessee	Memphis	AMBER Alert
Texas	Statewide	AMBER Alert Network
Texas	Amarillo	AMBER Alert
Texas	Beaumont	Save Our Kids
Texas	Dallas/Ft. Worth	AMBER Plan
Texas	Houston	Houston Regional AMBER Plan
Texas	Wichita Falls	AMBER Plan
Utah	Statewide	AMBER Alert
Vermont	Statewide	Vermont AMBER Child Abduction Alert System
Virginia	Statewide	AMBER Alert
Virginia	Eastern Shore	AMBER Alert Plan
Virginia	Newport News	Hampton Roads Regional AMBER Plan
Virginia	Richmond	Richmond Regional AMBER Alert System
Virginia	Roanoke	Roanoke Valley AMBER Alert
Virginia	Spotsylvania	Lisk-Silva Alerts
Washington	Statewide	AMBER Plan
Washington	King County	AMBER Alert Plan
Washington, DC	Regional Metro	DC AMBER Plan (Metropolitan Regional Plan)
West Virginia	Statewide	AMBER Alert
Wisconsin	Statewide	AMBER Alert
Wyoming	Statewide	AMBER Alert Plan

The AMBER program, which provides information on CMS and other types of traveler information, are available in the jurisdictions that participate in the program. A summary of the coverage of roadside traveler information services and advanced traveler information services can be found at ITS Deployment Tracking System database located on-line at http://itsdeployment2.ed.ornl.gov/its2002/default.asp .

AMBER Alert State Legislation

The following summarizes, by State, each of the key legislation that established the AMBER program.

California - (AB 415) Establishes criteria for every law-enforcement agency in California to follow when requesting activation of the AMBER Alert System after verifying a child has been abducted. Requires local law-enforcement jurisdictions to request activation of the California Child Safety AMBER Network within an appropriate local area when an abduction occurs. *September 13, 2002*

Colorado - (HB 1083) Permits the local law-enforcement agency to notify the Colorado Bureau of Investigation (CBI) in the event of a child abduction, and requires the CBI to confirm the accuracy of the information and issue the alert to the public via the state emergency alert system. *April 1, 2002*

Connecticut - (HB 5072) Immunizes radio stations, television stations, and cable systems from civil liability for damages when they broadcast information concerning abducted children and their suspected abductors pursuant to the AMBER Plan. *June 18, 2003*

Idaho - (HB 247) Amends existing law to provide for the civil immunity of radio and television broadcasting organizations participating in the AMBER Alert System. *March 17, 2003*

Illinois - (HB 643) Mandates that the Department of State Police develop a coordinated program for a statewide emergency alert system when a child is missing or kidnapped. *August 7, 2001*
(HB 345) - Establishes program requirements for the statewide child abduction emergency alert

system of the Department of State Police. Requires the Department of State Police and the Department of Transportation to coordinate in the use of electronic highway message signs to convey abduction information. Requires the Department of State Police to establish a task force to monitor and review implementation and operation. *July 23, 2003*

Indiana - (SB 20) Allows the missing-child clearinghouse to work with radio and television stations to establish an abducted-child alert system, the AMBER Alert Program; requires the State Police Department to adopt guidelines governing the AMBER Alert Program. *March 20, 2002*
(SB 203) Provides civil immunity for a broadcaster that participates in the AMBER alert program and broadcasts the contents of an AMBER alert notification it has received from the state police. *May 1, 2003*
(SB 257) An ACT to amend the Indiana Code concerning state police, civil defense and military affairs. *April 14, 2003*

Kentucky - (HB 36) Requires the State Police to implement an AMBER Alert System to broadcast information related to abductions of children; outlines specific requirements for system alerts; and provides for operation of system with existing budget. *March 12, 2003*

Louisiana - - (SB 40) Rescinds confidentiality provisions regarding juvenile crime victims of the purposes of the AMBER Alert network, or similar child abduction alert system. *May 5, 2003*
(SB 691) Exempts from liability certain participants of the AMBER Alert program; exempts state and local law enforcement, radio, television and cable operators, the Lottery Corporation and associations and foundations engaged in the AMBER Alert effort. *May 23, 2003*
(SB 686) Provides a mechanism for the utilization of lottery terminals to display AMBER Alert notifications and other abductions or state or national emergencies. *June 5, 2003*

Michigan - (HR 555) Proclaims and recognizes the first week in September as AMBER Alert Week in Michigan. *September 24, 2002*. (HB 6444) Requires that the department of state establish and maintain the Michigan AMBER Alert plan. *December 30, 2002.* (HB 6445) Grants immunity of liability to radio and television stations that accurately broadcasts information

concerning a child abduction obtained from the Michigan state police. *December 30, 2002*. (HR 66) - Urges the Michigan Lottery Bureau to join the AMBER Alert system. *June 17, 2003*

Minnesota - (HB 628) Relates to civil actions; limits liability for public notification of emergency through radio, television, cable television, the Emergency Alert System, the AMBER Alert system, or a notification requested by a government entity. *May 20, 2003*

Nevada - (AB 322) Creates a Statewide Alert System for the Safe Return of Abducted Children. *May 6, 2003*

New Jersey - (AB 1558) The "AMBER Plan" will establish voluntary cooperation between state and local law enforcement and the broadcast media. After receiving notice from the state police, the broadcast media would transmit an emergency alert to inform the public of a child abduction in the area. *December 20, 2002*

New Mexico - (HB 16) Requires the state police to establish statewide AMBER Plan protocol and distribute to local agencies. It also penalizes those who knowingly submit false information that results in the declaration of an AMBER Alert. Similar legislation has already passed in the Senate. *April 1, 2003*

New York - (SB 7172) Calls for the development of a model missing child response plan. Enables the creation of a model abduction response and notification plan, that will assist local law enforcement and communities in immediately responding to a report of a missing child. Enables missing children reports to be provided to broadcast media outlets so public assistance and awareness can be facilitated within minutes after an abduction. *August 13, 2002*

North Carolina - (SB 1115) An act to modify the current operations appropriations act of 2001 and to make other changes in the budget operation of the state. SECTION 18.7.(a) G.S. 143B-499.1: The North Carolina Center for Missing Persons will develop and maintain the North Carolina Child Alert Notification System (NC CAN) *September 30, 2002.* (HB 478) Amends the law regarding the North Carolina Child Alert Notification (NC CAN) system, to rename that system the AMBER Alert system. *June 12, 2003*

Ohio - (SB 290) Creates the Statewide Emergency Alert Program to aid in the identification and location of abducted children; establishes activation criteria for the implementation of the program; and creates an AMBER Alert Advisory Committee. *January 8, 2003*

Oklahoma - (HR 1002) States legislative intent for implementation of the AMBER Plan by installing electronic billboards at all interstate entrances to the State; directs distribution. *February 24, 2003*

Oregon - (SB 8) Directs Department of State Police to work with law enforcement agencies, Department of Transportation, and media to implement state AMBER plan. *June 12, 2003*

Rhode Island - (HB 5015) Requires the state police to develop an emergency alert plan to expedite the safe recovery of abducted children.

Texas - (HB 1401) Relates to the implementation of AMBER Alert or another system for publicly disseminating emergency information about abducted children by the Texas Lottery Commission. *June 20, 2003.* (SB 57) An act relating to the creation of a statewide alert system for abducted children. *June 20, 2003*

Vermont – (HB 28) Proposes to establish an AMBER alert program within the department of public safety; requires the department to issue alerts concerning abducted children throughout the state emergency alert system; proposes that alerts be broadcast over participating television and radio stations. *May 22, 2003.* (HB 464) Omnibus Appropriations Bill. Sec 52(d). The lottery commission shall explore the feasibility of printing AMBER Alert information on the back of lottery tickets. *June 18, 2003*

Virginia - (SB 1204) Requires state buildings open to the public to have a Code Adam program to lock down buildings where a child has been lost or possibly abducted. Also establishes the voluntary AMBER Alert Program to notify the public when a child is abducted. *March 16, 2003*

West Virginia - (HB 2910) Relates to the establishment of an AMBER Alert System to be utilized to rapidly disseminate information with regard to abducted and missing children. *March 18, 2003*

Programmatic Areas Addressed

The AMBER Plan Program encourages use of the most effective methods to communicate with the public on behalf of abducted children. CMS is not always the most effective or safest method to disseminate information related to child abductions. The CMS can convey only a limited amount of information to motorists. When there is a need to provide extensive information to motorists, it is critical that other types of traveler information based media (e.g., 511, highway advisory radio, web sites, commercial radio) be used, or that the messages displayed on a CMS supplement these other media.

Organization Members and Structure

Immediately after the White House conference on Missing, Exploited, and Runaway Children on October 2, 2002, as requested by President Bush, Attorney General John Ashcroft appointed Deborah J. Daniels, Assistant Attorney General for the Office of Justice Programs, to serve as the National AMBER Alert Coordinator. The Coordinator is responsible for assisting state and local officials with developing and enhancing AMBER plans, and promoting statewide and regional coordination among plans. President Bush signed the PROTECT Act into law on April 30, 2003. This landmark legislation comprehensively strengthens law enforcement's ability to prevent, investigate, prosecute, and punish on the Bush administration's commitment to support AMBER Alert programs, the PROTECT Act establishes the National AMBER Coordinator and tasks the Coordinator to:

- Facilitate AMBER network development.
- Support development of state AMBER plans and efforts.
- Help eliminate geographic gaps in AMBER networks.
- Provide regional AMBER network coordination.
- Establish guidance on criteria for issuing an AMBER Alert.

To support the implementation of these program goals, a National Advisory Group was established. The members of this Advisory Group include:

- U.S. Department of Justice

- U.S. Department of Transportation
- National Center for Missing and Exploited Children
- Broadcasters
- Law enforcement officers

The specific jurisdictions who participate in the program are identified in Table 1.

Financial Programs

The proposed US DOT AMBER Plan Grant Program provides up to $7 million in grants to States (including Puerto Rico and the District of Columbia) to fund the application of Intelligent Transportation Systems (ITS) to facilitate the inclusion of State and local transportation agencies into existing or proposed AMBER Plan Programs. The intent is to facilitate, through the use of advanced technologies, the seamless coordination between law enforcement agencies and transportation communities; necessary to implement an AMBER Alert using changeable message signs or other traveler information systems, and to improve our overall capability of communicating AMBER Alerts and other important information to motorists.

Each State (including Puerto Rico and the District of Columbia) may apply for a grant of $125,000 for planning, coordinating and designing of systems, protocols, and message sets, that support the coordination and communication necessary to issue an AMBER Alert and to provide the means to communicate an AMBER Alert to motorists. This funding would ensure that the notification is well designed and integrated between the law enforcement and transportation communities.

Once such planning has been completed, any remaining funds from the grant could be used to support the implementation of systems that will support the dissemination of AMBER Alert messages via CMS or other traveler information systems.

The instrument to provide funding, on a cost reimbursable basis, will be a Federal-aid project agreement. Federal funding authority is derived from § 5001(a)(5) of the Transportation Equity Act for the 21st Century (TEA-21), Pub. L. 105-178, 112 Stat. 107, 419 (1998). Actual award of

funds will be subject to funding availability. Federal ITS funding for AMBER Plan support assistance may be used as necessary for:

1. Developing general policies and procedures that would guide the use of CMS or other motorist information systems to issue AMBER Alerts.
2. Developing guidance or policies on the content and format of alert messages being conveyed on CMS or other traveler information systems.
3. Coordinating State, regional, and local plans for use of CMS or other transportation related issues.
4. Planning secure and reliable communications systems and protocols between public safety and transportation agencies, or modify existing communications systems to support AMBER Alerts.
5. Planning and designing improved systems for communicating with motorists including the capability for issuing wide area alerts to motorists.
6. Planning systems and protocols to facilitate the efficient issuance of AMBER Alerts and other key information to motorists during off-hours.
7. Providing training and guidance to transportation authorities to facilitate appropriate use of CMS and other traveler information systems for AMBER Alerts.

Once these eligible activities are complete, any remaining funding allocated under agreements resulting from this request may be used to implement the systems that will support the dissemination of AMBER Alert messages via CMS or other traveler information systems. This includes systems necessary to establish the necessary communications between appropriate public safety and transportation agencies to post AMBER Alerts on CMS; systems necessary to provide for wide area alerts to motorists; and systems necessary for 24-hour operation of such systems. **Note:** The actual purchase of CMS or other on-street or in-vehicle hardware is not eligible for funding under this program.

STRATEGIC PLANS/DEPLOYMENT PLANS

In addition to the appointment of the national AMBER program coordination and advisory team, each state develops it own plan for implementing the AMBER program. Table 1 summarized the jurisdictions who participate and the Table 2 summarizes the number of children which have

been recovered and the number of AMBER plans which have been implemented since the inception of the program in 1999.

Table 2 - AMBER Alert Progress 1999-to date

Year	Number of Recovered Children	Number of Statewide AMBER Plans Implemented
1999	8	1
2000	8	1
2001	2	2
2002	26	28
2003	72	14
2004 (as of March 1, 2004)	10	2
Total	129	48

National Coordinator Deborah J. Daniels, in collaboration with a national advisory group, developed a strategy for supporting states and communities to strengthen the AMBER Alert System nationwide and increase the likelihood that abducted children will be recovered swiftly and safely.

ASSESS current AMBER activity

- Determine number of local, statewide, and regional plans.
- Compare plan operations and AMBER Alert criteria.
- Evaluate available technology.

CREATE a coordinated AMBER network

- Develop guidance on criteria for issuing an AMBER Alert.
- Establish federal, state, and local partnerships.
- Promote technological compatibility among communications systems.

COMMUNICATE “lessons learned”

- Work with law enforcement and broadcasters on missing children issues and the proper issuance of AMBER Alerts.
- Help states and communities develop and enhance their AMBER plans.
- Raise public awareness on how to protect children and prevent abductions.

CURRENT ACTIVITIES

- Convene the Second National Training Conference on AMBER Alert to report on progress of National AMBER Alert Strategy and dialogue with participants about individual plan issues and successes.
- Increase the number of regional summits and localized training specific to the needs of a community.
- Improve communications among plan coordinators through creative use of the Internet and develop a newsletter to include information about sites, technologies, and success stories.
- Track the progress of plan implementation and provide assistance to plan coordinators for AMBER program enhancement.
- Develop a report to Congress on the activities of the National Coordinator and the effectiveness and status of the AMBER plans of each state.
- Make available A Best Practices report to be prepared by the the Department of Transportation.
- Work with broadcasters on development of training videos and public service announcements.
- Work with the media and law enforcement on emphasizing the need for AMBER Alerts to be local in origin, as not to desensitize the public to the use of this important tool.

NEEDS

At the time of this draft report, we were not able to complete the interviewing process. An interview will be conducted prior to completion of this report.

LESSONS LEARNED

One key issue that has broad implications beyond AMBER Alerts is the lack of well established communication systems and protocols between the public safety community and the

transportation community, or the inability of such systems to be used for the purposes of conveying AMBER Alert information among agencies. Currently most AMBER Alerts are communicated to Transportation Operations Centers by telephone or facsimile. While these informal "low-tech" arrangements are effective, such an informal system, dependant on simple communication methods, certainly has the potential for problems such as missed calls, data errors, and erroneous or false alerts. Furthermore, the lack of formal communication links has larger implications for highway incident response, hazmat incidents, natural disasters, and security related events. A number of jurisdictions have identified this broader need for communication and have established communication systems among the various public safety and transportation agencies, to report and coordinate response to incidents but it is not clear whether any of these systems have been used for AMBER Alerts.

Another obstacle that has been identified is the lack of capability for jurisdictions to issue area wide messages on CMS or other traveler information systems. These systems are generally intended to alert motorists to a localized condition (e.g., an incident on a specific roadway). As a result, in some jurisdictions, the systems that control these signs are not capable of posting the same message on all signs across a region. The result in the case of an AMBER Alert is a rather labor intensive and time consuming process to change the message on the signs one sign at a time. Currently several of these jurisdictions are exploring ways to upgrade their systems to provide such capability. This has implications for other area wide situations such as a major natural disaster or security related event where evacuation or other critical information may need to be conveyed to motorists over a broad region.

A third issue that can impact the appropriate use of CMS for AMBER Alerts is the fact that many transportation operation centers are not staffed around the clock. In those cases, if an AMBER Alert or other critical message needs to be posted on CMS, an off-duty operator has to be contacted by an appropriate authority so he or she can return to the operations center and post the message. Another option is to give a public safety agency the capability and authority to post such messages during off hours. In some jurisdictions, this problem has been resolved by linking operations centers and providing for the transfer of control to a designated back-up center. In some cases these back-up centers are continuously operated Transportation Operation Centers; in other cases, these are emergency response centers (e.g., police dispatch centers). In either case,

both technological and institutional issues must be resolved to provide this important functionality.

Another concern is that jurisdictions must have the basic capability to communicate such information to motorists via CMS or other traveler information systems. Currently, CMS deployment is largely limited to urban freeways, and even in some of our largest metropolitan areas, the numbers of such signs are often limited. While it is not practical to widely deploy such systems for the specific purposes of issuing AMBER Alerts, there is some value to increasing our overall capability to communicate with motorists. Exploring and planning alternative methods of providing information to travelers and expanding the use of such systems for such purposes as AMBER Alerts should be pursued.

Finally, there is the issue of the message to be conveyed. There is anecdotal evidence of AMBER Alerts being provided by multi-panel messages containing details such as the type of vehicle, the license plate number, and the ten-digit number to call adversely impact traffic as drivers attempted to read and possibly copy all the relevant information. Clearly, it is important to ensure that these signs are properly and safely used as part of an overall effort to provide information on AMBER Alerts.

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3. AMBER Alert Strategy, http://www.ojp.usdoj.gov/amberalert/strategy.html
4. About the AMBER Plan, http://www.missingkids.com/missingkids/servlet/PageServlet?LanguageCountry=en_US&PageId=1176
5. U.S. Department of Justice, AMBER Alert National Strategy
6. National Conference on AMBER Alert, Conference Proceedings Report
7. Guidance on Criteria for Issuing AMBER Alerts, http://www.missingkids.com/en_US/documents/AMBERCriteria_Apr04.pdf

APPENDIX – REFERENCE MATERIALS

December 1, 2003

Meridian Announces Alert System for 511 - Advanced Traveler Information Systems

AMBER, Homeland Security and General Transportation Alerts are now available on 511.

(Grand Forks, North Dakota) - To maximize information dissemination on 511 systems, Meridian has developed and deployed a new Alert system for the 511 systems across #SAFE member states. This Alert system allows authorities in each state to process an AMBER, Homeland Security or General Transportation Alert statewide for immediate release.

In November 1996, Meridian created the nation's first multi-state statewide Advanced Traveler Information System known as #SAFE. In July 2000, the FCC assigned 511 as the number for nationwide access to traveler information. The #SAFE technology now operates 511 systems providing traveler information for more than 6.7 million people covering more than 45,000 road miles across the Midwest.

This new alert system allows state authorities to immediately provide public safety information for AMBER, Homeland Security or General Transportation to the general public when necessary. This new alert system allows for a two-minute message to be processed and activated on the statewide 511 system within seconds. Adjoining states upon notification may review the alert and immediately activate the same alert on their representative 511 system by pressing a single key. Complete interoperability of the system is key to regional support from road conditions and construction, to protection of our children, the systems of the member states work together to enhance safety and security.

Each state representative manages and controls the alert functions contained within 511. Each alert type: AMBER Alert, Homeland Security Alert, or General Transportation Alert, can be authorized and controlled from different agencies within the state and authorized personnel may activate an alert from the office, home, or cell phones. The state and their

respective agencies of responsibility decide agency specific policies and procedures for the operation of each alert type.

"This new alert system does not replace any current systems for alerts, but augments them. It is just another weapon against those that would seek to harm our children, way of life, or country. It will allow each member state to immediately provide information to as many as 6.7 million residents within the current shared 511 system across the Midwest." says Mark Owens Vice President, Meridian Environmental Technology, Inc.

Meridian Environmental Technology Inc., is one the Midwest's fastest growing advanced technology companies bringing leading-edge technology solutions to surface transportation, agriculture, emergency management, and other industries nationwide. Meridian's cutting-edge technologies are designed to provide a modern approach to the processing, analysis, forecasting, application, and dissemination of high-end weather information, allowing Meridian to develop and deliver products that both enhance productivity and improve the quality of everyday life. Visit www.meridian-enviro.com for more information, or contact a Meridian respresentative at (701) 792-1800, or write:

Meridian Environmental Technology, Inc.
PO Box 14178
Grand Forks, ND 58208-4178

National Conference on AMBER Alert Conference Proceedings Report

Background and Overview

At the White House Conference on Missing, Exploited, and Runaway Children on October 2, 2002, President Bush directed the Attorney General to designate a Justice Department officer to serve as AMBER Alert Coordinator to help expand the AMBER Alert system nationwide. The Attorney General named Assistant Attorney General for the Office of Justice Programs, Deborah J. Daniels, as the National AMBER Alert Coordinator and in doing so, gave her the responsibility for helping to encourage the creation and coordination of local, state, and regional efforts to establish AMBER Alert plans and for enhancing AMBER Alert plans across the country. In this capacity, she serves as a nationwide point of contact and works with states and

localities to increase the number of AMBER Alert plans and ensure that the plans work together as a seamless network.

In the 10 months since Ms. Daniels was named as the National AMBER Alert Coordinator, several major initiatives have been taken to gain input and insight from the field on ways to effectively and appropriately enhance and expand the use of the AMBER Alert system throughout the United States.

- A National Advisory Group was established to oversee the overall national AMBER Alert initiative and to make recommendations on the AMBER Alert criteria, examine new technologies, identify best practices, and address problems and concerns. The Advisory Group was instrumental in the design and development of the National Conference on AMBER Alert, the development of a national AMBER Alert strategy, and the formulation of recommendations for ongoing assistance and support to AMBER Alert programs nationwide.
- A working group was convened on December 9, 2002, to obtain input and assistance from experts from law enforcement, media, public agencies, and private organizations to strengthen and improve the use of the AMBER Alert plan as a tool to help recover missing or abducted children.
- A training committee was established to design a comprehensive program of training and technical assistance to support local, state, and regional AMBER Alert plan efforts.
- A National Conference on AMBER Alert was held in Dallas, Texas, on August 3–5, 2003, to encourage greater communication and collaboration in order to improve AMBER Alert programs and processes, raise understanding and awareness about issues relating to missing children, and provide an opportunity for jurisdictions to work together to develop a seamless AMBER Alert network.

Conference Goals

The goals of the conference were:

- To increase awareness about missing children and victimology issues.
- To promote greater collaboration between local, state, and regional AMBER Alert programs through the development of Memorandums of Understanding.

- To develop a self-assessment process to determine readiness and examine programmatic strengths and weaknesses.
- To create protocols regarding the issuance of an AMBER Alert on a local, state, and regional level.
- To provide information and input to be used in the development of ongoing training and technical assistance activities for local, state, and regional AMBER Alert teams.
- To provide recommendations on "best practices" by discipline to be used to improve and enhance AMBER Alert plans.
- To develop recommendations for effective strategies and protocols to be used to enhance AMBER Alert plans, including a child recovery strategy.
- To identify and document current practices and strategies for improving individual AMBER plans.
- To use the results and outcomes of the conference to provide guidance in developing "best practice" protocols for issuing an AMBER Alert.

Conference Design

This 3-day conference was designed for AMBER Alert plan "teams" from each region, state, territory, locality, and the District of Columbia. Each team was led by the AMBER plan coordinator and also included the president or designee from the state broadcast association, a local law enforcement representative responsible for implementing the AMBER Alert plan in his or her jurisdiction, and a highway safety coordinator or other state Department of Transportation (DOT) representative, who works with the AMBER Alert program in each state. A total of 287 AMBER Alert representatives attended this conference. A participant list is included in Attachment A.

The conference included both lecture and working group sessions. The lecture portion of the agenda was aimed at increasing awareness and understanding about the nature of missing children cases and individuals who abduct children, promoting greater awareness about the AMBER Alert system and how it operates, and providing a framework for establishing a broader child recovery plan that includes the AMBER Alert system as a tool in the overall plan. The purpose of the working group portion of the conference was to allow each discipline

(media/broadcasters, law enforcement, and transportation) to identify problems, issues, and best practices and then to allow these issues and best practices to be applied at the local, state, and regional levels through facilitated regional breakout sessions. Several additional activities were undertaken as part of the conference planning activities to increase awareness and understanding about the AMBER Alert system and its current practice. A review of existing state legislation was conducted and a matrix of results was prepared (this matrix is contained in a special CD–ROM titled *AMBER Alert Resources,* which was developed specifically for the conference). To identify national trends and characteristics of AMBER Alert plans, a review of 92 plans was conducted. A review of current procedures also was undertaken to identify current practices and procedures. The National Center for Missing and Exploited
Children began to capture information on all "Child Abduction Flag" cases to determine whether an AMBER Alert was issued by the local/state police. Finally, the Department of Justice's Office of Justice Programs, developed AMBER Alert draft XML standards to promote interoperability of state communications systems, and establish a protocol and standard for AMBER Alert programs.

Conference Report

Part 1 of this report contains a summary of the findings and recommendations generated during the breakout session titled *Determining Best Practices for Issuing an AMBER Alert forMedia/Broadcasters, Law Enforcement, and Transportation,* as well as a brief summary of the results of the conference evaluation. Part 2 contains copies of the work sheets generated in each of the working group sessions. The results of the second breakout session, titled *Collaboration and Coordination—A Key to the Success of the AMBER Alert,* are not included in this report. This breakout session was designed to give local, state, and regional AMBER Alert programs the opportunity to work independently and collaboratively to identify action steps to enhance the AMBER Alert network at the local, state, and regional levels. These action plans will be used to provide followup training and technical assistance to communities.

Next Steps

The first National Conference is one of several strategies designed to improve and expand the AMBER Alert network nationwide. Other strategies include:

- Developing a comprehensive program of technical assistance and training to support local action for improving the AMBER Alert system. This training and technical assistance program will be based on the results of the conference and will be designed with assistance from the National Advisory Group and Training Committee referenced earlier in this report.
- Conducting a technology conference on December 3–4, 2003 in Memphis, Tennessee, to provide a forum in which AMBER Alert coordinators can learn about the different technology options that are available to support their programs.
- Disseminating the conference results to all participants to insure that all knowledge is reported and shared.
- Completing followup evaluations to assess the impact of this conference and the changes that have been brought about as a result of our ongoing support, communication, and collaboration.
- Encouraging and promoting regular communication among and between jurisdictions to improve understanding about "effective or best" practices and to enable jurisdictions to learn from each other.

Part 1—Findings and Recommendations, Evaluation and Conclusions

Findings and Recommendations

Organizing Stakeholders

One factor that contributes to the success of the AMBER Alert program is having the right stakeholders at the table to develop, organize, and manage the program. This includes having representatives from appropriate agencies, as well as having a manageable number of stakeholders for planning, developing, and managing the plan. Several other stakeholder issues can also adversely impact the AMBER Alert program, including the lack of leadership (or a single point of contact), the absence of a formal structure, misunderstandings about stakeholder roles and responsibilities, the absence of a formal agenda and goals, and the lack of communication, coordination, and collaboration among state and regional plans. Turf issues, politics, stakeholder competitions, and territorial issues can hinder stakeholder actions and prevent stakeholders from moving forward with the development and implementation of a formal AMBER Alert system.

Recommendations

1. At a minimum, stakeholders from representative groups, including law enforcement, media/broadcast, transportation, and emergency management systems (EMS), should become partners in the development, planning, and management of the AMBER Alert plan at the local, state, and regional levels. As plans expand from the local to the regional level, stakeholders should be commensurate with the type of program and geographical limitations.
2. Regularly scheduled stakeholder meetings should be conducted for the purpose of information sharing, ongoing communication, education, case review, monitoring, and problem solving.
3. A single point of contact (gatekeeper) should be identified to facilitate meetings and promote communication. It is recommended that a law enforcement representative serve in this capacity.
4. Clear policies, procedures, roles, and responsibilities for stakeholder involvement should be established.
5. Existing child advocacy coalitions and/or regional and/or local AMBER partnerships should be explored as a potential stakeholder group.
6. Communities should think "outside the box" when identifying appropriate stakeholders to insure that the necessary partners are around the table. In addition to the stakeholders described above, some additional stakeholders to consider are representatives from the state lottery, cable operators, border control, trucking industry, wireless industry, international partners, etc.
7. Both primary and secondary stakeholders should be identified and utilized.

Developing Memorandums of Understanding (MOUs)

MOUs are powerful tools for organizing, managing, and facilitating AMBER Alert communication and collaboration. However, the development and use of comprehensive MOUs can be challenging for AMBER Alert programs. The expansion and enhancement of the AMBER Alert program and network across the country can be hindered by the lack of standardization and consistency among AMBER Alert programs and MOUs, criteria variations among programs and

states, disagreements about agency involvement as well as agency roles and responsibilities, and the lack of communication.

Recommendations

1. Establish agreements incrementally. First, develop an MOU among the primary partners—media/broadcasters, law enforcement, and transportation—and then expand the MOU to include other stakeholders and partners.
2. Create a generic MOU that can serve as a guide for AMBER Alert programs at the local, state, and regional levels.
3. Use the MOU to identify agency roles and responsibilities.
4. Institutionalize the MOU through training and ongoing communication, to insure full understanding and acceptance of the parameters of the MOU.

Criteria for Activation

A number of concerns were raised about activating an AMBER Alert. The following factors were cited as potential impediments to the expansion and enhancement of the AMBER Alert system: differences in state criteria, language, and definitions; the inability to verify the accuracy of the information for all cases; and problems with information dissemination. The lack of training for staff responsible for activating an alert, as well as political pressures that can lead to the activation of an alert that does not meet criteria, were also raised as concerns by conference participants.

Recommendations

1. Open communication should be maintained among stakeholders to: a) avoid problems that relate to activating alerts that do not meet criteria, b) insure consistency and standardization, and c) develop a seamless AMBER Alert system.
2. Law enforcement should be designated as the single point of contact and decisionmaker for issuing an AMBER Alert.
3. Standard, clear, and consistent age criteria for issuing an AMBER Alert should be used throughout the country.

4. Training should be provided to law enforcement, AMBER Alert plan oversight groups, other stakeholders, and the community to keep them informed and educated about what constitutes an AMBER Alert and about their respective roles and responsibilities when issuing an alert.
5. Communities should also incorporate other options and actions that can be used when an abduction does not meet AMBER Alert criteria. These options should be part of the broader child abduction recovery plan.

Oversight and Evaluation

Providing for oversight and evaluation was identified as another critical factor contributing to the effectiveness of the AMBER Alert program. However, determining who should be involved in this process, the lack of timely and regular followup and review, and the absence of a formal evaluation process were all cited as impediments to the program.

Recommendations

1. A working group comprising key stakeholders should be defined and given responsibility for ongoing, regular, structured reviews of AMBER Alerts, and debriefings of involved parties. This group should include law enforcement, media/broadcasters, and transportation as equal partners. Consideration should be given as to whether this group should be authorized through administrative or legislative directive.
2. Regular tests of the system and process should be undertaken as part of this oversight and evaluation to determine program strengths and weaknesses and to identify areas for improvements. Care should be taken to distinguish between regular monitoring/oversight and program evaluation.
3. Responsibility for oversight and evaluation should rest with the local AMBER Alert program.
4. Training should be provided to the necessary partners to insure program effectiveness.

Quality Control Process

A number of concerns were voiced with regard to the process for insuring quality control of AMBER Alert programs. Concerns included system overuse, lack of consistency, lack of a single point of contact for activating an alert, staff turnover, lack of training, (at the CEO and staff levels) and lack of testing of the plan and the technologies for proficiency. Another issue that was raised was the inability to control outside factors (e.g., the use of the color amber/orange for Homeland Security threat advisories and the confusion that this has caused during several AMBER Alert activations).

Recommendations

1. Testing of the procedures and plans was identified as a central way to insure quality control and maintain program integrity. This includes stakeholder review and verification of information prior to activation of an alert. Minimum standards should be developed for this purpose. Plans should be reviewed every 12–18 months.
2. Thorough and high-quality documentation (information and pictures), communication, and the use of standardized forms to insure accuracy of information also should be used to contribute to positive program performance.
3. Education and training for law enforcement, broadcasters, and the public should be used to preserve the integrity of the program (at both the CEO and staff levels).

Alert Activation Protocol

Once an abduction meets the criteria of an AMBER Alert, the ability of a community to activate the alert is based on several factors. These factors include the ability to verify information, the accessibility of the system(s) to send out an alert, and the ability to insure that all pertinent information is relayed in a timely manner. Unfortunately, several impediments were cited that can impact the ability of a community, state, or region to activate an alert. These impediments include the lack of written procedures to guide the process, the absence of national standards, political or professional pressures that sometimes dictate an agency's response, emergency alert system (EAS) equipment failures and inability to man the EAS on a full-time basis, timing constraints, and the inability in some instances to verify information. The lack of a central point

of contact, as well as the lack of sufficient training, were also viewed as impediments to a smooth activation process.

Recommendations

4. A single authorizing agency/decision maker who uses minimum criteria and standards, is necessary for maintaining program integrity and control. This protocol is essential at the local, state, and regional program levels. Coordination of all levels of programs should be specifically addressed in MOUs.
5. Backup systems and protocols, including minimum standards, need to be established to insure that alerts can be activated around the clock.
6. Written protocols, procedures, and guidelines need to be established to guide activation procedures within states and regions. These protocols should be communicated to all necessary stakeholders and should be incorporated into state EAS protocols. Training should be provided for all procedures and protocols to insure compliance.
7. Forms and checklists should be developed and used to guide the activation process to insure that activations meet the criteria and that the integrity of the program is secured.
8. Various systems should be explored as potential vehicles for disseminating alert information. Cross-checks of all systems should be undertaken regularly to insure their interoperability.
9. Protocols for activations AND "deactivations" should be developed, reviewed, and tested.

Technologies To Support Activations

The AMBER Alert system relies heavily on the ability to activate an alert on an around-the-clock basis with coverage that is comprehensive and reliable. Several factors were identified that can be detrimental to the ability of a locality, state, or region to send out the alert to the necessary recipients. These include EAS equipment failures, DOT restrictions on signs, system incompatibilities, unattended primary stations, breakdown of relay networks, and old and/or complicated equipment. Other issues include the fraudulent use of the name AMBER Alert, the

influx of private vendors who are flooding the system, and the lack of adequate information about new technologies that can provide additional support for activations.

Recommendations

1. States, regions, and local coordinators should be innovative in their approach to sending out alerts and should consider additional mechanisms such as state lottery, trucking industry, Internet, satellite, highway fuel stops, listservs, 511, kiosks, rest areas, National Crime Information Center/National Law Enforcement Telecommunications System (NCIC/NLETS), National Oceanic and Atmospheric Administration (NOAA), and others to support their activations.
2. System failures should be documented, reviewed, and repaired on an ongoing basis to insure program integrity.
3. Public/private partnerships should be explored to support innovation.

Training for Stakeholders

There is an absence of systematic training for all stakeholders. This is particularly true with law enforcement agencies. Training for CEOs and staff-level personnel on development, implementation, and ongoing maintenance and evaluation does not exist. This void creates confusion and a lack of minimum standards for AMBER Alert plans. Furthermore, training does not currently exist to support the development or enhancement of the AMBER Alert system. This includes training for law enforcement, media, transportation, sign operators, and the public. The training that may exist is not mandatory, consistent, or readily available.

Recommendations

1. Standardized training should become an ongoing part of the overall AMBER Alert program. To be successful, training must be provided on an ongoing basis at all levels, be consistent, be readily available and accessible, and include various mediums in order to reach the broadest audience. This includes onsite training, video training, brochures, train-the-trainer programs, and documentation.

2. Training programs should be developed for a wide range of audience groups, including law enforcement, dispatch operators, broadcasters, NCIC operators, and other AMBER Alert stakeholders.
3. Training programs should be reviewed and evaluated to insure that learning objectives are achieving their intended purpose. Checklists should be developed and used for this purpose to insure consistency and to establish a basis for both process and impact evaluation.

After-Action Protocols and Reporting

An important issue that is often overlooked is the post-alert follow-up and assessment. After action protocols and reporting procedures are an important part of a successful AMBER Alert system because they allow a state or region to fully examine and assess its process, protocols, procedures, and make improvements on a timely and ongoing basis. Some of the factors that prevent states and regions from focusing on this component of the AMBER Alert program include not identifying who is responsible for this activity and who needs to be involved, questions about how to report/monitor activities, liability concerns, the time-sensitive nature of these actions, and other quality assurance measures.

Recommendations

1. A review/oversight committee should conduct followup reviews and assessments of activations and reporting. This committee should include representatives from the primary stakeholders and should provide for broadcaster immunity. If broadcaster immunity is not established by a statutory provision, an operating agreement stating such immunity should be developed and implemented.
2. After-action reporting and monitoring should be done on a regular basis (at least quarterly) and should include formal reports to document findings, actions, recommendations, and enhancements.
3. Minimum standards should be developed for AMBER Alert activations, which will form the basis for the after-action reporting and monitoring.

Phone Bank Use and Staffing

Phone bank use and staffing relate specifically to the law enforcement function. Some of the concerns and problems noted in this area include the lack of standards and training, the need for increased staff and more effective/high-quality equipment, questions regarding how information is disseminated and the mechanisms through which it passes, and the need to develop a plan with respect to roles, responsibilities, and processes that will be used.

Recommendations

1. A series of activities should be undertaken to insure the effective operation and use of a phone bank system. This includes establishing regional phone banks, local 911 numbers, 800 toll-free numbers, phone stacking systems, and non-emergency numbers; securing relief personnel; providing standardized training; and creating a call-out plan with other agencies.
2. Methods of obtaining additional resources, including resource sharing and using private vendor assistance, should be explored to support the enhancements of the phone bank system.
3. Proper staffing and supervision structures need to be in place to insure effective management, operation, and monitoring of the system.

Evaluation and Conclusions

Of the 287 conference participants, 232 (80%) completed the conference evaluation. Participants overwhelmingly agreed that the conference was extremely successful in achieving its intended goals (as listed earlier in this report) and that each of the presentations and breakout sessions provided very valuable information that will benefit individual agencies and AMBER Alert teams. On a scale of 1 to 5 (with 5 being the highest rating), all conference ratings were 4.0 or higher.

Conference participants provided a number of suggestions on topics and issues to be addressed in future training conferences and followup technical assistance. These suggestions included:

- An indepth review and discussion of child recovery plans.
- A review of technical system integration issues and opportunities.

- An overview of best practices (what works and what does not work).
- A discussion about minimum standards and specific AMBER Alert criteria.
- Additional regional work sessions to facilitate collaboration and communication.
- Training on case investigation strategies.
- Training for all AMBER Alert disciplines (media/broadcasters, law enforcement, transportation) at all levels (CEOs through line staff).

These suggestions, as well as others raised during the conference proceedings, will be discussed in developing the overall training and technical assistance strategy that will support the continued development and enhancement of AMBER Alert programs nationwide. The conference results will form the basis for future actions and will help to focus technical assistance and training activities on the areas where assistance is most needed.

Advanced Regional Traffic Interactive Management and Information System (ARTIMIS) –Ohio-Kentucky-Indiana

SUMMARY

ARTIMIS - The Advanced Regional Traffic Interactive Management & Information System, provides incident, congestion, and freeway management for the Cincinnati-Northern Kentucky Region. ARTIMIS was the first major ITS effort in Ohio and the second in Kentucky. The project is funded by the Ohio Department of Transportation (ODOT) and the Kentucky Transportation Cabinet (KYTC) to improve traffic conditions and safety along 88 miles of the region's highways.

This MSTOPs is a prime example of how partnerships between multiple states can be successful. The MSTOP was formed with a focus on implementing regional advanced traveler information systems and traffic management programs. Collectively and with the support of the FHWA, adequate funding was in place to support the funding of the projects and continuous operations and management of the deployments.

Additional research is needed as part of this case study to interview the participants and to define a set of the lessons learned, needs, and recommendations for program level support of MSTOPs.

ORGANIZATIONAL BACKGROUND

Historical Perspectives

As freeways were becoming more congested, transportation officials in the Cincinnati area began looking at new technologies to help ease the burden on highways and lessen the frustrations of motorists. Emerging from this search were new methods of traffic technology or Intelligent Transportation Systems (ITS). In 1987, the Ohio-Kentucky-Indiana Council of Governments (OKI) started a feasibility study to determine if such as system could benefit the region's efforts to reduce traffic congestion and ozone levels. A preliminary design effort for a system was launched and completed in early 1993.

Over the 1980s and into the 1990s, the Cincinnati region experienced rapid congestion growth. According to the Texas Transportation Institute's *Urban Mobility Study*, peak period travel in congestion increased from 17 percent in 1982 to 40 percent in 1990, resulting in longer commutes. Over the same period, annual person hours of delay increased from 2 million to 8 million hours.

It was started as a feasibility study in 1987 by the Ohio-Kentucky-Indiana Council of Governments (OKI), to determine if such a system could benefit the region's efforts to reduce ozone levels. With the signing of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, a preliminary design effort was launched by OKI with the final document made available in early 1993. At that point, the Kentucky Transportation Cabinet (KYTC), as contracting agency, along with the Ohio Department of Transportation (ODOT), OKI, the Federal Highway Administration, and the City of Cincinnati as advisors, requested bids to complete the final design, develop and integrate the system software, oversee construction, and operate and maintain the system for two years with an option to extend operations and maintenance. Subsequent contracts were awarded to other firms by ODOT for the design and construction of the Control Center and construction of the system infrastructure in Ohio and by KYTC for the construction of the infrastructure in Kentucky and the provision, installation, and integration of all of the system electronic components.

ARTIMIS officially begin limited operations in June of 1995 with the launch of its Traveler Advisory Telephone Service. In March of 1997, operations begin from the Control Center. On January 8, 1998, the first 23 of the 40 Changeable Message Signs were placed into operation and the system was immediately put to the test when a tractor-trailer carrying hazardous material overturned and ruptured on I-75. The result was a total closure of the interstate for approximately 3 hours. Motorists followed the alternate routes that were posted and later analysis of the incident indicated that ARTIMIS conservatively saved approximately $100,000 in motorist use costs.

In June 2001, ARTIMIS became the first system to use 511 -- adopted by the Federal Communications Commission for the national Traveler Information Hot Line -- as the phone number for checking traffic conditions. Traffic information is updated about 1,100 times a day for the free 511 service, with the goal of improving traffic flow, decreasing congestion from interstate construction projects and increasing motorist safety.

ARTIMIS began daily round-the-clock service in March 2001 to better serve emergency response crews, second- and third-shift truckers, motorists attending special events, and airport travelers.

Geographic Areas Covered

ARTIMIS is a project to manage congestion, whether due to lack of capacity, accidents, disabled vehicles, etc., on 88 miles of freeway in the Cincinnati-Northern Kentucky area using modern technologies and techniques.

Programmatic Areas Addressed

The following program areas are defined as part of the ARTIMIS project.

Closed Circuit TV Cameras

Over 80 Closed-Circuit Television Cameras (CCTV) are placed along key segments of the Cincinnati-Northern Kentucky freeways. These consist of full-motion color cameras, slow-scan color cameras, and fixed black and white cameras. The cameras relay information back to the Control Center via fiber optic cable and telephone lines.

Changeable Message Signs

40 Changeable Message Signs (CMS) are located before the major freeway interchanges to advise motorists of traffic problems and potential alternate routes. There are also 3 portable CMS' which can be towed to locations where a specific, short term need exists.

Highway Advisory Radio

ARTIMIS broadcasts traffic advisories and construction information on a dedicated radio channel **530 AM**. Advisories are available during operational hours and construction information is available 24 hours a day. Reception level depends upon many factors including the quality of the receiving radio. ARTIMIS is in the process of adding another transmitter to boost the signal level on I-71. There are also 2 portable units which can be towed to locations where a specific, short-term need exists. These units broadcast on **580 AM**.

Reference and Ramp Markers

Along the region's interstates blue and white signs are posted along the median and on entrance and exit ramps. Positioned approximately every 1/10 of a mile, the signs provide the following information:

- The direction of travel
- The roadway you are on
- A specific mile location

The signs, known as reference and ramp markers, have been especially helpful to stranded motorists and those in need of emergency medical assistance. ARTIMIS was the first in the nation to develop and make wide-spread use of the markers in an attempt to more accurately locate incidents. Information from area dispatchers indicated that they often receive multiple calls about an incident, often with conflicting data. Further complicating response is a situation called home rule in which each municipality is responsible for those portions of the freeway within its borders. Copies of the marker locations were provided to all area dispatch personnel on detailed freeway maps including jurisdictional boundaries. When someone calls in a problem, the

dispatcher can direct the motorists to read the reference or ramp marker and therefore get the correct response to the problem quickly.

ARTIMIS had Federal Highway Administration approval to perform an operational test of these signs. The University of Kentucky is performing the evaluation and a draft copy of the report is available. Other cities participating in the evaluation are Lexington, KY; Louisville, KY; Indianapolis, IN; Nashville, TN; Knoxville, TN; Chattanooga, TN; and Memphis, TN. Similar signs can also now be seen in several other cities and states. The results of the test were highly successful. A variant of these signs is now an accepted standard and the signs are appearing across the nation.

Freeway Service Patrol Vans

Broken-down vehicles and car accidents are two of the biggest factors contributing to highway congestion. In addition, some of these problems tie up police resources when they are not really necessary. To avoid some of the delays and inefficient use of personnel, ARTIMIS' free motorist assistance program includes 5 Service Patrol (Samaritan) vans that patrol the central 88 miles of the freeways within the region. ARTIMIS provides 51% of the funding for these vans. CVS Drug Stores provides the other 49%.

Drivers of the vans are Automobile Society of Engineers (ASE) certified mechanics and trained Emergency Medical Technicians (EMTs). They provide a variety of services, such as assisting motorists with temporary repairs, fuel, air, calling for assistance, and removing road debris. The vans are on patrol from 6:30 a.m. to 7:00 p.m. Monday through Friday and during selected events.

511 Traveler Advisory Telephone Service

The ARTIMIS Traveler Advisory Telephone Service provides up-to-the-minute, route specific traffic information during operational hours and construction information 24 hours a day.

Total Stations

ARTIMIS provides three total stations and training to area law enforcement personnel in order to aid in the efficient documentation of an incident. The total stations are a form of electronic

surveying equipment which allows the officer to take four times as many measurements in about 1/3 of the time. The resulting data is fed into a computer program and highly accurate plots obtained of the scene. ARTIMIS also provides, for those agencies that do not have the equipment, a computer and plotter to download and plot the data collected. To date, over 100 officers have been trained from over 37 jurisdictions. This cross-training has allowed smaller departments to "virtually" extend the size of their forces since in some instances; officers from one jurisdiction have helped another jurisdictions map one or more incidents.

Organization Members and Structure

The member organizations of ARTIMIS are the Ohio Department of Transportation, Kentucky Transportation Cabinet, City of Cincinnati, Federal Highway Administration, and OKI (Ohio, Kentucky, Indiana Regional Council of Governments).

Since April 1, 2002, the Ohio Department of Transportation (ODOT) is the contracting agency under a bi-state agreement with the Kentucky Transportation Cabinet (KYTC). KYTC was the contracting agency up to April 1.

The ARTIMIS program reports to a Policy Committee and a Technical Committee. The Technical Committee is made up of members of KYTC, ODOT, the OKI Regional Council of Governments, the City of Cincinnati, the Northern Kentucky Area Planning Commission, and the Federal Highway Administration. In most cases, there are representatives from both States, as applicable, both from the central office and the local district office. This committee oversees all technical aspects of the program. The Policy Committee is made up of a single representative from each location. The two States have a local and state representative. This committee is responsible for determining all overriding program policies. For example, information distribution, camera monitoring, and changeable message sign usage.

Financial Programs

Funding comes from the Ohio Department of Transportation (ODOT) and the Kentucky Transportation Cabinet (KYTC). ODOT pays 75% of any system-wide costs and KYTC pays the

remaining 25%. Components clearly in Kentucky or Ohio are paid by that State. For the ARTIMIS/CVS Samaritan vans, ARTIMIS pays for 51% of the cost and a private sponsor (CVS Drug Stores) picks up the other 49% of the cost.

The program is funded through several sources. The primary source of funds comes from the CMAQ program. Using CMAQ funds, the ODOT pays 75 percent of system-wide costs and the KYTC pays the remaining 25 percent. Components solely in Kentucky or Ohio are funded by the respective State.

STRATEGIC PLANS/DEPLOYMENT PLANS

The goals of ARTIMIS include:

- Improving motorist safety
- Improving travel times
- Improving air quality

ARTIMIS strives to achieve these goals through the functions performed by the Advanced Traffic Management System (ATMS) and the Advanced Traveler Information System (ATIS), including:

- Quick identification and clearance of incidents;
- Enhancement of public safety through roadway network surveillance; and
- Improvement in the quality of life by providing advanced traveler information to motorists.

The evaluation of ARTIMIS was centered on the following key issues that the participating agencies needed addressed:

- Evaluate the public perception of ARTIMIS;
- Assess emergency response agency perception of ARTIMIS;
- Evaluate system performance; and
- Identify system benefits.

ARTIMIS has made a significant impact on congestion and travel delays since the 1995 launch of its Traveler Advisory Telephone Service. Total savings in reduced traffic delays, fuel consumption, and crashes are estimated to be $15.9 million per year.

On January 8, 1998, after the first 23 of the 40 total changeable message signs were placed into operation, the system was immediately put to the test when a tractor-trailer carrying hazardous material overturned and ruptured on I-75. The result was a total closure of the interstate for approximately 3 hours. Motorists followed the alternate routes that were posted, and a later analysis of the incident indicated that ARTIMIS saved approximately $100,000 in motorist use costs.

Other benefits of ARTIMIS include a 10-percent reduction in interstate highway crashes and an annual savings of one million gallons of fuel. Analysis, using the ITS Deployment Analysis System model for estimating the impact of ARTIMIS, also determined that travelers save approximately 860 daily hours during peak travel time due to the traveler information components. In terms of reliability, motorists save about 12,000 hours of unexpected delay daily during the morning peak period, and 6,940 hours daily during the evening peak period.[18]

Some other key facts about the successes of ARTIMIS include:

- Approximately 1150 updates are made each day to the telephone service.
- Approximately 480 updates are made each day to the web site.
- An average of 30 calls per day are made to area dispatchers.
- An average of 25 television traffic reports using ARTIMIS-supplied information are made each day.
- Video feeds of ARTIMIS cameras are sent to area television stations.
- Traffic conditions are e-mailed every 10 minutes to area radio stations and traffic information service providers.
- An average of 10 calls per day are made to METRO bus dispatchers.
- An average of 4 calls per day are made to TANK bus dispatchers and TANK maintains a presence in the Control Center during morning and afternoon rush hours

- ARTIMIS has a radio frequency that has improved area communications. Several police and fire agencies, the transit agencies, area dispatchers, an aircraft, and the Freeway Service Patrol vans all communicate on this frequency
- A network of probes is maintained that call in traffic information on a regular basis.
- Alerts for major incidents are sent to all media outlets or other traffic information providers as well as the rest areas just outside of the I-275 beltway.
- Alerts are sent to area school bus transportation pools in the event of a major interstate incident which affects their bus route(s).
- The Freeway Service Patrol vans have been loaned to other cities for major events (e.g. Thunder Over Louisville and the Kentucky Derby).
- A Regional Incident Management Task Force was developed to develop common procedures for dealing with problems such as abandoned vehicles and to improve communications between various emergency response and law enforcement agencies
- ARTIMIS plays a key role in the management of traffic into the Coney Island/Riverbend/Riverdowns entertainment complex Traffic accidents during the several month season have been significantly reduced.
- ARTIMIS serves as a road condition spotter for ODOT.
- ARTIMIS has provided regional exposure nationwide and to other countries.
- ARTIMIS has provided free training to over 135 law enforcement officers from 40 separate jurisdictions in the greater Cincinnati/Northern Kentucky area. This training has resulted in improving the quality of the investigation of vehicular crashes and reducing the amount of time needed for the investigations.
- Private businesses to cover some of the expenses as in the case of CVS Drug Stores providing 49% of Freeway Service Patrol Vans service.

CURRENT ACTIVITIES

The ARTIMIS project continues to successful operate an advanced traveler information system and provide for coordinated operations of the transportation network in the Cincinnati region.

NEEDS

The needs for the future of ARTIMIS that can be addressed through this project will be identified through the completion of this case study.

LESSONS LEARNED

The lessons learned from ARTIMIS that can be addressed through this project will be identified through the completion of this case study.

RECOMMENDATIONS

The recommendations for future activities that can be addressed through this project will be identified through the completion of this case study.

REFERENCES

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3. ARTIMIS-Cincinnati/Northern Kentucky Area, http://www.fhwa.dot.gov/environment/cmaqpgs/amaq/03cmaq2.htm
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Aurora Program for Research on Road Weather Information Systems

SUMMARY

Aurora is an international program of collaborative research, development and deployment in the field of road and weather information systems (RWIS), serving the interests and needs of public agencies. The program, launched in 1996, brings together a number of U.S., Canadian and European agencies. (1)

The Aurora Program is a consortium of agencies focused on collaborative research, evaluation, and deployment of advanced technologies for detailed road weather monitoring and forecasting. Members of Aurora seek to implement advanced road weather information systems (RWIS) that fully integrate state of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures.

Aurora's projects are designed to improve the efficiency of highway maintenance operations and distribute effective real-time information to travelers. These initiatives are expected to result in technological advancement and improvement of existing RWIS that will significantly reduce the adverse impacts of winter driving conditions. The thirteen (13) members of the Aurora Program for 2003-2004 are:

- Alaska Department of Transportation
- Illinois Department of Transportation
- Indiana Department of Transportation
- Iowa Department of Transportation
- Minnesota Department of Transportation
- New York State Department of Transportation
- Ontario Ministry of Transportation
- Pennsylvania Department of Transportation
- Québec Ministry of Transportation
- Swedish National Road Administration
- Tennessee Department of Transportation
- Virginia Department of Transportation
- Wisconsin Department of Transportation

Aurora works closely with the Federal Highway Administration, having been approved for Federal-aid research and development funds without state matching using 100 percent SP&R funding. Aurora also has a strong relationship with the American Association of State Highway

and Transportation Officials (AASHTO) and its Snow and Ice Pooled Fund Cooperative Program (SICOP). Aurora also coordinates regularly with the American Meteorological Society (AMS).

Furthermore, Aurora works closely with research organizations already teamed with member agencies, including the University of North Dakota at Grand Forks, the University of Gothenburg in Sweden, the University of Minnesota, Iowa State University, the Virginia Tech Transportation Institute, the Swedish Meteorological and Hydrological Institute, and the Forecast Systems Laboratory of the National Weather Service.

Aurora has recently established an outreach to private RWIS concerns through the Friends of Aurora program. Aurora will continue to pursue this cooperative relationship in future years in hopes of establishing a continuing dialogue between the public and private communities.

Since the inception of the Aurora Program, nearly three-dozen technical projects have been funded. To date, eleven (11) of these efforts have been completed, while several others are very near completion.(8)

The Aurora organizational structure is straightforward and practicable. The Executive Board is made up of one voting member from each of the agencies and is responsible for the overall direction of the program. Specific project work is undertaken by Technical Project Committees where project management and oversight occurs. For each of the projects, there is a committee chair or "champion" who acts as the lead project contact and is responsible for its overall success. (2)

ORGANIZATIONAL BACKGROUND

Historical Perspectives

The Aurora Program is a collaborative research, development, deployment, and advocacy venture to deploy advanced road weather information systems (RWIS) that fully integrate state-of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures and with the National ITS Architecture. The primary need for Aurora is to help save lives, preserve property, and significantly reduce the adverse impacts of winter driving conditions.

The interest for Aurora stems from the following needs:

- The primary users of RWIS information are highway maintenance staff and the traveling public, many of whom have little or no knowledge of meteorology and how to interpret weather information to make effective decisions. Hence, Aurora members will design and implement decision support systems which transform weather and road condition data into an easily understandable format, such as color-coded graphical displays, to allow for informed decision making capabilities.
- This area seeks to apply techniques developed at the Meteorological Service of Canada, University of North Dakota, FSL, NWS, and other agencies to support detailed weather situation assessment and short-term forecasts on particular highway links.
- A primary component of RWIS is the provision of weather and road condition information to the general public to allow for informed travel decisions.(8)

Geographic Areas Covered

The Aurora program is primarily oriented toward research and advancement in technologies associated with weather information systems.

Programmatic Areas Addressed

The Road Weather Information System (RWIS) is a combination of technologies that uses historic and current climatological data to develop road and weather information (for example, advisories, "now casts" or current conditions, and forecasts) to aid in roadway-related decision making.

The three main elements of RWIS are:

- Environmental sensor system (ESS) technology to collect data;
- Models and other advanced processing systems to develop forecasts and tailor the information into an easily understood format; and
- Dissemination platforms on which to display the tailored information.

Environmental Sensing Stations (ESS) are components of RWIS that provide environmental data. Many types of data can be collected, the most common type being:

- Weather: air temperature, amount and type of precipitation, visibility, dew point, relative humidity, and wind speed and direction.
- Surface: pavement temperature, subsurface temperature, surface condition (dry, wet, frozen), amount of deicing chemical on the roadway, and freezing point of the road surface.

These data are collected by sensors placed at the roadside or in the roadway itself. Remote processing units (RPUs) placed along the roadway contain some or all of the road and weather sensors. In some cases, the pavement sensors are located apart from the RPU, with several pavement sensors capable of being linked to one RPU. However, these RPUs have limited local intelligence for processing, so data is transmitted to a central server which could be generically termed a central processing unit (CPU). This central server is typically located in a highway maintenance facility and provides communication, collection, archiving, and distribution of the data. The raw data are used to prepare forecasts to predict site-specific weather and pavement conditions. Real-time weather information is important, although, the greatest benefits are accrued through the use of tailored forecasts such as those aimed specifically at supporting maintenance operations.

First generation RWIS were used by highway maintenance personnel to assist in the decision making process of applying labor, equipment, and materials as cost-effectively as possible during the course of a storm event. The information is used for monitoring and planning operations such as scheduling personnel, timing operations, selecting roadway control materials, and deploying equipment cost-effectively. Furthermore, RWIS information assists with budgeting and programming. Several distribution mechanisms used for information dissemination include Internet, Intranet, satellite, and dial-up lines.

The weather and road condition information is now being disseminated to a wide range of transportation users and operators to aid in their decision making. The largest constituency within this expanded market is the traveling public, though many others benefit for this expansion, such as traffic managers and transit operators.(5)

Organization Members and Structure

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The Aurora program operates under a memorandum of understanding that is included in the appendix to this case study.

Each of the active member entities is represented on the Board which is to develop the Pooled Study's budget, oversee the work program, and related matters of policy. Active membership is defined as a public or private entity contributing $25,000 or more per year to the Program. In addition, on a case-by-case basis, the Board may consider allowing an entity to become an active member through an in-kind contribution, applicable only for the first year of membership. Additional voting and non-voting members may be appointed to the Board from international, national, or regional organizations, public or private, through a vote of approval by the existing Board members. The Board is responsible for organizing itself, establishing operating rules and for conducting business with a quorum of members. The Board shall be presided over and directed by the Program Chair, who shall be a representative of one of the Aurora public sector member agencies.

Aurora's organizational structure was established so as to maximize the group's ability to meet its objectives, while effectively managing a group comprising numerous agencies. The organizational structure is straightforward and practicable. The Executive Board is made up of one voting member from each of the agencies and is responsible for the overall direction of the program. Specific project work is undertaken by Technical Project Committees where project management and oversight occurs. For each of the projects, there is a committee chair or "champion" who acts as the lead project contact and is responsible for its overall success. 2 Figure 1 below shows the organizational structure of the Aurora Program.

Figure 1. Aurora Program Organizational Structure

Executive Board

The Executive Board consists of one voting representative from each active member agency. All of Aurora's operating authority derives from the Executive Board. The Board is responsible for overall policy direction and budget approval as well as for organizing itself, establishing operating rules, and conducting other business. Board members may propose voting membership for two federal agencies that could participate in Aurora: FHWA and NOAA. Following established precedents, however, FHWA would not vote on matters involving the expenditure of any Federal funds over which it has approval authority, such as SP&R funds.

Program Chair, Vice Chair, and Program Administrator

The Program Chair serves as head of the Executive Board. The duties of the Chair include developing meeting agendas, chairing meetings, and representing the Aurora Program in discussions with other organizations.

In 1998, the Aurora Board voted to create the position of Vice Chair, who supports the Chair in the activities noted above and acts as a representative of the Chair and the program as required. Additionally, an amendment to the program Charter was proposed and approved, such that the program Chair and Vice Chair will each serve a one-year term, at the end of which the Vice Chair shall succeed the Chair and a new Vice Chair shall be elected. In addition, the outgoing Chair shall become an ex officio non-voting member of the administrative group for one year. The Program Administrator operates under the delegated authority of the Executive Board and is responsible for the day-to-day management of Aurora. The Administrator is an employee from the lead administrative state that controls expenditures from the program's pooled funds. The Program Administrator is responsible for contracts administration, quality control and evaluation, recommendations on contract preparation, change order requests, authorizing payments, and informing the Executive Board of all contract progress. Finally, the Program Administrator is responsible for administering the Aurora management budget and approving travel authorizations.

During the 2003-2004 (FY 2004) program year, the Chair of the Aurora Executive Board is Joe Holt of the Tennessee DOT, the Vice Chair will be shared by Jack Stickel and Terry Onslow of the Alaska DOT, and the Ex-Officio Past Chair is Mike Adams of the Wisconsin DOT. The Aurora Program Administrator is Dennis Burkheimer of the Iowa DOT, and the Financial Services Manager is Phyllis Geer of the Iowa DOT.

Technical Committees

Aurora technical committees study those areas of interest identified by the Executive Board. Committee activities include problem definition, analysis of alternative approaches, RFP development, project selection recommendations, project oversight, and future program planning. Voting authority on the technical committees is limited to Executive Board member

agencies. This authority may be given to an agency's full Board member or a designated representative. To date, the Executive Board has established two technical committees; the Membership Outreach Committee and the Web Site Review Committee. The Membership Outreach Committee is responsible for keeping up on potential new membership opportunities, by assisting the management consultant in the development of outreach materials, and to be the key point of contact for potential new members. The Web Site Review Committee is responsible for monitoring web site items and reviewing potential new changes to the site, including proposed links to RWIS related Internet sites.

Management Consultant

The Executive Board may appoint a management consultant to support program administration and address technical issues that arise from time to time. The management consultant's role is to provide both general and specific support to the Chair, Vice Chair, and Program Administrator and program participants on an ongoing basis. These duties range from preparing meeting agendas and minutes to coordinating and performing technical studies, evaluations, and related activities.(8)

Financial Programs

The Aurora budget comprises fees and contributions from the member agencies, as well as in-kind contributions. As the program continues to develop, it is hoped to attract private sector contributions and federal grants to boost program funding. Aurora membership is open to all transportation-related agencies.(2)

Membership Fee

The annual membership fee of $25,000 would fund only minimal RWIS research and development activities for individual member agencies. Compounded through Aurora, however, membership dues are funding valuable initiatives that directly benefit all members. As an FHWA pooled-fund project, Aurora is eligible for 100 percent SP & R funding. Most agencies cover the annual membership fee with SP & R funds. Some members have made in-kind contributions in lieu of membership fees.(3)

Table 1 contains the proposed budget for the Aurora Program during the 2003-2004 program year. This table illustrates the funding for each newly approved project described in Section 8, in addition to costs related to travel and program administration. The costs for ongoing projects are not included here for clarity, as these are fully funded through previous program year's income.

Table 1 Aurora Program Budget 2003-2004 Fiscal Year

Income		Expenditures	
11 Members @ $25,000	275,000	Administrative Contract	65,000
MTO In-kind	25,000	Travel	10,000
SNRA In-kind	25,000	Meetings	10,000
Anticipated FY 2003 Carryover	52,000	Project Funding ↓	↓
Transfer from leverage fund	34,000	2003-01 Improved Frost Model (1)	25,000
		2003-04 Image-Based Sensor 3 (2)	25,000
		2003-05 Snow Cover (3)	25,000
		2004-01 Hot Plate Demonstration	65,000
		2004-02 Laser Road Sensor	26,000
		2004-03 MDSS Pooled Fund	75,000
		2004-04 Enhanced Weather Index	50,000
		2004-05 Frost Observations	35,000
Total	**$411,000**	**Total**	**411,000**

(1) Approved under previous work plan as additional funding in FY 2004

(2) Approved as SNRA in-kind contribution for FY 2004

(3) Approved under previous work plan as Ontario MOT in-kind contribution for FY 2004

The minimum membership contribution is placed in a pooled fund to be allocated at the discretion of the Aurora. Where members' contributions are additional to the minimum membership contribution, members may select the Aurora project to receive the supplementary funding. These project-specific grants also contribute to Aurora's income. Although the income is presented for the 2003-2004 program year, it is important to note that income for multi-year projects will not all necessarily be received in 2003-2004.

As a member of Aurora, U.S. member states have the option of contributing federally derived State Planning and Resources (SP&R) funds. This reflects Aurora's status as an FHWA-

approved SP&R pooled-fund initiative. Most state DOT members use this approach. Other members have elected to make their contributions using non-SP&R funds or to contribute using funding sources appropriate to their individual involvement. To ensure appropriate use of program funds, SP&R and non-SP&R contributions are maintained in separate accounts.

Aurora Program expenditures include administrative costs, costs associated with Aurora meetings, and individual project costs. Administrative expenditures for Aurora include meeting costs, representation at conferences, management consultant support, and miscellaneous administrative costs.

Members meet several times each year to propose new projects for Aurora, vote on proposed projects, discuss the progress of present projects, and share progress and ideas. Travel expenses for member agencies are paid from pooled funds.

Once initiated, the expenditure for individual projects comes from the Aurora budget. Each project has a planned budget approved by the Board. All costs incurred by a project are measured against this approved budget.8

STRATEGIC PLANS/DEPLOYMENT PLANS

Vision

The common vision of the Aurora Program participants is to deploy advanced road weather information systems (RWIS) that fully integrate state-of-the-art roadway and weather forecasting technologies with coordinated, multi-agency weather monitoring infrastructures and with the National ITS Architecture. Aurora should provide the basis for fruitful public private partnerships of mutual benefit to industry and government, which will help save lives, preserve property, and significantly reduce the adverse impacts of winter driving conditions.

Mission

The mission of Aurora participants is to maintain a joint program for cooperative research, evaluation, and deployment of advanced technologies for detailed road weather monitorin and

forecasting for improved surface transportation with emphasis on efficient highway maintenance and effective real-time information outreach to travelers. Additionally, the Aurora Program assumes an advocacy role in promoting RWIS based on the findings of its research efforts.

Goals and Objectives

The goals of Aurora members define areas of potential benefit that the group is pursuing. These goals are to:

- Provide and/or improve RWIS information dissemination to both transportation providers and end users to reduce potential weather-related construction activity delays
- Improve the efficiency of maintenance operations, primarily costly winter maintenance
- Support and enhance information dissemination activities in the rural environment
- Reduce traffic congestion delays in urban areas due to adverse weather-related conditions
- Aid in the development of seamless maintenance operations and information dissemination RWIS programs
- Develop initiatives which assist public agencies in deploying RWIS technologies
- Encourage greater cooperation and information exchange between transportation agencies and the meteorological community

Aurora's objectives address activities or areas of work that support realization of the above goals.

General objectives for the Aurora Program are to:

- Enhance and support the individual road and weather system deployment plans of Aurora Program participants
- Jointly pursue emerging road and weather project opportunities in areas of interest to the group's members
- Identify common development and evaluation needs within the group and to coordinate resulting technical activities
- Provide a mechanism to facilitate further regional and international project cooperation and technical information interchange, so as to benefit all surface transportation modes

- Support the development and deployment of promising advanced technologies for use in road weather monitoring, forecasting, information exchange, and dissemination
- Facilitate the formation of public-private partnerships addressing appropriate program activities
- Provide test beds in a variety of environments and locations for the evaluation of emerging road weather information system technologies and standards
- Coordinate with other agencies conducting road and weather information work, such as the Weather Team of the Federal Highway Administration (FHWA), the Office of the Federal Coordinator for Meteorology (OFCM), American Association of State Highway and Transportation Officials (AASHTO), the Transportation Research Board (TRB), the Weather Information Applications Task Force (WIATF) of the Intelligent Transportation Society of America (ITS America), the World Road Association (PIARC), the American Meteorological Society (AMS) Standing Committee on Surface Transportation, and others
- Contribute to activities which aim to integrate RWIS into the intelligent transportation systems (ITS) infrastructure
- Actively support the activities of the Federal Highway Administration's Maintenance Decision Support System (MDSS) effort
- Advocate implementation of its research findings into the day-to-day practices of road maintenance agencies by establishing and/or supporting RWIS-related standards.(7)

Success in Achieving Goals and Objectives

Aurora's successes include the following:

- Helped develop standards and protocols for RWIS communications. (Partners included AASHTO, FHWA, and the National Transportation Communications for ITS Protocol (NTCIP) Working Group.)
- Documented institutional challenges and barriers encountered by agencies in planning and deploying RWIS, as well as measures taken to overcome these barriers, successful RWIS deployment strategies, and productive public/private partnerships.

- Developed straightforward presentation materials to assist members in presenting information to agency decision makers about the potentially dramatic effects of RWIS and the modernization of the National Weather Service on surface transportation.
- Standardized methodologies for testing the accuracy and consistency of pavement sensors; Aurora is now conducting these critical tests.

To date, eleven (11) projects have been completed. These completed projects are as follows:

Institutional Issues Committee

This project documented institutional issues encountered by agencies in the process of planning and deploying road weather information systems or programs, as well as the measures taken to overcome any barriers. All Aurora Program members were involved in this project, addressing issues such as public-private partnerships, barriers to implementation, and strategies for deployment. The project was considered an outreach activity, the product of which was a compendium of findings and lessons learned relating to the institutional issues involved in the development and implementation of RWIS.

RWIS Communications Standards

This project provided support to the ongoing standards development process for RWIS communications and protocols. Aurora played a supporting role, providing strategic input and technical expertise in many RWIS areas. As a part of these activities, Aurora prepared an RWIS protocol white paper submitted to the National Transportation Communications for ITS Protocol (NTCIP) Working Group. Aurora worked with numerous other groups including; the FHWA, the American Association of State Highway and Transportation Officials (AASHTO), and NTCIP, as a part of this initiative.

Expert System for Maintenance Decision Support

The objectives of this effort were to report on existing work in developing decision support tools to select chemical applications appropriate for winter weather conditions, to describe those which are at or near an operational state, and to assess the feasibility of implementation as part of a road weather information system. The result of this project produced details of both Sweden's

and FHWA's approaches to classifying environmental conditions for material application and a report describing the DART database.

Adaptation of the Local Climatological Model in New Areas

This project involved a feasibility study of which factors need to be modified, and how these modifications should be performed, for the implementation of the Local Climatological Model (LCM) in the Province of Ontario, Canada. The LCM has been developed for Swedish conditions and requirements, thus modifications are required in the LCM before installation in a new geographic area. The final report for this project includes a detailed inventory of geographic and meteorological conditions for adaptation in the Ontario region, an assessment of LCM transferability and description of LCM data requirements, and an outline implementation plan for LCM at the Canadian site.

Standardized Testing Methodologies for Pavement Sensors

This project was undertaken to establish and evaluate standard procedures for testing RWIS sensors, related software, and models. This effort attempted to discern the state of the practice around the world. The report for this project indicates that a number of nations and organizations are developing standards for testing and calibrating road weather sensors. A strategy to promote the development of national and international standards and procedures has been funded as an extension of this project.

Road Weather Roadshow

This project involved development of an outreach slide presentation and accompanying script that captures the advances and improvements in road weather forecasting and now casting. This area is drastically changing as the National Weather Service modernization goes into full implementation. Some have recognized the potential impact this could have on daily operations, but many others are not yet convinced. Therefore, there was a need to show the rest of the transportation community the difference between the old and new through simple presentation material. The presentation produced through this project, whose primary audience is state and local DOT staff and managers, addresses this need.

Synthesis of National Road Weather Forecasting

This project involved determining the arrangement that exists in other countries between local and national government surface transportation agencies and their national weather forecasting agency. This was done through a questionnaire sent to DOT personnel in nine countries. The questionnaire requested information collected by the road agencies and the information supplied and protocol used by the forecasting service.

Computer-Based Training Development

The objective of this effort was to develop a comprehensive, interactive training program for winter operations, which would include segments on RWIS, anti-icing, de-icing chemicals, and other related aspects of winter operations. This objective was accomplished through coordination between Aurora and the American Association of State Highway and Transportation Officials (AASHTO). Aurora's role in this effort was to develop an RFP and assist AASHTO in the contractor selection process. The development itself is nearly complete with generic versions of all lessons produced.

Intelligent Image-Based Winter Road Conditions Sensor – Phase I

This project focused on building a field prototype of a video-based road condition sensor and extending its function such that both the current condition and trend can be measured accurately. The limitations of the system were also investigated. The results of the study, which was led by the Swedish National Road Administration, show that the use of only image data is not sufficient to determine road conditions, but combining image and other RWIS data has resulted in reliable results.

RWIS Data Integration and Sharing Guidelines

The objective of this project was to provide agencies with a guide to fully utilize their own weather data and that of other agencies. The project, which was a collaborative effort between Aurora and ENTERPRISE, resulted in a report that presented a comprehensive view of the state-of-practice for the deployment and integration of RWIS, and how an integrated system, capable of sharing information with other agencies, may be successfully established.

Intelligent Image-Based Winter Road Condition Sensor - Phase II

The objective of this effort was to further previous research conducted under Phase I, which showed that combining image and other RWIS data resulted in reliably determining road conditions. Since the first phase did not cover trials with illuminated roads at night, this second phase focused on classification of nighttime pictures. Results of the second phase provided insight into how to design a final version of the sensor system. Specifically, the research has shown that there are specific parameters that could have an effect in this evaluation compared to earlier tests. It is expected that the pending evaluation will determine if there are any influences from these new parameters. A third phase involves continuing research and movement of the test site to a new location to acquire more research data.(8)

CURRENT ACTIVITIES

Five new projects have recently been selected for funding in FY 2004, through the 2003-2004 Work Plan. The descriptions of these projects are listed on the following pages.

Hot Plate Snow Gauge Demonstration

The first objective is to test the utility of a new real-time snow gauge for use in winter road maintenance. If real time snowfall rate information is proven beneficial, then this device could be added to automated weather stations in the future. The second goal is to test the utility of the WSDDM deicing/anti-icing nowcast system for winter road maintenance operations.
Strategy/Approach: The following tasks will be conducted as part of this project.

Laser Road Surface Sensor

Knowledge of surface conditions is important for accurate decision-making. Current road condition sensing technologies have very small sensing areas and must be embedded in the road surface, forcing operators to dig up the road for installation and maintenance. An active, laser remote sensing system (LRSS) can classify surface conditions (dry, wet, snow, and/or ice-covered) over a wide target area in any lighting condition while eliminating the need to modify the road for installation and maintenance. The objective of this project is to evaluate a laser road surface sensor (LRSS) under field conditions.

MDSS Pooled-Fund Project Support

The need for a Maintenance Decision Support System was identified in two "Weather Information for Surface Transportation" (WIST) symposiums held in 1999 and 2000. The purpose of this project is to develop and test the MDSS as an operational tool in the states involved in the pooled-fund study.

Weather Index Enhancements

To get an accurate assessment of performance, weather differences in the area need to be accounted for, and an automated method should be developed to allow users the ability to pull NWS data from statewide or regional collection sites, and determine weather differences in the area. The objective of this project is to determine the weather events that affect winter operational performance, then develop a software application that can automatically extract NWS data and calculate differences in weather across a region.

Research on Frost Observations and Forecasts

To complete analysis and publication of results on; bridge frost observations and modeling for 2001-02, 2002-03, and 2003-04 frost seasons; to develop interface to pass weather forecast information to Bridge and frost accumulation algorithm; management of forecast model and data flow at 10-km resolution over upper Midwest (12,000 grid points in IA, MN, SD, ND, WI) for 2003-04 frost season; development of graphical (GIS) web-based display of 24-hour forecast of frost hazard potential over the 5-state region; and to produce maps updated daily on the IEM website of frost hazard potential for the 5-state region for the 2003-04 frost season.(8)

Other projects currently underway within Aurora include:

- Affordable RWIS
- Benchmarking the Performance of RWIS Forecasts
- Color Video Camera Study
- Compilation of RWIS Specifications
- Development of Road Weather ESS Observation Systems
- Guidelines for Testing, Installation, Maintenance, and Calibration of Pavement Sensors

- Hot Plate Snow Gauge Demonstration
- Improved Frost Forecast Model - Phase II
- Intelligent Image-Based Winter Road Condition Sensor - Phase III
- Interjurisdictional Traveler Information Exchange
- Investigation of the Variability of Snow Cover Conditions
- Laser Road Surface Sensor
- MDSS Support
- Off-the-Shelf Component RWIS
- Road Weather Training Program for Improved Winter Response
- RWIS Equipment Monitoring System
- RWIS Leverage Opportunities
- Standardized Weather and Road Condition Information Presentation
- Technology Transfer of Swedish RWIS to North America
- Temperature Sensor Accuracy
- Winter Weather Severity Index Enhancements (6)

NEEDS

Additional coordination is needed to determine if there are any needs that can be addressed through this project.

LESSONS LEARNED

The following lessons were learned through a review of this MSTOP:

- Establish an outreach to private operations agencies. This cooperative relationship will help establish a continuing dialogue between the public and private communities.
- The utilization of a management consultant may enhance the coalition's efforts. In the case of AURORA, the Executive Board may appoint a management consultant to support program administration and address technical issues that arise from time to time. These duties range from preparing meeting agendas and minutes, to coordinating and performing technical studies, evaluations, and related activities.

RECOMMENDATIONS

Additional coordination is needed to determine if there are any recommendations that can be addressed through this project.

REFERENCES

Provided references using end notes and a bibliography as needed.

1. Aurora-Who We Are, http://www.aurora-program.org/what_is_aurora.cfm
2. Aurora-Structure and Funding, http://www.aurora-program.org/structure.cfm
3. Aurora-How to Participate, http://www.aurora-program.org/take_part.cfm
4. Aurora-Our Partners, http://www.aurora-program.org/participants.cfm
5. Aurora-About RWIS, http://www.aurora-program.org/what_is_rwis.cfm
6. Aurora-Ongoing Projects, http://www.aurora-program.org/projectsu.cfm
7. Aurora-Goals, http://www.aurora-program.org/goals.cfm
8. Aurora 2003-2004 Work Plan, September 2003
9. Enterprise, Road Weather Information Systems (RWIS) Data Integration Guidelines, Final Report, October 2002

APPENDIX:

THE AURORA PROGRAM
ORGANIZATION CHARTER
Drafted: February 22, 1996
Updated: September 15, 1998
Updated: February 15, 2001

INTRODUCTION
The AURORA Program represents an international forum for collaborative research, development, and deployment ventures comprising the interest of governmental entities and industrial groups. This forum will facilitate the sharing of technological and institutional experiences gained from road weather information system (RWIS) programs conceived and initiated by each participating entity.

The cooperative and collaborative objectives of the AURORA Program provide for a more efficient use of resources than a series of independent initiatives. The synergistic effect of this forum is an accelerated implementation of RWIS programs. In order to guide the deliberations of the forum participants an agreement is required on the management structure and operating rules. An organizational charter provides a basis for this requirement.

GUIDING PRINCIPLES
A set of principles is intended to guide the AURORA Program and the creation of this charter. These principles are simply stated as follows:
(1) the individual components of the program are locally organized and managed under the direction of a state-level program,
(2) individual states provide for the coordination with local level participants, both government and industry,
(3) each state-level organizational structure and program activity reflects individual priorities,
(4) comparison of state-level programs and interests will allow for the identification of joint program activities, and

(5) the AURORA Program management functions will require a minimum level of support. From these principles an organizational structure, duties, and operating rules can be formulated.

1.0 EXECUTIVE BOARD

The purpose of the Executive Board (the "Board") is to develop the Pooled Study's budget, oversee the work program, and related matters of policy. The Board consists of a representative of each of the active member entities of the AURORA Program. Active membership is defined as a public or private entity contributing $25,000 or more per year to the Program. In addition, on a case-by-case basis, the Board may consider allowing an entity to become an active member through an in-kind contribution, applicable only for the first year of membership. Additional voting and non-voting members may be appointed to the Board from; international, national, or regional organizations; public or private; or through a vote of approval by the existing Board members. The Board is responsible for organizing itself, establishing operating rules and for conducting business with a quorum of members.

The Board shall be presided over and directed by the Program Chair, who shall be a representative of one of the Aurora public sector member agencies. The Program Vice Chair, who shall also be a representative of one of the Aurora public sector member agencies, shall be responsible for supporting the Chair in their role, and may temporarily assume the duties of the Chair when requested to do so by the Chair. The Chair and Vice Chair shall be elected by a vote of all public sector Board members.

The Vice Chair shall succeed the Chair following the Chair's term of duty, and at this time a new Vice Chair shall be elected by the Board. Following the succession of the Chair by the Vice Chair, the outgoing Chair shall become an ex-officio non-voting member of the Board during the term of the new Chair.

1.1 Policies and Procedures

The Board will adopt such Program policies and procedures as deemed appropriate, including selection of the Chair and the Vice Chair.

1.2 Funding

Pooled funding will be derived from contributions received from participating entities. For U.S. states utilizing pooled SP&R funds, uniform treatment of funding is assured under existing FHWA mechanisms for such pooled funding projects.

1.3 Appointments

The Board is responsible for creating and terminating various committees or other organizational units as required to satisfy Program requirements.

1.4 Budget and Work Program

The Board will approve a budget and a work program for the Pooled Study, after consideration by the Program Administrator.

1.5 Active Membership

Active membership in AURORA is open to public and private organizations. Active membership of a private sector organization, or of a public organization seeking to join using non-SP&R funds, will require approval of the Executive Board.

For a designated member of the Board to continue active membership, the participating entity must continue annual financial support of at least $25,000. If an entity fails to meet its annual commitment, it may, at the discretion of the Board, be assigned non-voting member status until such time as its financial participation is continued.

On a case-by-case basis, the Board may consider allowing an organization to become a member of AURORA through an in-kind contribution applicable only for the first year of membership. For continued active membership beyond the first year, this entity must contribute annual financial support of at least $25,000. As with other agencies, if an entity fails to meet its annual commitment, it may, at the discretion of the Board, be assigned nonvoting member status until such time as its financial participation is continued.

1.6 Voting Rights

The representative of a public agency active Board member is eligible to vote on all program issues. The representative of a private sector active Board member will have non-voting status. The voting members of the AURORA Board may choose to allow a private sector member to vote on an issue where it is determined that no potential for a conflict of interest exists. The public sector agencies of the Board may choose to go into executive session to prevent potential conflicts from occurring.

1.7 Approval of RFP's/Selection Processes

If external resources are required, committees of the Board will organize, review, and approve RFPs to assure their consistency with the work program and budget. Committees will recommend the selection of consultants, after consideration of a list of qualified consultants prepared by the Program Administrator. Committee consultant selection will assure consistent treatment of consultants and that the qualified list is consistent with the approved consultant selection process.

1.8 Review Products/Recommend Alternatives

Committees will be responsible for establishing a degree of expertise in their given areas of research. This expertise will facilitate in-depth analysis and detailed presentations before the Board. The Committees will review the products of their respective consultant teams and make recommendations to the Board.

1.9 Product Acceptance

The Board is responsible for acceptance of final products from consultant teams.

1.10 Coordination and Education

The Board is responsible for maintaining a high degree of coordination with impacted parties and for creating educational programs to increase awareness of the needs, benefits and impacts.

2.0 PROGRAM ADMINISTRATION

A single state approved by the Board will administer the Program's resources and will provide the Program Administrator ("Administrator").

2.1 General Support

The Administrator will be responsible for drafting RFPs, developing a proposal ranking and consultant selection process for the Board's approval, presentation of lists of consultants and RFP response materials to Committees of the Board.

2.2 Contract Administration

The Administrator is responsible for distributing RFPs, preparing contract documents and performing other functions related to contracts administration and management. The Administrator will assure that contracts, schedules, work plans, and project descriptions are followed. The Administrator will be responsible for quality control and evaluation, recommendations regarding preparation of contract documents, change order requests, and authorizing progress payments. The Administrator is responsible for providing contract progress reports to the Board.

2.3 Management Budget

The Administrator is responsible for administering a management budget, which may include travel and per diem payments for active participants or their designated representatives. *Per diem* and travel will be administered for each entity consistently with the policies of the Administrator and that entity's prevailing per diem and travel policies.

2.4 Management Consultant

The Administrator may recommend to the Board a Management Consultant to help coordinate technical studies and to prepare and administer various meeting agendas and related duties.

3.0 AMENDMENTS

This Charter may be amended by a 4/5 vote of the voting membership. If a quorum is not present the entire membership shall be polled.

THE AURORA PROGRAM

OPERATING RULES

Drafted: February 22, 1996

Updated: February 15, 2001

Quorum

A quorum of the Board, any committee or subcommittee shall consist of more than one-half of the voting membership. Voting members and non-voting members carrying written proxies in actual attendance at any meeting shall count toward a quorum.

Proxy Votes

All proxy votes shall be in writing and dated as to effective date and date of cancellation. Board members may identify in writing an individual to serve as proxy for a one-time event, or for all events at which the Board member is not present. The proxies may cover all issues subject to vote or may be limited to specific issues, as stated in writing. One-time proxy votes shall be delivered to the Board or appropriate Committee Chair at the start of each meeting and recorded in the meeting minutes.

Voting Procedures

All votes may be cast by voice or by a show of hands. Any voting member may request a roll call vote.

For decision-making between meetings, voting by telephone or facsimile polling may be undertaken when deemed suitable by the appropriate Board or Committee Chair. All voting members will be polled with a quorum required for approval.

Contracting Procedures

1) All RFP's shall allow a minimum of 30 days for contractor response.

2) A minimum of two acceptable RFP responses are required or the RFP will be re-bid. If a committee receives only one technically-responsive proposal, it may seek a waiver of the minimum number from the Board.

3) The committee may request Board approval of exceptions to Contracting Department of Transportation RFP guidelines.

Committee Size and Structure

A committee shall have up to seven voting members. There shall be no limit on non-voting members. Each AURORA member organization shall have no more than one voting representative on a committee. The Committee Chair shall be selected by the Executive Board, and shall be responsible for determining committee membership and reporting to the Board on committee activities.

Lists of Qualified Consultants

Mailing lists of qualified consultants shall be maintained by the Program Administrator and submitted to each committee for suggested additions or changes.

AURORA Newsletter

At the discretion of the Board, an AURORA newsletter will be developed with the objective of a wide yet targeted circulation. The Board will determine the appropriate body to be charged with preparing this newsletter.

Reports of Technical Consultants

Technical consultants will make presentations to committees of the Board and will be responsible for presenting committee approved final products to the Board for acceptance.

Travel Support

The Board member or designated representative of each active member will be eligible for reimbursement of reasonable costs for travel, including registration fees, accommodation, and sustenance, to attend approved AURORA meetings. Travel costs of attendance at AURORA meetings by additional employees of active member organizations may also be reimbursable in special cases approved in advance by the AURORA Program Administrator or the Executive Board. Travel costs are to be kept to a minimum whenever possible. The Program Administrator is charged with coordinating events requiring travel as appropriate, to minimize travel costs.

At the discretion of the Program Administrator, or if approved by the Executive Board, reasonable travel costs for attendance by Board members or designated representatives at other events germane to the AURORA program, may be reimbursed. At the discretion of the Program Administrator, or if approved by the Executive Board, reasonable travel costs for attendance of invited guests at AURORA meetings or other related events, may be reimbursed.

Meetings and Registration Fees

From time to time, AURORA will hold general meetings open to members and nonmembers alike. The fee for attendance at these meetings will be $350 per person unless lowered or waived by the Executive Board or the Program Administrator. Fees may be lowered or waived differently for Executive Board members or their representatives, invited guests or speakers, or other general meeting attendees. Friends of AURORA (FOA) will pay reduced registration fees as determined by the Program Administrator.

Other AURORA meetings including; business meetings, committee meetings, and working sessions; will generally be restricted to Board or committee members, their designated representatives, and other invited guests. However, at the discretion of the Executive Board or appropriate Committee Chair, these meetings may be opened to broader participation. The registration fees for such meetings will be set by the Executive Board, Program Administrator or Committee Chair, as appropriate. Registration fees collected by the host state in excess of the meeting facilities costs, are the property of AURORA, and are to be used to defray the cost of other AURORA expenses. Host states, or the Management Consultant, shall provide a meeting expense summary to the Program Administrator after each meeting.

Internet Web Site

The Aurora Program will maintain an Internet web site for use by members and non-members. The public portion of the web site will be used to disseminate information deemed important by the Board to non-member agencies, and will include general information concerning the Aurora Program, information on member agencies, and any information relating to completed projects. In addition, a portion of the web site will be restricted to Aurora members only. This section will include meeting and conference call minutes and project status reports.

Mailing Lists

The Program Administrator will maintain a mailing list of all organizations and individuals eligible to receive approved AURORA materials. This will be used as the basis for distribution of minutes of general meetings, meeting announcements, approved technical reports, press releases, and newsletters (if available). All active member entities will be included on this mailing list. FOA's will receive invitations to the general meetings, meeting minutes, newsletters and technical reports. This level of participation also entitles the FOA to discounted meeting registration fees. FOA membership is available for an annual contribution of $500. Others on the mailing list (meaning those who are not members or FOA's) will receive meeting announcements and press releases.

Organizations or individuals which are not on the mailing list, but which attend or pay the registration fee for a general AURORA meeting, will receive minutes and other materials associated with that meeting.

Technical Committee Procedures

Aurora technical committees study those areas of interest identified by the Executive Board. To date, two technical committees have been established by the Executive Board. These committees are the Membership Outreach Committee and the Web Site Review Committee.

The Membership Outreach Committee is responsible for keeping up on potential new membership opportunities, by assisting the management consultant in the development of outreach materials, and to be the key point of contact for potential new members. The Membership Outreach Committee will meet as necessary, as instructed by the Executive Board to address issues that arise concerning membership. The Executive Board will assign participation in the Membership Committee. The Web Site Review Committee is responsible for monitoring web site items and reviewing potential new changes to the site, including proposed links to RWIS-related Internet sites. The Web Site Review Committee consists of the Program Chair, Vice-Chair, and Immediate Past Chair. The process for adding Internet links to the Aurora web site is as follows:

1) An item (Internet link, paper, etc.) is sent to the management contractor to have posted on the "members only" side of the Aurora web site for one month.
2) Upon receipt and posting of the item, the management contractor will send out an e-mail through the "Aurora Reflector" notifying the Aurora Board of the posting.
3) After one month, the suggested link will move to the public "links" section of the web site.
4) During that one-month, an Internet Review Committee (consisting of the chair, vice chair, and immediate past chair) will contact the management consultant and express support or nonsupport for the posting. Unanimous support of the committee is needed for movement to the public Links page.
5) Any Aurora Board member can call for a vote of the membership concerning the appropriateness of a posting. Majority vote of the members voting rules. This vote will usually occur at an Aurora Board meeting or conference call.

THE AURORA PROGRAM
MEMORANDUM OF UNDERSTANDING WITH ENTERPRISE POOLED FUND
Drafted: May 2, 2002
Introduction
This Memorandum of Understanding ["MOU"] serves as a non-binding agreement between the ENTERPRISE Pooled Fund and the Aurora Program, hereafter referred to as the "parties".
The ENTERPRISE Pooled Fund and the Aurora Program have acknowledged that developing a formal relationship will leverage both parties' resources on a project basis where cooperation would result in mutual benefit. This agreement identifies two specific mechanisms by which the parties of this agreement may cooperate. Both of these mechanisms are described in a generic fashion. The cooperation mechanisms identified herein may be modified or amended with approval of both parties. Signatures on this agreement do not bind either organization to any cooperation; rather they indicate recognition of the mechanisms by which the organizations may cooperate. Should either mechanism be executed, specific arrangements will be agreed at the time, and documented either by email exchanges or minutes of conference calls or meetings.

Anticipated Benefits
The anticipated benefits of this agreement are as follows:

- Expedited cooperation between groups to complete projects that are of mutual benefit to both parties; and
- The ability to use and leverage the technical and financial resources of both parties without formal agreements for each coordinated activity.

Candidate Mechanisms for Cooperation

Both cooperation mechanisms described below have proven successful between pooled fund projects in other coordinated efforts. This MOU documents these potential cooperation mechanisms and allows the parties to select the most appropriate arrangement for each coordinated effort. The following summaries describe the proposed mechanisms for cooperation between the parties specified:

Mechanism #1 – Exchange of Funds for Cooperative Efforts:

In the event that the parties wish to cooperate on a project and leverage member states' resources, either party may transfer funds to the other party for participation in a selected project. In this event, funds from the Administrative state of either Aurora or ENTERPRISE may transfer funds to the Administrative state of the other party. It is expected that the expenditure of these funds would be in accordance with the Annual Work plan of both ENTERPRISE and Aurora, or through an approved amendment to the annual work plan.

Participation in the activities of each project will be determined on a case-by-case basis. However, as in past cooperative efforts, should the parties agree to jointly fund a project, both parties would be active in the review of deliverables and feedback, given to contractors performing the efforts. A member of one party will be designated as Project Champion, and will be responsible for oversight of the project. The parties would also agree to coordinate on progress of project tasks, as necessary, and keep each agency informed on progress.

Mechanism #2 – Cooperation Without Exchange of Funds:

In the event that the parties of this agreement wish to cooperate together to perform a project by leveraging efforts without the exchange of funds, each party may use resources such as; information exchanges, best practices, in-kind contributions of member agencies, and lessons

learned available through one or both parties. Under this mechanism, in the event that either ENTERPRISE or Aurora are performing or considering a project that requires additional complementary efforts that are suited to the resources available to the other party, the parties may request a cooperation where ENTERPRISE or Aurora would perform one or more tasks using resources available to them.

Should both parties of this agreement determine it is appropriate to cooperate, the parties agree to coordinate on progress of project tasks, and to keep each agency informed on progress.

Signatures:
For ENTERPRISE:

_____ _____

Mr. Manny Agah Date

ENTERPRISE Chair
For AURORA:

_____ _____

Mr. Alfred Uzokwe Date
Aurora Program Chair

CANAMEX Corridor Coalition

SUMMARY

The CANAMEX Corridor is an important trade, tourism, and travel way for the United States, Mexico and Canada. In terms of population, it is the fastest growing region in the country, and includes four of the five fastest growing states. More than 65 percent of the freight moving in the Corridor originated outside of the region, and travel in the Corridor has increased 130 percent since 1970. The Corridor includes some of the most visited sites in America, including the Grand Canyon, Yellowstone National Park, and Hoover Dam. While large portions of the Corridor are in rural areas, it also passes directly through the urban areas of Salt Lake City, Las Vegas, and Phoenix.

In 1999, the Governors of Montana, Idaho, Utah, Nevada, and Arizona created the CANAMEX Corridor Coalition (CCC) to spur economic development along the corridor. It has been shown that the number one need of travelers is *information*: what are the traffic and weather conditions on the road, what can we do, and where can we stay along the way? The Smart Tourist Corridor proposes to use a combination of emerging technologies and interstate/interagency coordination, to provide seamless safety and tourism information to corridor travelers.

The plan for the Smart Tourist Corridor includes four integrated elements:

- The CANAMEX Gateway: Multi-portal website element will create a safety and tourism data gathering/sharing system, which will form the heart of the Smart Tourist Corridor concept. This element will make it possible for all participating agencies to receive relevant, real-time information and alerts, and will allow for the creation of the CANAMEX Gateway website, which will provide Corridor-wide information to travelers.

- The CANAMEX Communications element will consist of technological improvements that facilitate the dissemination of tourism and safety information to travelers, such as completing cellular coverage in the Corridor.

- Smart Devices Development consists of public-private partnerships that expand the ability of tourists and other travelers, to use smart devices such as cellular phones, personal digital assistants, and in-vehicle navigation units throughout the Corridor.

- Safety, Security, and Operations Improvements, are a broad range of activities that will foster better coordination and cooperation among emergency response agencies throughout the corridor, as well as increased safety and improved emergency response. [2]

ORGANIZATIONAL BACKGROUND

Historical Perspectives

Prior to the formation of the CANAMEX Corridor Coalition, there was no organized environment, except the state of Arizona (which was working with Mexico on trade agreements and some ITS programs). Each state had programs that were successful, but there was no coordination between states.

The Smart Tourist Corridor proposes to use a combination of emerging technologies and interstate/interagency coordination, to provide seamless safety and tourism information to corridor travelers. This is mainly the result of a study that showed that the number one need of travelers is information: what are the traffic and weather conditions on the road, what can we do, and where can we stay along the way? [2]

Geographic Areas Covered

The "Smart Corridor" is a unique concept that includes five initiatives. Initiatives 1, 2, 3 and 5 are considered "Bold Initiatives" because their implementation requires a new level of cooperation among the five states and/or the creation of a new multi-state organization that does not currently exist. The fourth Initiative, Corridor Highway Improvements, does not require the same level of multi-state cooperation. The following is a brief summary of the proposed initiatives/functions:

Initiative No.1 Smart Freight Corridor

The ability for states to operate on a shared Information Technology Systems (ITS) with the same information, would enhance the safety and efficiency of the Corridor for both freight and tourists by; providing information to the public, enforcement agencies, and to emergency medical, fire, and hazardous material teams. For example, an ITS system would allow emergency response teams to track when a truck carrying hazardous materials enters their state to ensure a quick response if a spill were to occur.

This Initiative would also provide service information to commercial vehicle operators and motor carriers either over the Web at strategically located truck stop kiosks, or through in-vehicle systems that may be implemented as a result of public/private partnerships.

Initiative No.2 Smart Tourist Corridor

Tourism is an important component in the economics of all five CANAMEX States. ITS improvements could provide considerable opportunity for a robust tourism business and enhanced traveler safety. ITS systems could help tourists in an emergency by creating quicker responses and allowing full cellular coverage by eliminating dead spots. In addition, state of the art rest stops could provide tourists access to traveler information services such as tourist attractions, border crossing, hospitality services, and hunting and fishing licenses.

Initiative No. 3 Telecommunications Access for Rural Areas

The essential infrastructure for economic growth for the early part of the 21st century will be telecommunications infrastructure. Since most of the rural areas along the Corridor are lagging in broadband access, this Bold Initiative's main elements are:

- Using government authority to leverage telecom companies to install broadband service to smaller town and rural communities.
- Encouraging the deployment of fiber optic and other telecommunications cable lines within the CANAMEX Corridor.
- Reviewing the status of Wireless Local Loop technology carriers in the Corridor states and providing recommendations on how to facilitate deployment of these carriers for "last mile" access in rural areas.

- Establishing a north-south broadband backbone to facilitate the deployment of ITS and related smart corridor enhancements.

Initiative #4 Corridor Highway Improvements

In urban areas, approximately $4 billion of highway improvements are already planned and programmed for the Corridor. The Hoover Dam Bypass Project, currently underway, is included as a planned project. While it is not fully funded, the Project is vital to the safety and efficiency goals of the CANAMEX Corridor. Even with this investment, studies indicate that the CANAMEX Corridor is likely to experience congestion in and around major urban centers over the next 30 years in Arizona, Nevada, Utah, and Idaho. In addition, considering the more severe winters in Montana and Idaho, the reconstruction of older portions of I-15 will require substantial investment.

Long range highway needs are difficult to assess in this region, comprised of four of the five fastest growing states. Based on the analysis, the Plan proposes approximately $2 billion (in Year 2000 dollars) in additional highway improvements over and above the currently planned and programmed projects. As these proposed projects are new to the states' plans, they are unfunded. These improvements include projects in Tucson, Phoenix; Wickenburg, Arizona; Las Vegas, Nevada; Salt Lake City, Ogden, Brigham City, Provo, Cedar City, and Bountiful, Utah; and Pocatello, Idaho. Corridor rehabilitation projects will also be necessary in all states.

Initiative No. 5 Smart Process Partnerships

Each of the five CANAMEX states is moving to advance e-commerce and e-government within its own jurisdiction. Partnerships with each other would create opportunities for greater efficiency and savings for government, businesses, and individuals. This Corridor Plan advances three ideas to facilitate the work of these partnerships. The ideas include:

- Accelerating access to e-government services throughout the Corridor such as license renewals and business registration.
- Facilitating provision of professional services in the region through common registration and licensing which contributes to the creation of a "borderless economy"

- The development of an interoperable Digital Signature program. On June 30, 2000, the President signed into law the Electronic Signatures in National and Global E-Commerce Act (E-Sign). E-sign provides the legal framework and the opportunity for the CANAMEX states to work together to develop a common system and a single set of standards for secure electronic commercial transactions. [3]

There is no transit, just rural form of transportation planning. The corridor involves trucking and automobile (NAFTA).

Organization Members and Structure

The following are members of the CANAMEX Corridor Coalition:

Arizona	Victor Mendez	Arizona Department of Transportation
Arizona	Peter Woog	Pivotal Group
Arizona	Tom Belshe	Arizona Department of Commerce
Nevada	Jeffrey Fontaine	Nevada Department of Transportation
Nevada	Tom Skancke	The Skancke Company
Utah	John Njord	Utah Department of Transportation
Utah	Stephen Goodrich	United Parcel Service
Idaho	Dave Ekern	Idaho Transportation Department
Idaho	Dr. Richard Bowen	Idaho State University
Montana	Jim Currie	Montana Department of Transportation
Montana	Jay Foley	Diversified Transfer and Storage
Montana	Betsy Baumgart	Montana Department of Commerce

ITS Coordinators

Mike Bousliman, Montana Department of Transportation

Bob Koeberlein, Idaho Transportation Department

Richard Manser, Utah Department of Transportation

Fred Droes, Nevada Department of Transportation

Tim Wolfe, Arizona Department of Transportation

Technical Advisory Committee

Dick Turner, Montana Department of Transportation
Charles Rountree, Idaho Transportation Department
John Quick, Utah Department of Transportation
Joe Peltier, Nevada Department of Transportation
Dale Buskirk, Arizona Department of Transportation[2]

Executive Director, CANAMEX Corridor Project:

Carol Sanger
(602) 712-4113
csanger@dot.state.az.us

A copy of the organizational charter is provided in the Appendix. A summary of the responsibilities of each member is provided in the Appendix.

Financial Programs

It is estimated that the full implementation of the CANAMEX Smart Tourist Corridor requires $70 million over 10 years. Most of the costs (an estimated $68 of the $70 million total) will be the responsibility of state departments of transportation; a variety of federal funding opportunities exist to provide potential resources to the states.[2]

The estimated $70 million is to be expended for equipment, systems development, and operations and maintenance. Of this amount, approximately $27 million is necessary to develop the data sharing system and establish a multi-portal website to service the enhanced information services ("CANAMEX Gateway"), and approximately $36 million is necessary for development of the technological infrastructure ("CANAMEX Communications").[2]

In addition to its financial commitment, the Arizona Department of Transportation provides the CANAMEX project office space and administrative support. The approved budget, expenditures, and current balance are given below.[4]

Figure 1 summarizes CANAMEX's financial report from June 2003.

Figure 1 – Financial Report June 2003

FINANCIAL REPORT
Jun-03

2 Year Budget		Expended Thru 4/30/03	Available Balance	Avg Monthly Expenses	Projected Balance at 12/30/03
$ 110,000	*Personnel*	$ 62,095	$ 47,905	$ 3,881	$ 16,857
$ 37,000	*General Overhead*	$ 1,757	$ 35,243	$ 110	$ 34,363
$ 6,000	*Meeting Expenses*	$ 650	$ 5,350	$ 41	$ 5,022
$ 12,000	*Travel Expenses*	$ 6,267	$ 5,733	$ 392	$ 2,597
$ 165,000	Total	$ 70,769	$ 94,231	$ 4,424	$ 58,839

STRATEGIC PLANS/DEPLOYMENT PLANS

Goals and Objectives

The two primary goals of CANAMEX Smart Tourist Corridor are:

- Increase tourism spending and length of stays by enhancing the tourist experience
- Establish CANAMEX as the safest, most secure and most efficient corridor for travelers within and through the region.[2]

The other goals of CANAMEX Trade Corridor are to:

- Improve access for the north-south flow of goods, people, and information
- Increase transport productivity and reduce transport costs
- Promote a seamless and efficient intermodal transport system; and
- Reduce administration and enforcement costs through harmonized regulations [1]

The objectives of the CANAMEX Corridor Coalition are defined in the Memorandum of Understanding signed by the CANAMEX governors. They are:

- Promote the CANAMEX Corridor for the efficient, seamless, and value added movement of people, goods, services and information.
- Enhance the safety and efficiency of the Corridor through the implementation of technology-based information and enforcement systems.
- Focus efforts on opportunities in the following areas: transportation technology and multi-modal connectivity, tourism and recreation, international trade, telecommunications infrastructure and access, rural economic development, and institutional relationships.
- Develop public and private sector partnerships to facilitate deployment of Smart Corridor enhancement in the region.
- Use federal funding received for the implementation of the CANAMEX Corridor Bold Initiatives.[4]

Performance Measures and Benchmarks

Only one specific performance measure has been established to date – tracking of the use of an Internet Based Gateway – A Real-time database for the entire corridor (#1 Benchmark which has not been met yet).

Success in Achieving Goals and Objectives

It is expected that the CANAMEX project will yield significant benefits to all of the CANAMEX states including; increased tourism activity, improved visitor experience, increased safety, improved mobility for travelers, and ultimately job development for residents and their communities.

Estimates indicate cost reductions of almost $66 million from reduced accident and weather delays; and increased tourism revenues of more than 400 million dollars for the CANAMEX states over the next ten years, yielding an overall benefit-to-cost ratio of 7.1. As shown in **Table** 2, the benefit-to-cost ratio for public and private tourist entities is substantially larger at 167, reflecting their relatively smaller cost responsibility of only $2.6 million for the five states over 10 years. The estimated benefit to the tourism industry is based on a conservative formula that

assumes that 1% of tourists will spend "one more day" in the region as a result of the Smart Tourist Corridor initiatives. [2]

Table 2. Sumamry of CANAMEX Benefits by Stakeholder Group

STAKEHOLDER GROUP	ESTIMATED BENEFITS ($)	ESTIMATED COST ($)	OVERALL BENEFIT-TO-COST RATIO
State DOTs	$65,700,000 *	$68,329,500	1.0
Tourism Industry	$440,424,214	$2,632,500	167.3
Traveling Public	$65,700,000	$0	n/a
TOTAL	**$506,124,214**	**$70, 962,000**	**7.1**

CURRENT ACTIVITIES

Working through its committee structure and with its partner organizations, the Governor's CANAMEX Task Force has established an ambitious agenda for 2004. The major goals are to secure federal funding for the Hoover Dam Bypass, increase trade with Mexico and Latin America, advance Phase II of CyberPort, and develop a tourist brand for CANAMEX Corridor.

The committees are committed to doing much more. The following provide a summary of each committee's short-term pursuits:

Transportation Committee:

- Work closely with the Governor's office and congressional delegations to secure the remaining federal funding for the Hoover Dam Bypass
- Define the CANAMEX route around the Phoenix urban area
- Continue to evaluate opportunities to increase the efficiency of the border ports of entry
- Continue highway investment along the Corridor
- Support Primary Seat Belt Law legislation
- Complete the Port of Guaymas Study

Economic Development Committee:

- Develop international trade initiatives targeting Mexico and Latin America, including the exploration of possible joint CANAMEX initiatives with other states
- Conduct a four-part analysis of Arizona's trade flows that will identify economic opportunities for rural communities.
- Work to maintain and expand current international air connections, emphasizing Phoenix as a hub for cargo and passenger service, originating throughout the CANAMEX Corridor.
- Identify opportunities to link the Port of Guaymas with Tucson's multi-modal center at Puerto Nuevo
- Explore initiatives for high technology development in the CANAMEX Corridor
- Increase last mile connections along the CANAMEX Corridor

Port of Entry Committee:

- Develop port improvement master plans for Nogales, San Luis, and Douglas
- Define the CyberPort Phase II work plan and identification of federal funding resources
- Identify and secure federal funds for priority port projects to enhance border security and efficiency
- Identify and prioritize candidates for SETIF funding in collaboration with ADOT

Regional Partnerships Committee:

- Enhance the data clearinghouse function of the Arizona Office of Tourism to include CANAMEX-related information
- Lead development of Smart Tourist Corridor in Arizona, establishing baselines and benchmarks for related initiatives
- Hold a Tourism Summit in 2004 for five-state tourism directors and industry leaders to seek consensus on the branding of the CANAMEX Corridor, a prerequisite for development of a multi-state marketing initiative
- Help develop the multi-state CANAMEX tourist brand to support regional marketing and promotion

- Conduct an image awareness study for CANAMEX Corridor[5]

NEEDS

Money!– one state used ITS funds. Recent National Transporation Bill (not yet approved) would earmark $35 million to the corridor. That money was allocated through involvement with the congressional delegations from each state and one of the members was a registered lobbyist.

LESSONS LEARNED

What are the lessons learned from this organization that can be valuable for other forming or existing organizations?

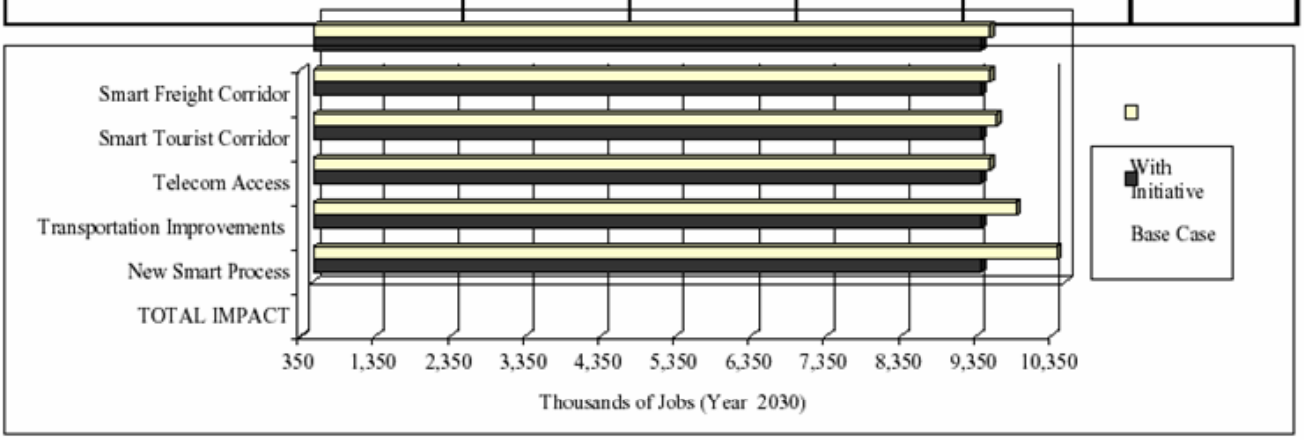
- The use of a multi-portal website element to create a safety and tourism data gathering/sharing system, which can be the heart of the corridor concept.
- E-Commerce could also be an integral component of a MSTOP. In the case of CANAMEX, each of the five CANAMEX states is moving to advance e-commerce and e-government within its own jurisdiction. Partnerships with each other is expected to create opportunities for greater efficiency and savings for government, businesses, and individuals.

Successes

CANAMEX performed a study identifying the benefits of the organization's initiatives. A summary of these key initiatives was previously provided. Table 3 provides a summary of the estimate impact of these initiatives.

Table 3 – Impact of CANAMEX Initiatives

	Base Case		With Initiative		
			Total	Gain Over Base Case	
CANAMEX Initiatives	**2000**	**2030**	**2030**	**Number**	**Percentage**
Smart Freight Corridor	6,499	9,237	9,358	120	1.3%
Smart Tourist Corridor	6,499	9,237	9,350	113	1.2%
Telecom Access	6,499	9,237	9,438	201	2.2%
Transportation Improvements	6,499	9,237	9,347	110	1.2%
New Smart Process	6,499	9,237	9,703	466	5.0%
TOTAL IMPACT	**6,499**	**9,237**	**10,247**	**1,009**	**10.9%**



RECOMMENDATIONS

Additional coordination with the partners in the CANAMEX Corridor Coalition is needed to determine if they have any other recommendations that can be addressed through this project. Funding is the only recommendation that was made during initial telephone interviews.

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Annual Report of the CANAMEX Corridor Coalition For the period ending June 30, 2003

Annual Report of the Governor's CANAMEX Task Force December 2003

APPENDIX

MEMORANDUM OF UNDERSTANDING
REVISION 3
Between Five Western States for the Planning and Development of the CANAMEX Corridor
October 31, 2003

Revision and Replacement of Previous Agreements

In January 1999, the governors of Arizona, Montana, Nevada, and Utah signed a Memorandum of Understanding for the Planning and Development of the CANAMEX Corridor. On December 3, 1999 the Memorandum of Understanding – Revision 1 (hereafter referred to as MOU-1) was signed by the governors of Arizona, Idaho, Montana, Nevada, and Utah and took effect on that date, and on May 21, 2002 – Revision 2 (hereafter referred to as MOU-2) was signed. There is a mutual interest to continue planning and development of the CANAMEX Corridor beyond the expiration date contained in MOU 2. Upon signature by the governors of the participating states, the December 1999 MOU-1 and May 2002 MOU-2 will be withdrawn along with all of its

provisions and agreements, whether stated or implied, and shall be replaced as of October 31, 2003 by this Memorandum of Understanding – Revision 3 (hereafter referred to as MOU-3).

Introduction

The North American Free Trade Agreement (NAFTA) created a preferential trade relationship between Canada, Mexico, and the United States. A key component for successful NAFTA implementation is a seamless and efficient transportation network linking high priority corridors, international gateways and economic hubs. This transportation system must provide for the high capacity, efficient, and safe movement of goods, services, people, and information between the three nations.

The states of Arizona, Idaho, Montana, Nevada, and Utah (hereafter referred to as the "Parties") believe that cooperative actions are necessary to develop and operate the international trade corridor known as CANAMEX. The flow of trade within the CANAMEX Corridor will continue to increase as the objectives of the NAFTA are realized over the next several years. In addition to being a transportation and trade corridor, CANAMEX is also an alliance between U.S. and Mexican states, Canadian provinces, and businesses to work together to create a regional business environment that fosters trade, attracts jobs, and stimulates economic activity for the common benefit of the CANAMEX Corridor and the nations involved. To date, the Government of Alberta has committed $1.4 billion (Canadian) through 2009, to upgrade the portions of the provincial highways that make up the CANAMEX Corridor. The portion of CANAMEX between the international border and Edmonton has been upgraded to a four-lane divided highway, and north of Edmonton just under 300 kilometers (approx. 185 miles) remain to be upgraded from a two-lane highway. The system within Alberta is 78% complete.

Likewise, the Mexican states of Sonora, Sinaloa, Nayarit, and Jalisco have established a Mexican CANAMEX Coalition with public and private sector representation: The Mexican Government has established its Highway 15 – linking Mexico City with the US Border at Nogales, Sonora – as one of Mexico's 10 priority corridors. Plans are underway to seek formal designation of CANAMEX in Mexico and to upgrade the final portion of the current two-lane roadway, a stretch of 436 kilometers (approx. 271 miles) by 2006. The Intermodal Surface Transportation

Efficiency Act and the Transportation Equity Act of the 21st Century (TEA-21) recognized the need for coordinated multi-state planning, design, and construction of international trade corridors by providing funds through the "National Corridor Planning and Development Program" and the "Coordinated Border Infrastructure Program." A trade corridor can be defined as a geographically designated area that facilitates the national and international movement of goods, services, people and information, between and through international gateways and ports-of-entry.

The Western Association of State Highway and Transportation Officials (WASHTO) conducted a study of the western trade corridors in 1998 and recognized the CANAMEX Corridor as one of the West's significant north-south trade corridors. At the same time, the U.S. and Mexican border states completed a study of the transportation infrastructure impacts of the implementation of NAFTA. This study, which was authorized by the first NAFTA Transportation Summit, concluded that additional improvements are necessary to meet the increasing demand for truck and railroad freight capacity and efficiency.

In April 2001, public and private sector representatives from the Parties approved the CANAMEX Corridor Plan. Funded by a National Corridor Planning Grant, the Plan inventories the transportation, telecommunications and economic infrastructure along the Corridor, projects approximately $6 billion in needed highway improvements over the next 30 years, and defines a series of Bold Initiatives that would, if implemented, provide one million jobs throughout the five state region over the next 30 years. The Bold Initiatives are designed to enhance the safety and efficiency of the CANAMEX highway infrastructure, and to promote trade, tourism, and economic activity, particularly in rural areas.

Certain transportation infrastructure in the CANAMEX Corridor must be improved to promote access between markets, increase efficiency of freight movement, and enhance the region's competitiveness. Under Section 1118 (c) of TEA-21, multi-state organizations are eligible for funding to plan, design, and construct the infrastructure projects in support of the CANAMEX Corridor.

ARTICLE I – Purpose

A well planned transportation and trade corridor will maximize the benefits for the U.S. CANAMEX states, as well as the neighboring jurisdictions in Canada and Mexico, by increasing economic development opportunities in the western half of North America. The Parties hereby agree to work cooperatively to form and support the CANAMEX Corridor Coalition to pursue the objectives set forth herein.

ARTICLE II – Objectives

The Parties agree:

1. To promote the CANAMEX Corridor for the efficient, seamless, and value added movement of people, goods, services, and information.
2. To enhance the safety and efficiency of the Corridor through the implementation of technology-based information and enforcement systems.
3. To focus their efforts on opportunities in the following areas: transportation technology and multi-modal connectivity, tourism and recreation, international trade, telecommunications infrastructure and access, rural economic development, and institutional relationships.
4. To develop public and private sector partnerships to facilitate deployment of Smart Corridor enhancement in the region.
5. That funding received for the implementation of the CANAMEX Corridor Bold Initiatives under TEA-21 Section 1118-1119, 52-08, 5209 and 5203 (b)(6) and other future sources identified by the Parties, will be used to meet the objectives specified in the MOU-3.

ARTICLE III – CANAMEX Corridor Coalition

In accordance with this MOU-3, the Parties agree that the joint working committee called the CANAMEX Corridor Coalition (CCC) will consist of gubernatorial appointees from both the public and private sectors from each state. The public sector appointees shall include the director of the department of transportation/roads, or executive staff, and may also include other representatives from the economic development and/or tourism agencies of the state. The private sector appointment shall be one member with experience in one or more of the following areas:

transportation and interstate commerce, telecommunications, tourism, energy, economic development, or finance. The CCC will operate on a consensus basis.

The purpose of the CANAMEX Corridor Coalition is to oversee the implementation of the Bold Initiatives identified in the CANAMEX Corridor Plan adopted in April 2001, and to provide guidance in developing related regional initiatives by; (a) applying for federal funds for the development of a regional system; and (b) establishing common goals and objectives for continuing development of the CANAMEX Corridor.

ARTICLE IV – Implementation of the CANAMEX Corridor Initiatives
The Parties agree that the delegates to the CANAMEX Corridor Coalition shall work cooperatively to seek proposals from qualified applicants according to the appropriate procurement process for the funding source.

ARTICLE V – Responsibility of the Parties
Each Party will contribute the necessary resources to support the CANAMEX Corridor Coalition. The CCC will determine the initial plan of work. Each year, the CCC will determine its plan of work, identify resources, and assign responsibility to achieve shared objectives. At the conclusion of each plan year, defined as June 30, the CANAMEX Corridor Coalition will forward a report on its activities and progress, to the governors who are signatories of this agreement and such other individuals as the governors may request.

ARTICLE VI – Effect and Termination
This MOU-3 will be effective on the date of signature by two or more Parties. Parties may terminate their participation as a party to this MOU-3 at any time by providing a 90-day notice in writing to the other Parties signatory to this MOU-3. The termination of the MOU-3 will not affect any cooperative actions or activities taken as a result of this MOU-3 that were initiated prior to such termination unless all Parties agree otherwise in writing. Unless specifically extended by the Parties as described above, this MOU-3 shall terminate on June 30, 2005.

ARTICLE VII – Modifications

The Parties may modify this MOU-3 by written, mutual agreement. Modifications will become effective upon agreement of the Parties. In WITNESS WHEREOF, the undersigned, being duly authorized, have signed this MOU-3.

California/Oregon Advanced Transportation System

SUMMARY

The effectiveness of a rural region's transportation system has far-reaching impacts on the quality of life for the region's residents, businesses, and visitors. Traditional solutions to improving the capacity of the transportation system, especially in rural areas, are becoming increasingly difficult to implement, due to concerns about funding, cost-benefit effectiveness, and the environment. For this reason, there has been an emphasis in recent years on improving the operations of the transportation system. One major set of strategies used to this end are intelligent transportation systems (ITS), which are combinations of communications, computational, and electronic technology, that help to improve the safety and operation of the transportation system. If strategically implemented, ITS may provide solutions to many of the transportation challenges found in rural areas, such as non-recurrent congestion, weather, safety, tourism, mobility, and freight movement.

The value of ITS in saving lives, time and money has been well documented for urban areas, but not as much so for rural areas. For this reason, the California and Oregon Departments of Transportation (Caltrans and ODOT, respectively), partnered with the Western Transportation Institute at Montana State University- Bozeman, to investigate the feasibility of ITS in rural areas. This partnership resulted in the creation of the California/Oregon Advanced Transportation Systems (COATS) project, which seeks to encourage regional, public, and private sector cooperation between California and Oregon organizations, to better facilitate the planning and implementation of ITS in a bi-state area extending between Eugene, Oregon and Redding, California (see Figure ES-1). The COATS study area includes parts of thirteen counties in northern California as well as the southern half of Oregon, covering over 80,000 square miles, which share many common transportation challenges. The intent of this project is to facilitate the use of ITS to enhance safety, improve the movement of people, goods, and services, and subsequently promote the economic development of the region.

Apart from its focus on this particular part of the country, the COATS project has a couple of unique features.

The project has been approached primarily from a research perspective. Rather than relying solely on interviews and subjective data provided by stakeholders and travelers, the COATS Strategic Deployment Plan seeks to tie deployment locations to specific challenges as justified by various data collection efforts as well as stakeholder input. Many distinct outreach efforts were made to ensure that stakeholders throughout the study area had the chance to participate in the planning process, and that their ideas and concerns were considered in the development of strategies and deployment.

It seeks to provide both *strategies* to guide future ITS investment, as well as specific *deployment* locations that can support this strategic direction. This combination allows the plan to reflect a broader long-term view, which can supercede the short-term transportation programming processes, while at the same time giving concrete recommendations for projects that may help to keep this plan active.

The COATS project sought to build upon the best practices used from previous ITS planning efforts across the country. On that basis, critical project aspects include stakeholder identification and outreach, assessment of area challenges, development of a vision and strategic direction, and identification of specific projects to build on that vision.[3]

Rural California-Oregon Advanced Transportation System (COATS) was launched in 1998 as a bi-state partnership with the California Department of Transportation (Caltrans), and 20 other stakeholders from both Oregon and California, including; tourism agencies, counties, state police and national forests. The purpose of the COATS effort was to encourage regional, public, and private sector cooperation between California and Oregon organizations, to better facilitate the planning and implementation of intelligent transportation systems (ITS) in a rural bi-state area extending between Eugene, Oregon and Redding, California. The intended outcome of COATS was to facilitate the deployment and use of ITS to enhance safety, improve the movement of people, goods and services, and subsequently promote the economic development of the region.

The two primary products of the COATS planning effort were:

- An ITS Strategic Deployment Plan, which provides recommendations for ITS strategies and deployment in the COATS study area; and
- Demonstration and evaluation of ITS technologies for an early-winner project (the Bi-State Traveler Safety and Incident Management System, which focuses on Interstate 5 between Medford, Oregon and Yreka, California, a corridor including Siskiyou Pass).[2]

The California/Oregon bi-state study area has diverse transportation needs and challenges. Despite the relative sparseness of the resident population within the study area, travel to and through the study area is extensive.

The bi-state study area serves the recreational and resource needs of a growing national constituency, seeking to utilize or explore the plentitude of national monuments, forests, parks, and recreational areas, that are contained in the study area such as; Oregon Caves National Monument, Crater Lake National Park, Lava Beds National Monument, and Redwood National Park. Seasonal events that draw national audiences, such as the Shakespeare Festival in Ashland, Oregon, add to the transportation challenges in the study area. Recreational travelers through the study area are perhaps more in need of information than local residents. Knowledge of the weather and roadway conditions, location of services, and emergency responses can make the difference between life and death.[1]

ORGANIZATIONAL BACKGROUND

Historical Perspectives

There were two agencies that were not working together at all. They were basically providing substandard traveling information. The creation of COATS brought these two organizations together and expanded upon them two-fold.

Impetus for Formation of the MSTOP

The need for COATS is two-fold: 1- provision of information; and 2- economic impact. As mentioned earlier, COATS includes portions of northern California and southern Oregon and has

diverse transportation needs and challenges. Despite the relative sparseness of the resident population in this region, travel to and through the area is extensive and travelers in the area are in need of information, perhaps more than those in urban areas due to the remoteness of the region.

Furthermore, the two-state area contains transportation links vital to the region's economy and commercial industry. Numerous primary and secondary routes serve commercial vehicles destined for urban centers throughout the West, while weather and geography add to the transportation challenges. Travelers throughout the corridor must contend with diverse and rapidly changing weather conditions including snow, high winds, fog, and heavy rain. The combination of varied driving conditions and abundant off-road, commercial and recreational traffic produces an immediate and expanding need for increased traffic safety measures and information dissemination techniques.[3]

Hence, COATS strives to "unify member agencies, focusing on a seamless, state-of-the art, multi-modal transportation network benefiting travelers, goods movement, economic activity, and transportation operators in Oregon and California. Through communication and cooperation, the COATS project and its partnership coalition will serve as an information clearinghouse to provide for 1) effective and efficient ITS development, demonstration, and delivery and 2) the promotion of safety, mobility, trip enhancement, and environmental quality."[3]

Geographic Areas Covered

COATS seeks to encourage regional, public, and private sector cooperation between California and Oregon organizations, to better facilitate the planning and implementation of ITS in a bi-state area extending between Eugene, Oregon and Redding, California. The COATS study area includes parts of thirteen counties in northern California as well as the southern half of Oregon, covering over 80,000 square miles, which share many common transportation challenges.[3]

Programmatic Areas Addressed

The following are ITS projects or infrastructure elements that either have been deployed or will be deployed in the COATS region:

Dynamic Warning Variable Message Signing

Dynamic signing provides real-time warning of potentially hazardous road conditions. Integration of these signs with environmental sensors, and vehicle speed and weight sensors can help to alert the driver to potentially hazardous situations and make recommendations regarding safe speed, etc.

Intersection Advance Warning Signing

Intersection advance warning detects the presence and speed of vehicles approaching an intersection from a minor roadway and warns the traveler on the major roadway approach of a potential conflict through dynamic signing. This may be used in areas where speed zones decrease more than 20 mph or where rural conditions change to urban development.

Animal/Vehicle Collision Warning System

Animal/vehicle collision warning systems help to alert the driver of animal presence in the right-of-way, decreasing the driver's chance of animal/vehicle conflict. Systems will use an advanced technology to replicate an electronic fence that detects animal encroachments in areas of high migration routes and transmits signal to upstream dynamic signal/ signing. There are also on-board systems available that detect other objects, such as vehicles, in the roadway and alert the motorist.

Mayday Systems

The Mayday system allows the user to initiate a request for emergency assistance from the vehicle. The request may be either manually or automatically initiated. A simple after-market device in the vehicle or cellular telephone with Global Positioning System (GPS)/Automatic Vehicle Location (AVL), would enable the traveler to access this service. This system requires vehicle location/tracking technology and wireless communications, (e.g. cellular, satellite, microwave) to geographically locate and display vehicle at response center.

Lateral Safety Warning

A lateral safety warning system senses the center of the lane and provides either driver assistance or control to keep the vehicle in the center of the lane. The in-vehicle system would track the vehicle's lateral position, and warn the driver if they are leaving the travel lane, thus increasing the chances that the driver will be able to make an appropriate correction. Communication with highway infrastructure may be required, such as accurate lane markers, imbedded magnetic nails, or radar-reflective pavement marking stripes.

Automated Anti-Icing Dispenser for Roads and Bridges

An automated anti-icing dispenser is linked to a road surface sensor, which uses an algorithm dependent on the road surface temperature, to automatically dispense anti-icing chemicals on the road or bridge. Another means of deicing bridges without the use of chemicals is to install bridge heaters that are automatically activated based on the same algorithm. These systems can also be used to automatically alert maintenance personnel for more prompt mitigation.

Driver Impairment Detection and Warning

Driver impairment and detection warning systems consist of a vehicle-based system that detects driver inattentiveness, an electronic device that monitors driving patterns, and an alert system. The inattentive driver is alerted with an audible warning signal.

Advance Warning Systems for Narrow Lane Widths

In various locations within the study area, stakeholders have identified narrow lane widths, limited buffer distance from obstacles, (e.g. canyon walls) and limited sight distance. These characteristics cause greater concern to commercial vehicles and recreational vehicles because of their width. The system would identify the vehicle type and speed through weigh-in-motion, and provide upstream warning to other travelers through a flashing beacon.

Automated Flood Warning

Automated flood warning is a solar powered, cellular communication system to notify both maintenance personnel and motorists of "water on roadway" conditions. The system would be

composed of a sensor connected to a cellular signal with a prerecorded message to notify maintenance crews when the water on the road reaches a significant level. Motorists would be notified by use of a warning sign with beacons triggered by the same sensor.

Automated Visibility Warning

The automated visibility warning system would be composed of sensor, communication, and warning systems.

Advanced Bicycle/Pedestrian Warning

An Advanced Bicycle/ Pedestrian Warning Systems would consist of a push-button actuated system that would communicate with a dynamic flashing beacon above a fixed sign which reads "BICYCLES (or PEDESTRIANS ON HIGHWAY". The sign would be located upstream of where the bicycle/ pedestrian is crossing and automatically shut-off after a period of time.

On-Board Transit Safety Systems

This system provides for the physical security of transit passengers. An on-board security system is deployed to perform surveillance and warn of potentially hazardous situations. Public areas (e.g. stops, park and ride lots, stations) are also monitored. Information is communicated to the transit managers using the existing or emerging wireless or wireline infrastructure. Security related information is also transmitted to the enforcement personnel when an emergency is identified that requires an external response. Incident information is communicated to either enforcement or DOT staff.

Motorist-Aide Call Boxes

Motorist-aide call boxes provide transportation users with the ability to call for roadside assistance. Each call box location gives the motorists pertinent information, such as a call box telephone number, identification number, post-mile, and county and highway information to help motorists identify their exact locations.

Rural Coordinate Addressing System

This system will help locate rural residences and businesses through standardized addressing, incorporated through location technologies such as a Global Positioning System (GPS). This system uses information from a truncated plane coordinate system, and a GPS, as input into a Geographical Information System, (GIS) to produce maps with an accuracy of approximately 100 feet. In areas where rural addresses do not provide sufficiently detailed information as to its location, the rural coordinate addressing system can provide this detail to aid emergency response personnel in locating the incident, and assist rural transit providers in locating the customers. This system would reduce response times for both emergency situations and service providers.

Regional Incident Management Plan

Development of a regional incident management plan to assist with detection, and verification, incident response, removal/mitigation, traffic handling, and coordination of information dissemination, between transportation, tourism, law enforcement, and emergency management personnel. The plan will help transportation and management officials to make sound decisions regarding coordination of mitigation measures, resources, and release/control of public information. There is no infrastructure associated with this system.

Traffic Signal Priority for Emergency Vehicles

Traffic signal preemption for emergency vehicles involves prompting a traffic signal to change so emergency vehicles have safe passage through intersections. Emergency vehicles may be retrofitted with preemption systems to gain control of signals at intersections where delays are frequent, or where there are frequent traffic conflicts between emergency vehicles and other vehicles.

Touch Screen Interactive Kiosk

Interactive kiosks can provide users with real-time information via databases and touch-screen monitors. Kiosks allow the user to tailor the information presented to their needs and interests such as regional tourist attractions, available accommodations, or road conditions. Kiosks can potentially have Internet access for these types of information.

Variable Message Sign

Variable Message Signs (VMS) enable the communication of real-time traffic information by displaying a variety of messages. The advisories can be related to traffic incidents, current and forecasted weather conditions, road conditions, and construction activities. VMS may also be able to give tourist information.

Highway Advisory Radio

Highway Advisory Radio (HAR) provides valuable information to travelers through pre-recorded messages that contain traffic information, road conditions, chain requirements, and road closures, etc. Transmission is generally accomplished through low-powered AM broadcast.

Advisory Television

Local and cable television channels can be used to communicate valuable road condition, weather, and traffic information to a large audience using regional interest and transportation-related programming during emergencies. These channels can also be used to disseminate tourist-related information. The emergency message would be transmitted using FM side-band and shown on the bottom of the television screen.

1-800 Travel Advisory Telephone Hotline

The 1-800 Travel Advisory Telephone Hotline will provide roadside information to travelers regarding current road conditions, travel advisories, and tourist information/services or enhance existing 1-800 travel advisory services. Travel advisory hotlines will be supported through shared resources and a common management center. If supported by state and local enforcement communities, a single number will be used throughout the State and is supported by signing and marketing.

Internet

The Internet is a rapidly growing user-supported source for all types of information. However, its success is dependent on the quality and accuracy of information presented and possible even more important the “linking” of website to create synergistic benefits. The focus of this project is

to provide the linking of existing and planned websites to provide for increased use and the appearance of seamless services. Internet sites that would be a targeted for linking include sites that provide for access information such as transit, weather conditions, hotel vacancy, admission prices, and other tourist information.

Work Zone Delay Advisory System

The work zone delay advisory system provides the travelers with an active indication of the actual delays that exist at the work zone. The simplest system is a static sign with flashers that can be activated when there are delays. The second level system uses speed sensors to determine approximate delays through the work zone and changeable message signs to transmit information to the travelers. The third level system takes advantage of probe vehicle that more accurately determines delays at work zones.

In-vehicle Route Guidance Systems

In-vehicle route guidance relies on in-vehicle sensors, location determination equipment, a computational map database, and an interactive driver interface to enable route planning and detailed route guidance, based on stored information. This system is offered commercially in some automobiles such as Cadillac, Ford and GMC.

Automatic Vehicle Identification System

Automatic Vehicle Identification (AVI) can be used to allow subscribers to electronically bypass tourist attraction gates without stopping to pay fees. Subscribers would be given small transponders to place in their windshield that will be read by an antenna at the automated gate. Users could pay a one-time, annual, or pay per use fee for using this system. Initial users could include employees, concessionaires, and transit vehicles that pass these gates daily. This system could be expanded to other user groups such as annual pass holders of the destination attraction. By removing these vehicles from the queue, time savings will not only be realized by the AVI users, but by other travelers passing through the gate.

Smart Card System

Smart cards could be issued to transit patrons and tourists for common fare medium and reward. Much like a credit card system, smart cards consist of cards carried by travelers and readers located on transit vehicles, at National Park gates, and at local stores. Smart cards allow transactions and other data to be electronically stored on the card. This data can be used by transportation officials to predict transportation needs and commonly used routes. Typically, the smart card does not require contact with the reader, and must only be in close proximity to the reader, for a transaction to be made. Smart cards can also act as a congestion management tool by providing incentives, such as merchant discounts for using transit rather than personal vehicles.

Parking Management and Information System

Parking management systems are used to monitor the availability of parking use in near real-time, and inform and direct motorists to available parking through the use of variable message signs, highway advisory radio, phone service, or the internet. The system cuts localized congestion due to traffic circling, seeking parking in crowded areas. The variable message signs can also be used to inform commercial vehicle operators of parking and unloading situations, inform motorist of traffic conditions ahead, or of public service or event information. This system could be expanded to commercial vehicle operations in the long term.

Recreational Vehicle Park & Ride Lots with Surveillance

Recreational vehicle, park and ride facilities will be located outside high tourist destinations and/or National Parks, and provide shuttle services to the special events or other major attractions within the study area. The park and ride lots would have closed circuit television (CCTV) surveillance for security and to ensure patron satisfaction. CCTV images would be transmitted to the local enforcement agency. The CCTV installation would be the only cost to the project and not the shuttle service. Accessible existing parking lots (shopping plazas, etc.) facilities would be used where security can be provided.

Dynamic Ridesharing/Paratransit Service

Dynamic ridesharing is a dial-in service that matches drivers and riders making the same trips. The system is designed for jitney (non-fixed route) services. It will help reduce person-trips through enabling effective carpooling, and will increase mobility options for the mobility impaired. In areas where there are a greater number of transit dependent residents, this service will provide the means to improve the efficiency transit services and promote carpooling.

Automated Passenger Counting System

The automated passenger counting system allows for increased management of passenger counting and fare payment. The system may be used for obtaining more accurate ridership information. A database would be developed to facilitate more detailed planning to be made regarding transit needs and management. Automated passenger counting systems can be used in conjunction with the smart card system.

Transit Vehicle Routing/Scheduling Software and Vehicle Tracking

Transit vehicle tracking enables the tracking of vehicle locations, development and maintenance of deliver itineraries, and fuel usage monitoring. In-vehicle equipment allows for the measuring of distance traveled and fuel used, and is coupled with map-matching techniques. This technology combined with routing and scheduling software would allow for multiple agencies to operate as one and increase the quality of service. The software technology would allow multi-service vehicle (e.g., transit and paratransit) fleets to improve operations and provide for economies of scale. If satellite technology is unavailable, beacon-based vehicle-to-roadside communication technologies can also be deployed to provide vehicle location to the fleet management center.

Transit Traveler Information

This system provides transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop annunciation, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users.

Road Weather Information Systems

Road Weather Information Systems (RWIS) collect pavement temperature, visibility, wind speed and direction, and precipitation data. This information is then presented in a useable format to transportation system operators, and potentially the traveling public.

Weigh-in-Motion

Weigh-in-Motion (WIM) allows vehicle weight data to be collected remotely, without stopping the vehicle. In addition to collecting planning data, WIM is often a vital part of commercial-vehicle pre-clearance systems.

Closed-Circuit Television Camera

Closed-Circuit Television (CCTV) cameras allow remote verification of road and weather conditions, traffic conditions, and incidents. The quality of the camera will determine the compatibility with other communication technologies, such as, cable TV, kiosks, and the Internet. Because response times to incidents in rural areas are often times long, CCTV would give emergency management personnel the opportunity to dispatch a more suitable emergency vehicle, based on a particular incident. It would also give emergency personnel the ability to verify the occurrence of an incident.

Automated Gate Closure System

Automated gate closure systems will enable the safe and efficient closure of highway segments that are frequently closed such as mountain passes and slide areas. Bridges and roads that are especially susceptible to seismic activity or washout can be fitted with this technology to not only prevent vehicles from crossing the bridge, but will alert maintenance personnel to inspect the bridge. This technology can also be coupled with the Internet, kiosks or HAR to provide real-time information to travelers.

Regional Server/Coordination Software

This system could build upon existing hardware, connections, and software to develop an integrated method for sharing information and management responsibilities for incidents among the various agencies and departments involved. The Highway Closure Information System in

Arizona, for example, tracks each incident on the highway system in a user friendly format using GIS. These incidents can include inclement weather, road closures, construction and maintenance activities, and major events such as a state fair. These incidents are entered and updated by persons from several agencies who are given authority to do so. This improves the accuracy and timeliness of the road conditions information available to both decision making agencies and the traveling public.

Satellite Traffic Operations Center

The Satellite Traffic Operations Center (SOC) center will provide a centralized control center to effectively monitor, and manage traffic, analyze data from multiple sources, and operate other systems. The SOC will also assist with traffic and incident management coordination.

Automatic Vehicle Location

Automatic Vehicle Location (AVL) technology allows vehicles within a fleet to be tracked and located with the aide of a computer. This system allows more effective coordination and dispatch of vehicles within that fleet. Fleets may include emergency services, DOT maintenance forces, transit services, fire, and enforcement vehicles.

Probe Vehicle Instrumentation

Instrumented probe vehicles are utilized for detecting road and weather conditions in areas where chronically bad weather conditions occur. These vehicles are typically instrumented with a Global Positioning System (GPS) so that it can be tracked, and a transponder so that its location can be mapped at all times. Vehicle may be part of a public sector fleet (maintenance, enforcement, etc.) or a private sector fleet (rental vehicles, transit providers, power companies). Vehicles could transmit stored data periodically or save data and upload later.

Freight/Cargo Content Administration and Tracking

Cargo administration and tracking is an integrated hazardous material response system involving all vehicles carrying hazardous cargo. These vehicles would be tagged through an AVI system and the cargo content information would be electronically available to emergency response

agencies. In addition, various roadways would have restricted access. These roadways have been identified through stakeholder input.

HAZMAT Management

Hazardous materials management (HAZMAT) focuses on providing incident response personnel with accurate information regarding hazardous materials involved in vehicle incidents. This can be accomplished by maintaining an updated national or regional database of current hazardous material shipments. Emergency management centers or dispatchers could be able to access this database when an incident involving hazardous materials occurs. Additional elements may include on-board cargo monitoring to determine the quantity of material spilled and an in-vehicle system that automatically informs emergency management centers when an incident occurs (similar to the Mayday system), updating the dispatcher with accurate HAZMAT information. Automatic Vehicle Location systems can also be used to map the locations of all vehicles hauling hazardous materials.

Electronic AVI Preclearance

Electronic preclearance allows approved commercial vehicles to bypass weigh and inspection stations, increasing efficiency for the carriers, and helping enforcement personnel to effectively focus enforcement and compliance activities.[7]

Organization Members and Structure

Table 1 on the next page summarizes the member organizations in COATS' steering committee and regional team members. Table 2 provides a summary of responsibilities of each member.

COATS developed a business plan to provide a framework for policy, process, and action among the public and private jurisdictions involved. By establishing a management structure, COATS can ensure that the interest and involvement of the COATS project coalition would continue. The organizational structure is arranged to maximize the group's ability to meet its objectives and to minimize bureaucratic impediments, which sometimes result in large groups. In order that each

of the policy, technical, and financial interests are represented, the following structure is proposed.

Table 1 – COATS Steering Committee and Regional Team Member Organizations

California	Oregon
Lassen Local Transportation Commission	Oregon State Police
Plumas Local Transportation Commission	City of Winston
Siskiyou Local Transportation Commission	The Driftwood Group
Trinity Local Transportation Commission	Rogue Valley Council of Governments
Modoc Local Transportation Commission	Rogue Valley Transportation District
Del Norte Local Transportation Commission	US Forest Service
Humboldt County Association of Govts.	City of Burns
Lake County/City Area Planning Council	Oregon Chapter of ITS America
Mendocino Council of Governments	FHWA
Shasta Local Transportation Commission	State Traffic Engineer
Shasta Cascade Wonderland Association	Southern Oregon Visitors' Assoc.
Tehama Local Transportation Commission	ODOT – Trans. Devel. Branch
California Trucking Association	ODOT – Region 2
California Highway Patrol	ODOT – Region 3
Redwood Empire Association	ODOT – Region 4
FHWA, Oregon Division	ODOT – District 5
FHWA, California Division	ODOT – District 11
California Alliance for Advanced Technologies	ODOT – ITS Unit
California Association for Commuter Transportation	FHWA
	National Park Service
Caltrans – New Technology & Research	
Caltrans – District 1	
Caltrans – District 2	
Caltrans – Traffic Operations	
FHWA, ITS Joint Programming Office	
National Park Service	

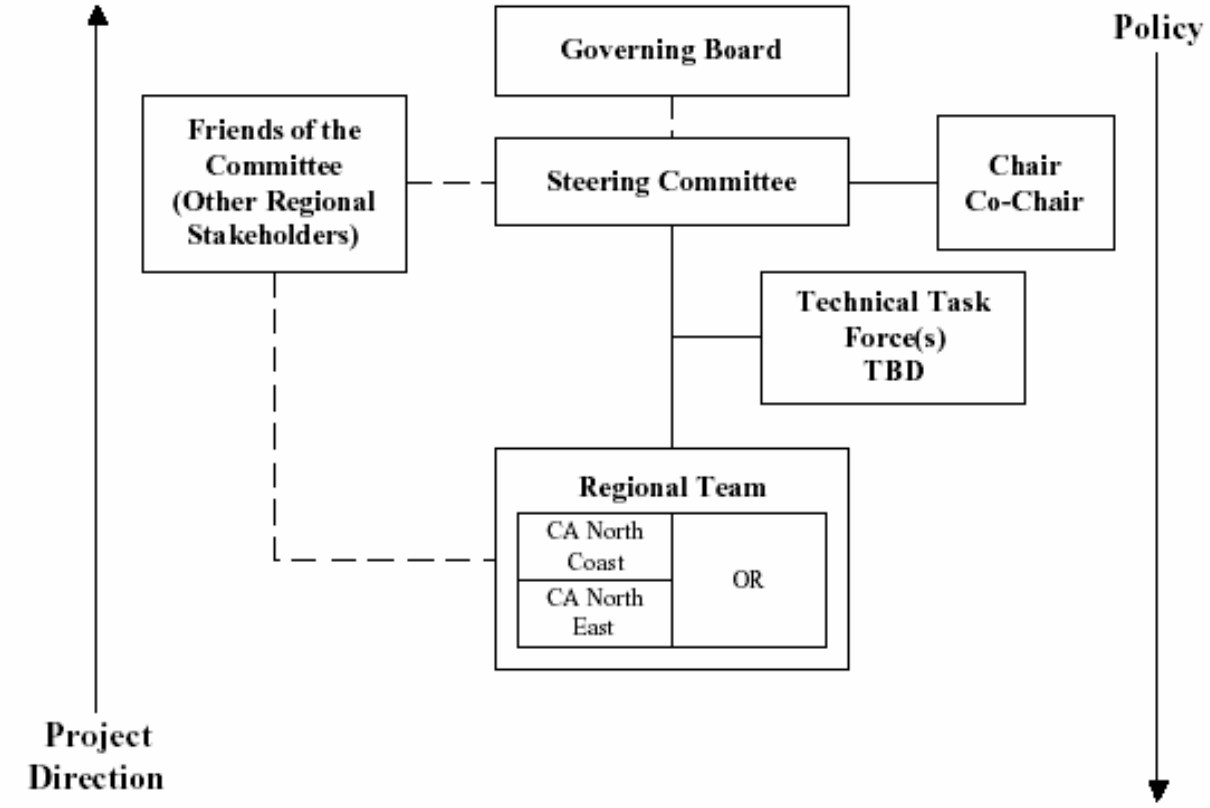
Table 2 – List of Actions and Responsible Organizations

Action	Responsible Agency								
	Caltrans New Tech & Research	ODOT ITS Unit	Caltrans District	ODOT Region	CA Highway Patrol	OR State Police	State and Local Tourism	County/ Local	FHWA/FTA
Project Continuance and Outreach									
Continue Stakeholder Outreach	✔		✔		✔		✔		
Develop Marketing Strategy	✔								
Provide Updates on National ITS Developments	✔		✓						✔
Utilize or Eliminate Regional Teams	✔								
Demonstrate the Benefits to RTPAs, MPOs and COGs	✔		✓		✓		✔		
Expand Architecture Development and Education	✔		✓						✔
Maintain ITS Inventory			✓					✔	
Strategy for Implementation									
Increase Regional Support or Other Alternatives	✔		✓						
Mainstream ITS into Program and Project Prioritization			✓				✔	✔	
Modify Project Organization	✔								
Emphasize Multi-modal and Tourism Opportunities	✔		✓						
Secure Demonstration and non-Traditional Funding	✔		✓		✓		✔	✔	✔
Public Private Partnership Task Force	✔		✔		✔		✔	✔	✔

Management Structure

The purpose of the management structure is to provide for an orderly decision making process regarding the COATS project. Figure 1 provides a summary of the organization chart and relationships between each of the members.

Figure 1 – Organization Chart and Relationships



As shown above in Figure 1 the collective group consists of transportation stakeholders organized essentially in four primary groups; the Governing Board (an executive board); a Steering Committee; Regional Teams; and Task Forces (as needed). Together, these groups are arranged to emphasize the group's ability to meet its objectives and lessen administrative obstacles. Their role is to create an atmosphere that will expand institutional linkages, to reach consensus in developing an ITS in Northern California and Southern Oregon.

Additionally, their purpose is to provide an environment that will encourage ideas, outreach, and consensus to meet local needs (Regional Team priorities); provide an opportunity to address detailed technical issues as needed (Technical Task Force(s)); provide a method to decide program direction, focus, and approve deliverables (Steering Committee priorities); and, as necessary, provide long-term direction and resolve politically sensitive issues (Governing Board priorities). A more detailed description of each function is described below.

Governing Executive Board

The role of the Governing Board is to provide policy guidance for those issues that are beyond the authority of the Steering Committee. Though the Steering Committee decides the majority of technical and institutional issues, some specific and critical issues may arise that will require input above those involved at a Steering Committee level. Some of these issues relate to long-term agency roles and responsibilities, funding sustainability, and politically sensitive matters. An Executive Board consisting of the highest level managers will undertake these issues, meeting at intervals of four to six months (or as needed). Table 3 below exhibits the membership to the Governing Board.

Table 3 - Governing Board Members

CALIFORNIA	*OREGON*
JOHN WEST Program Manager, New Technology and Research Program	**JEFF SCHEICK** State Traffic Engineer
HAMED BENOUAR Program Manager, Caltrans Traffic Operations	**RON SCHAADT** Transportation Development/Planning
RICK KNAPP District 1 Director	**PAUL MATHER** Region 3 Director
ROY BUSHEY District 2 Director	**CAPT. GREG WILLEFORD** State Police
ROBERT RATCLIFF California Alliance for Advanced Trans. Sys.	**LANA NELSON** ITS Oregon President
JEFF LINDLEY Federal Highway Administration	**STEVE McNAB** Region 4 Manager
PAUL PISANO FHWA/USDOT	

Steering Committee

The role of the Steering Committee is to provide strategic direction and oversight for the project. Specific functions of the Committee include:

- Review project progress
- Review project deliverables, including technical memoranda and reports
- Participate in project workshops
- Provide input and guidance to the Western Transportation Institute
- Ensure that available funds are programmed for short and long-term ITS demonstrations, operations, and maintenance
- Encourage community participation
- Review new technologies and concepts

The Steering Committee will consist of one voting representative for each active member agency. The Committee is responsible for organizing itself, establishing rules, and conducting business. The current Steering Committee members are shown in Table 4 below:

Table 4 - Steering Committee Members

CALIFORNIA	*OREGON*
PAT CONROY Caltrans New Technology and Research	**GALEN McGILL** ITS Manager, Salem
CHERYL WILLIS Caltrans District 1	**STEVE WILSON** Region 4 Traffic Manager, Bend
RUSS WENHAM Caltrans District 2	**DON EHRICK** District 5 Manager
SPENCER CLIFTON North Coast Team	**JIM AHO** Regional Team Representative
SCOTT MAAS Northeast Team	**DAN MOORE** Regional Team representative
ROBERT FORREST Highway Patrol	**LT. RON NELSON** Oregon State Police, Bend
GEORGE EDGERTON California Trucking Association	**KEN EVERT** ODOT Motor Carriers Transportation Br., Salem
BOB WARREN Shasta Cascade Association	**JOE HUNKINS** Southern Oregon Visitor's Association
JOHN THOMPSON Redwood Empire Association	
FRANK CECHINI FHWA, Region 9 (exofficio)	**ED FISHER** FHWA, Region 10 (exofficio)

The Steering Committee consists of 17 voting and two exofficio (FHWA) representatives. The Caltrans New Technology and Research Program; ODOT; and WTI provide staff support to the Committee. It is anticipated that the Committee will meet at two month intervals.

Steering Committee Chairperson and Co-Chairperson

The Steering Committee selects a Chairperson and Co-Chairperson from the public sector serving for a period to be determined by the Steering Committee. The Co-Chairpersons representing Oregon and California, act as the presiding officer over meetings held in their respective states. After the period determined by the Steering Committee, a new Chairperson will

be selected by the Steering Committee. The duties may expand as the Business Plan is further developed. For example, in the event the Steering Committee determines a need to form a task force; the Chair may be responsible for appointing task force members. The Chairperson duties include:

- Call the meeting to order at the appointed time.
- Review agendas to ensure appropriate issues are included.
- Preside at meetings held in the Chair's resident state.
- Move the meetings forward in an orderly manner.
- State and put to a vote all motions that are properly brought before the Steering Committee.
- Announce the results of the votes on motions.
- Elevate, or direct the co-Executive Directors to elevate, issues to the Governing Board at the request of the Steering Committee, or when a consensus cannot be achieved.
- Serve as the Steering Committee representative on the Governing Board.

Executive Director/Co-Executive Director

The Executive Director in consultation with the Co-Executive Director, operates under advisement of the Steering Committee and is responsible for contract management of the Western Transportation Institute, MSU. The Executive Director is an employee from the lead administrative state that controls expenditures from the funding source. The Executive Director is responsible for project management, contract administration, authorizing payments, and informing the Steering Committee of all project and contract progresses. Progress and information items or resolution issues will take place through telephone contact between the Co-Executive Director and Steering Committee Co-Chairperson when issues arise or at a minimum prior to Governing Board and Steering Committee meetings.

Regional Teams

The role of the Regional Teams is to build regional consensus among public and private stakeholders regarding ITS priorities. Each Team acts as an advisory group to the Steering Committee, to bring their regional stakeholders' recommendations to the Steering Committee, for inclusion in the project. Each Regional Team will select a member from their Team to

formally represent their interests on the Steering Committee. The Team members will reach out to stakeholders or "Friends of the Committee" in their region that are not formal members of the project (for example transit providers, health and human service providers, intercity transportation providers, and others).

The Team representatives will consider project ideas, concepts, and priorities for their region and be responsible for screening regional stakeholder input to bring it to the attention of the Steering Committee. The Regional Teams may address issues relating to operations, partnerships, and policy. Some examples may include:

- Traffic
- Safety
- Enforcement
- Emergency response and management
- Transit
- Fleet management
- Commercial vehicle operations
- Identification of early winner projects
- Outreach to industry, institutions, and public sector representatives

Additionally, each Team may review project deliverables, including technical memoranda and reports, and participate in project workshops.

The Teams operate in a relatively informal network and structure and meet as often as deemed necessary in each state/region. Staff from the Caltrans New Technology and Research Program, ODOT Traffic Management Section, and/or the Western Transportation Institute will facilitate Team meetings as necessary. Table 4 exhibits the membership to the Regional Teams.

Task Forces

Task forces study, in detail, those areas of interest identified by the Steering Committee or Executive Board. Potential task force activities may include problem definition, private sector participation, and future program planning. Voting authority on task forces issues is limited to

Steering Committee member agencies. This authority may be given to an agency's full Steering Committee member or a designated representative. Example of task forces may include but are not limited to:

- Operations Task Force
- Partnership Task Force
- Finance and Policy Task Force.[1]

Table 4 – Summary of Role and Responsibilities

Organization	Role and Responsibility	Leader	Frequency of Meeting
Governing Board	• Policy guidance on issues that exceed Steering Committee authority • Issues relating to agency roles/ responsibilities, funding sustainability, and politically sensitive matters	• Governing Board Chairperson	• 4 – 6 months (or as needed)
Steering Committee	• Provide strategic direction and oversight • Review project progress • Review project deliverables, including technical memoranda and reports • Participate in project workshops • Provide input and guidance to the Western Transportation Institute, MSU • Ensure that available funds are programmed for short and long-term ITS demonstrations, operations, and maintenance • Encourage community participation • Review new technologies and concepts	• Steering Committee Chairperson and Co-Chairperson from CA and OR • Executive Director (liaison and contract manager) Co-Chairperson from CA and OR	• Approx. every 2 months
Regional Teams	• Build regional public/ private stakeholder consensus • Identify "friends of the committee" • Assist with identifying regional needs • Participate in workshops • Advise Steering Committee	• Caltrans, ODOT or WTI will facilitate	• As needed
Task Force(s)	• Provide detail investigation on specific issues • Potential area include but are not limited to Operations, Partnerships, Finance and Policy	• TBD	• As needed

FINANCIAL PROGRAMS

The partnership is funded through an agreement between Caltrans, Oregon DOT, and WTI (website www.coe.montana.edu/wti). Originally, it was a combination of State Planning and Research funds.

STRATEGIC PLANS/DEPLOYMENT PLANS

Goals and Objectives

The specific objectives of the COATS project include:

- Identifying the transportation and information needs within the study area;
- Determining ITS solutions that are beneficial, cost-effective, and implementable for deployment within the study area on the basis of the identified needs;
- Identifying, designing and deploying initial, small-scale "early winner" projects with existing funds on a multi-year basis to test the feasibility of rural ITS;
- Developing a Strategic Deployment Plan that describes a strategic approach for implementing rural ITS strategies on a larger scale, with an emphasis on integration and expansion of future ITS components within the study area based on evaluation results; and
- Preparing and securing Federal funds to implement Rural Model Deployment Initiative projects.[3]

In May 2001, COTAS completed its Strategic Deployment Plan. The Plan identified the following goals and objectives:

Goal #1. Improve the safety and security of the Northern California/Southern Oregon Region rural transportation system users.

Objectives:

- Provide sustainable traveler information systems that disseminate credible and accurate "real-time" information.
- Provide systems that advise regional transportation system users of slow-moving vehicles, obstructions and weather conditions.
- Provide systems that advise unfamiliar motorists of alignment and speed conditions, tourist attractions, services, construction, weather, and the ability to request assistance.
- Coordinate public fleet responses to unsafe conditions (weather, incidents, detour routes) and provide for improved regional movement.
- Reduce the severity of vehicle accidents and their related fatality rates through improved emergency response times.

- Reduce exposure to unsafe driving situations through motorist aid devices.
- Provide improved methods for commercial vehicle monitoring and hazardous material identification.

Goal # 2. Enhance personal mobility and accessibility to services, and enhance convenience and comfort of motorists traveling in and through Northern California/Southern Oregon.

Objectives:

- Increase public awareness of public transportation alternatives to and within the states.
- Encourage and provide incentives for increased transit utilization.
- Expand information availability for tourist areas and services.
- Coordinate transit services to State or National Parks.
- Provide parking information to reduce internal State or National Park congestion.

Goal # 3. Increase operational efficiency and productivity of the transportation system focusing on system providers.

Objectives:

- Collect, process, and share data between local, state, and federal agencies to increase efficiency and resources utilization.
- Provide automated notification of conditions that may impact operations and maintenance of regional roadways to improve resource management and allocation.
- Improve communication system capabilities to provide for increased coordination of services (i.e. radio, wire-line/wireless).

Goal # 4. Enhance economic productivity of individuals, businesses and organizations.

Objectives:

- Develop projects that meet local needs but provide for national “showcase”.
- Improve identification of goods, services, and opportunities in regional communities (i.e. en-route information, transportation service information, etc.)
- Provide mechanism by which tourism industry, transportation and transit services, can work more closely together.

- Provide opportunity for commercial vehicles and goods to be moved more efficiently (i.e. pre-clearance systems).

Goal # 5. Reduce energy consumption, environmental costs and negative impacts.

Objectives:

- Improve hazardous material incident response.
- Promote and encourage the use of alternative fuels and the use of transit in the Parks.

Goal # 6. Develop and foster long-term partnerships that will result in the demonstration of ITS initiatives and traditional solutions that address rural needs of the region.

Objectives:

- Establish formal and informal opportunities to inform public and private sector decision-makers on initiatives for the COATS project, and gain support for ITS efforts from key stakeholders.
- Facilitate a technical and financial group for the promotion of partnership projects.
- Develop opportunities for public-public and public private partnerships for operations and maintenance

Goal # 7. Ensure compatibility with statewide and national ITS initiatives.

Objectives:

- Coordinate Northern California/Southern Oregon project with statewide efforts.
- Provide for technology transfer between state agencies.

Goal # 8. Incorporate ITS into the State Transportation Improvement Program planning efforts.

Objectives:

- Provide for the incorporation of advanced technology applications to be considered in the Transportation Improvement Plan (TIP) process.

Success in Achieving Goals and Objectives

1. Increase Safety. This project will examine the applications of advanced technologies to reduce accidents, reduce the impact of weather on driving conditions, reduce the impact of driver/roadway operations characteristics, and reduce impact of vehicle mix on safety.

2. Improve Emergency Response. This project will aim to improve incident response time, emergency preparedness, and hazardous cargo identification.

3. Improve Commercial Vehicle Operations. Given that rural areas such as this are dependent on CVO efficiencies, this project will examine technologies that would serve to streamline CVO regulation and operation, and improve CVO safety in the study area.

4. Increase Travel Information and Trip Enhancement. This project will identify traveler information needs, and identify strategies and technologies to improve traveler information systems.

5. Improve Interagency Communications. This project will address institutional issues, determine methods and systems that may assist in communication, and improve relationships between stakeholders.

6. Reduce Congestion. This project will examine advanced technologies to improve traffic flow in areas like national parks, national monuments, or ski areas, which have recurring congestion challenges at gate entrances, and visitor site specific locations.

7. Increase Economic Activity. Tourism is critical to the regional economy and improvement in the areas of tourism and travel may only assist in economic productivity. This project will determine how ITS technologies may impact economic activity.[9]

CURRENT ACTIVITIES

Operational Efficiency And Public Safety

In the short-term, the first strategy will be to address the operational efficiency and public safety through automated "smart" systems, to maximize resources and reduce exposure to adverse conditions and obstacles that may impede traveler safety. This strategy will be accomplished through:

- Monitoring road-weather conditions with road weather information systems, wind monitoring stations, automated flood warning systems, automated visibility systems, automated anti-icing systems, and advanced vehicle detection; and
- Monitoring the roadway rights-of-way or the roadway for potential animal-vehicle conflicts or detecting landslides.

Advise Unfamiliar Travelers Of Unsafe Driving Conditions

This will be accomplished through advance warning systems that utilize variable message signs and highway advisory radio to warn travelers of the following:

- Speed/travel conditions;
- Intersection collision avoidance;
- Wide loads on narrow lanes; or
- Bike/pedestrian hazard locations.

Regional And Bi-State Coordination

The third strategy for the short-term will be to provide for the development of a center(s) to coordinate sub-regional and bi-state activity. This strategy will be accomplished through these methods.

- Monitoring traffic and roadway conditions through traffic sensors and closed circuit television cameras to verify conditions.
- Implementing or better utilizing Advanced Rural Technology Integration Centers in Redding and Eureka, California, and Transportation Operations Centers in Bend and Deployment of ITS.

- Medford, Oregon to serve as coordination focal points for regional "real-time" en route/pre-trip traveler information through variable message signs, highway advisory radio, the Internet, and 1-800 travel advisory telephone systems. These centers would coordinate, communicate, and cooperate with each other, nearby communities, local organizations, State agencies, and other regions (i.e. Central Coast, Portland, Nevada).
- Providing for the ability to control access to the roadway system through automated gate closure systems.[3]

NEEDS

Additional needs will be added when interviews are complete.

LESSONS LEARNED

Approaching a project primarily from a research perspective may be suitable in certain cases. Rather than relying solely on interviews and subjective data provided by stakeholders and travelers, the COATS Strategic Deployment Plan seeks to tie deployment locations to specific challenges as justified by various data collection efforts as well as stakeholder input.

It is important to make distinct outreach efforts to ensure that stakeholders throughout the study area have the chance to participate in the planning process, and that their ideas and concerns are considered in the development of strategies and deployment.

Seeking to provide both *strategies* to guide future ITS investment, as well as specific *deployment* locations that can support this strategic direction, would allow the plan to reflect a broader long-term view that can supercede the short-term transportation programming processes, while at the same time giving concrete recommendations for projects that may help to keep this plan active.

Develop a business plan to provide a framework for policy, process, and action among the public and private jurisdictions involved. Also, the organizational structure should be a way to maximize the group's ability to meet its objectives and to minimize bureaucratic impediments, which sometimes result in large groups.

Rural COATS was awarded the Best Rural Project in California by the California Alliance for Advanced Transportation Systems (CAATS). The award was presented at the CAATS Annual Conference in Anaheim, California in December 1998 [9]

RECOMMENDATIONS

To be added when interviews are complete.

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Gary-Chicago-Milwaukee ITS Priority Corridor

SUMMARY

The GCM Intelligent Transportation System (ITS) Priority Corridor is one of four multi-agency ITS coalitions formed as a result of the Intermodal Surface Transportation and Efficiency Act of 1991 (ISETEA). Officially started in 1993, the GCM Corridor is comprised of all of the major transportation agencies in the 16 county area connecting Gary, Indiana through Chicago, Illinois to Milwaukee, Wisconsin. The GCM Corridor includes the three state departments of transportation, 16 counties, and numerous local agencies as well as the Federal Highway Administration. The objective of the GCM Corridor Program is to improve the efficiency and effectiveness of the Corridor's transportation infrastructure through the planning, design, deployment, and evaluation of leading edge ITS applications.

The GCM ITS Priority Corridor Program operates through a comprehensive structure of work groups that meet on a regular basis. These committees and groups include:

- Executive Committee
- Deployment Committee
- Coordination Work Group
- Commercial Vehicle Operations (CVO) Work Group
- Gateway Regional Integration Committee for the Corridor (GRICC) Work Group
- Incident Management Work Group
- Multi-Modal Operations (MMO) Work Group
- Awareness and Communications Work Group [6]

Since 1993, when the Gary-Chicago-Milwaukee (GCM) Intelligent Transportation Systems (ITS) Priority Corridor was designated, the states of Illinois, Indiana, and Wisconsin have worked together closely on solutions to transportation problems in this 130-mile-long, 16-county corridor, that is home to more than 10 million people. Through the deployment of advanced technologies, the use of existing transportation services and infrastructure, and the cooperative efforts of several transportation and planning agencies in the three states, the GCM Corridor

Program is making transportation in the corridor smarter, safer, better coordinated, and more efficient.

By taking a coordinated multi-state approach, the three states have been able to integrate ITS programs beyond their borders, pool funds, and deploy projects that benefit the entire region. Deployment of the GCM Corridor ITS projects is managed by the GCM Coalition. The consortium manages the program activities, addresses key issues that arise, and helps maintain public and political awareness and support, during the deployment process.

The Gateway System has been designed to serve as an information clearinghouse for the Corridor: information from a variety of transportation related sources is collected in each state's traffic management center, forwarded to the Gateway, and sent back to the traffic management centers. Each state manages its own system, but has better information on what traffic conditions are like on the facilities adjoining its system due to the Gateway information-sharing.[5]

In short, the GCM Corridor program has focused on improving surface transportation system mobility, safety, and efficiency, and minimizing adverse environmental impacts through the application of advanced technologies. The direction of the GCM program has always been based upon real-world transportation needs, as depicted by the broad range stakeholders participating in the corridor coalition and representing multiple modes and jurisdictions. The GCM program has supported and created a broad range of projects and activities, including those focusing on:

- Traffic and incident management systems
- Multi-modal traveler information systems
- Advanced public transit systems
- Commercial vehicle operations

ORGANIZATIONAL BACKGROUND

Historical Perspectives

The GCM Corridor has historically suffered from numerous problems and issues including: extreme traffic density, an ozone nonattainment designation, a variety of types of transportation facilities, an inability to significantly expand existing facilities, a mix of travel types and

complexity of travel patterns. These issues that plagued the GCM Corridor helped it to be designated by the USDOT in March 1993, as an Intelligent Transportation System (ITS) Priority Corridor, under the guidelines of the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). The GCM Corridor is one of four original corridors in the United States to be designated a priority corridor. The GCM Corridor is serving as a national state-of-the-art ITS test bed and showcase to support research, testing, evaluation, and introduction of ITS technologies and systems consistent with national objectives, to address the transportation needs in the corridor.

Geographic Areas Covered and Services Provided

The following initiatives were designed to improve the efficiency and effectiveness of the Corridor's transportation infrastructure through the planning, design, deployment, and evaluation of leading edge ITS applications.[6]

Multi-Modal Traveler Information System

For the ADVANCE (Advanced Driver and Vehicle Advisory Navigation Concept) project, the in-vehicle dynamic route guidance testing was completed in December 1995. ADVANCE has transitioned into a major role for the GCM Corridor serving as the Corridor Transportation Information Center (C-TIC). The Traffic Information Center (TIC) used during the in-vehicle phase of ADVANCE is being expanded to include new sources of transportation information throughout the three-state corridor. In early 1997, the C-TIC was connected to MONITOR, the Milwaukee-area Traffic Management Center (TMC). Real-time expressway conditions in Milwaukee County is augmented with lane closure and incident information. Other systems currently connected to the C-TIC include: Illinois Department of Transportation Traffic Systems Center; *999 cellular telephone based motorist aid system; weather data from Surface Systems, Inc.; Illinois State Toll Highway Authority; and Illinois, Wisconsin, Indiana and Chicago Departments of Transportation and Illinois Tollway for construction/maintenance. In 1998, Indiana will also provide real-time traffic information on the Borman Expressway, making the C-TIC a true three-state information clearinghouse for transportation information.

Integrated Transit Systems

The Illinois Department of Transportation recently executed a contract to initiate efforts on the pilot program, **Advisory On-Board Vehicle Warning Systems at Railroad Grade Crossings**. This pilot program will provide vehicles approaching grade crossings with an on-board warning system to advise them of a train approaching the crossing. Approximately 300 vehicles will be outfitted with the on-board system as part of this Pilot Study. The system will use low powered communication transmitters located at the crossings that will be triggered by a train approaching or occupying the crossings. These transmitters will send a signal of between 800-1,200 feet in all directions from the grade crossing and activate a receiver in any equipped vehicle in the immediate area to alert the driver of a train's presence. The Pilot Study area includes five grade crossings along the Metro-Milwaukee North Line equipped with detection and warning systems.

The Regional Transportation Authority in Chicago is leading a project that will create an **electronic scheduling system** to provide scheduling and service information to the public and other transit agencies. The Chicago Transit Authority, Pace, (the suburban Chicago bus operator) and Milwaukee County Transit, are deploying advanced bus management systems. The Chicago Transit Authority and Pace are investigating bus system coordination issues and will use **connection protection** to ensure that riders make their connections between buses on various routes or different transit agencies. They will also use **active transit signs** that will display real-time bus arrival times.

Incident Management Programs

Indiana's incident management program, **Hoosier Helpers**, located on the Borman Expressway, assists motorists and clears incidents from the roadway. The Hoosier Helper program has been expanded to include 24-hour-a-day service. *The Expert System*, a new management tool currently under development, will allow Hoosier Helper staff to program traveler information devices from Hoosier Helper vehicles.

Illinois Emergency Traffic Patrol vehicles that have been equipped with **Quick Tow Devices** allow disabled vehicles to be removed from the roadway without traffic patrol staff leaving their

vehicles. This advanced towing equipment expedites the removal of vehicles from the freeway and improves traffic flow. The patrol's entire fleet of thirty-five vehicles will be equipped with Quick Tow devices this year. Also as part of this project, the Illinois Department of Transportation is developing a prototype automatic vehicle location system for emergency traffic-patrol vehicles. The system will initially be placed on five vehicles. Using a Global Positioning System (GPS), dispatchers will be able to locate and send the vehicle nearest the scene of an incident. The system will also allow patrol drivers to query vehicle and police records for information such as stolen vehicle reports.

The Southeastern Wisconsin Incident Management **(SWIM)** program is an ITS initiative currently underway that applies principles to enhance incident management in southeastern Wisconsin. Program objectives include facilitating interagency relationships; improving incident detection, verification, response and clearance; ensuring the safety of freeway travelers and incident response personnel; and fully utilizing available freeway capacity.

Traffic Management Systems

A feasibility study and costing study that is nearing completion will recommend the types of enhancements needed for the Illinois Department of Transportation **Traffic Systems Center Upgrade**. The Illinois Department of Transportation will be upgrading hardware and software to improve traffic management. Some of the detailed design is already underway based on the studies' early recommendations.

Video surveillance cameras provide coverage of the I-94/I-290 and I-94/I-55 interchanges in downtown Chicago.

Also, a video distribution infrastructure will be deployed so that three separate centers can view freeway conditions with future cameras to be added at minimal cost. This infrastructure will support a variety of specialized incident responses from the existing Operations and Communications Center, Traffic Systems Center, and the GCM Corridor Transportation Information Center. The integrated and combined efforts of these centers will facilitate virtually simultaneous multi-state control and coordination of response forces, changeable message signs,

highway advisory radio, and other sources of information to the public, media, and government agencies.

The Illinois Department of Transportation, in coordination with the Illinois State Toll Highway Authority, is conducting a test of an Automated Vehicle Identification (AVI) traffic management system using the Tollway's Electronic Toll Collection (ETC) system. The Tollway has been operating **I-PASS** on I-355 through DuPage County for several years and has recently expanded the program to cover approximately forty (40) percent of the Tollway system. This effort has developed and tested software for obtaining travel time information with the potential for expansion to the entire Tollway system. This project serves as a prototype which will be used as the Tollway's ETC system is expanded. The Tollway plans to outfit its entire system with ETC technology by the end of 1998. (When this is completed, virtually all limited access facilities in northeastern Illinois will be under some form of traffic management system surveillance.)
The Milwaukee-area freeway Traffic Management System named **MONITOR** is a computerized system that allows engineers to monitor and manage the Milwaukee-area freeway system through the use of advanced surveillance, control, and communication technologies. The system is operated by the Wisconsin Department of Transportation and is designed to improve the efficiency and safety of the Milwaukee-area freeway system by reducing accidents and congestion. Currently MONITOR is being expanded to serve the freeway system throughout southeastern Wisconsin. Approximately sixty (60) percent of Milwaukee's freeway system has been equipped with surveillance, motorist information, and ramp metering systems. In southeastern Wisconsin, work began this year on the Integrated Corridor Operations Project (**ICOP**). The project focuses on the corridor-wide integration of traffic and transit operations, through interagency cooperation and the use of advanced technologies. The project will include an *Integrated Corridor Test Segment* and a *Strategic Plan* that prioritizes deployment projects.
The Indiana Department of Transportation is moving forward with **Phase 2 of the Advanced Traffic Management System on the Borman Expressway**. This phase will move from a 3-mile prototype to deployment of a 16-mile system. The system will include new detectors, cameras, changeable message and overhead signs, in addition to an upgrade of the Borman traffic management center. The system is expected to be fully operational in 18 months.

Commercial Vehicle Operations

The Commercial Vehicle Operations Work Group at a June 19, 1997, meeting selected four corridor-wide projects in the GCM Program Plan Update to be top CVO priorities. The first project, **CVO traveler information**, will develop strategies for the packaging and distribution of traveler information to the CVO industry. The second project, **incident prevention through hot spots identification**, will analyze high CVO-related incident locations and strategies will be undertaken to reduce the incident rate. The third project, **improved incident response**, will include training for public safety and traffic management personnel, development of a tow truck operator data base, and increased incident response coordination efforts. The fourth project, **overheight vehicle detection** will conduct tests to demonstrate a technology that senses when an overheight vehicle is approaching a viaduct, warns the driver, and directs him to an alternate route. Committee task forces were developed to provide more detailed scopes for each of the projects.

Private/Public Partnerships

The GCM Corridor Program is working with ITS Midwest to define roles and opportunities for private/public partnerships in the corridor.

Multimodal Considerations

The corridor was defined to allow for a wide range of solutions for movements throughout the corridor including tollways, public transit, and CVO. The following summarizes GCM Corridor's multimodal/intermodal initiatives.

An icon has been added to the maps allowing users to link to the Chicago Area Transportation Study (CATS) Rideshare Services home page - www.sharethedrive.org. Commuters in SE Wisconsin can use this icon to find out how to contact SE Wisconsin Rideshare. Commuters in the Gary-Chicago-Milwaukee corridor can register *online*--saving money, reducing stress, improving air quality, and reducing vehicle travel in construction zones to increase safety.

Several multimodal traveler information systems and transit coordination systems are available along the corridor. Transit information is readily available by clicking on the appropriate area map.

Organization Members and Structure

The GCM Corridor Coalition is comprised of all of the major transportation agencies in the Corridor, including the state departments of transportation for each of the three states, and the Federal Highway Administration. The coalition is comprised of the following committees and work groups:

Executive Committee

The GCM Executive Committee is composed of Bryan Nicol, Commissioner of INDOT; Kirk Brown, Secretary of IDOT; and Terry Mulcahy, Secretary of Wisconsin Department of Transportation (WisDOT); the agency heads for Illinois, Indiana and Wisconsin Departments of Transportation; as well as the Director of the Federal Highway Administration Midwestern Resource Center, who serves as a non-voting member. The Executive Committee provides overall direction for the deployment of the GCM CPP.

Deployment Committee

The Deployment Committee includes members from each state DOT, the USDOT, regional planning organizations, and transportation agencies throughout the region. The Deployment Committee oversees the activities of each Work Group and the implementation of the GCM CPP.

Coordination Work Group

The Coordination Work Group is a branch of the Deployment Committee and is represented by agencies from all three states. This group provides technical, planning, and administrative support to the Deployment Committee on the coordination and implementation of the GCM CPP.

Commercial Vehicle Operations (CVO) Work Group

The CVO Work Group is represented by all State DOTs, state tollway agencies, and trucking associations. The CVO Work Group develops and coordinates CVO systems in the GCM Corridor.

Gateway Regional Integration Committee for the Corridor (GRICC) Work Group

The GRICC Work Group oversees the system architecture and communications needs for the GCM Corridor, which will provide an architecture and communication base that all future ITS projects will build upon. Representation in this group includes all state agencies, state tollway authorities, major transportation and transit agencies, state highway patrols, police, and emergency services.

Incident Management Work Group

The Incident Management Work Group, oversees the integration of incident management operations throughout the corridor. This group is represented by all State DOTs, state tollway authorities, major transportation and transit agencies, state highway patrols, police and emergency services.

Multi-Modal Operations (MMO) Work Group

The Multi-Modal Operations Work Group provides technical and policy expertise for projects specific to traffic signal, transit, and incident management, and operations. This group is represented by all State DOTs, major transit agencies, incident management agencies, and City agencies.

Awareness and Communications Work Group

Agencies represented on the Awareness and Communications Work Group include the following: Argonne National Laboratory, Regional Transportation Authority, IDOT, Transportation Consulting Services, Illinois State Toll Highway Authority (ISTHA), WisDOT, INDOT, and Northern Indiana Commuter Transportation District (NICTD).[1]

Deployment of the ITS projects identified in the Corridor Program Plan (CPP) are managed by a team comprised of committees, work groups, and ITS Midwest. The consortium manages the program activities, addresses key technical and non-technical issues that arise, and helps maintain public and political awareness and support during the deployment process. As the need arises, sub-workgroups will be established for specific projects within each work group to manage integration and coordination issues.

Executive Committee

The GCM Executive Committee is composed of Cristine Klika, Commissioner of INDOT; Kirk Brown, Secretary of IDOT; and Terry Mulcahy, Secretary of WisDOT; the agency heads for Illinois, Indiana and Wisconsin Departments of Transportation; as well as the Director of the Federal Highway Administration Midwestern Resource Center, who serves as a non-voting member. The Executive Committee provides overall direction for the deployment of the GCM Corridor Program Plan.

Deployment Committee

The Deployment Committee includes members from each state DOT, the USDOT, regional planning organizations, and transportation agencies throughout the region. The Deployment Committee oversees the activities of each Work Group and the implementation of the GCM CPP. Agencies represented on the Deployment Committee include the following:

- AMTRAK
- Argonne National Laboratory
- Chicago – DOT
- Chicago Area Transportation Study
- Chicago Transit Authority
- City of Milwaukee
- Federal Highway Administration
- Federal Transit Administration
- Illinois DOT
- Indiana DOT
- ITS Midwest
- Marquette University
- Metra Commuter Rail
- Milwaukee County
- Northern Indiana Commuter Transportation District
- Northwestern Indiana Regional Planning Commission (NIRPC)
- Pace Suburban Bus Service
- Purdue University
- Regional Transportation Authority (RTA)
- Southeastern Wisconsin Regional Planning Commission (SWRPC)
- University of Illinois at Chicago
- University of Wisconsin at Madison
- Will County
- Wisconsin Department of Transportation

Coordination Work Group

The Coordination Work Group is a branch of the Deployment Committee and is represented by agencies from all three states. This group provides technical, planning, and administrative support to the Deployment Committee on the coordination and implementation of the GCM CPP. The Coordination Work Group oversees the following program areas:

- No. 4, GCM Technical and Planning Support
- No. 10, Private/Public Partnerships

Agencies represented on the Coordination Work Group include senior ITS staff members from each state DOT and regional USDOT representatives.

- Illinois DOT — David Zavattero, ITS Program Manager
- Indiana DOT — Mark Newland, ITS Program Director
- Wisconsin DOT — Phil DeCabooter, Chief ITS Engineer
- Federal Highway Administration
    - Wendall Meyer, Illinois Division
    - Dennis Lee, Indiana Division
    - John Berg, Wisconsin Division

Support Staff:

- Illinois DOT, Chuck Sikaras
- Indiana DOT, Joe Ligas
- Wisconsin DOT, Scott Silverson

Commercial Vehicle Operations (CVO) Work Group

The CVO Work Group develops and coordinates CVO systems in the GCM Corridor. This Work Group oversees the following program area:

- ATA Foundation, Inc.
- Bulkmatic Transport Group
- Chicago Area Transportation Study
- Christie Transport
- City of Chicago-DOT
- Consolidated Freightways Transportation
- Federal Highway Administration

- Federal Motor Carriers Safety Administration Great American Lines
- Greyhound Lines, Inc.
- Illinois Commerce Commission
- Illinois DOT
- Illinois Emergency Management Agency
- Illinois Environmental Protection Agency
- Illinois State Police
- Illinois State Toll Highway Authority
- Illinois Transportation Association
- Indiana Department of Revenue
- Indiana DOT
- Indiana State Police
- Jacobus Pretroleum
- Kreher Steel Company
- Midwest Truckers Association
- MTI Trucking
- National Highway Traffic Safety Administration
- Northwestern Indiana Regional Planning Commission
- Northwestern University
- Professional Towing and Recovery Operations of Illinois
- TranSmart Technologies, Inc.
- Transportation Consulting Services
- University of Illinois at Chicago
- Urban Planning and Policy Program
- Waffco Heavy Duty Towing
- Wisconsin DOT
- Wisconsin State Patrol (*a division of the DOT)*

Gateway Regional Integration Committee for the Corridor (GRICC) Work Group

Agencies represented on the GRICC Work Group include the following:

- Argonne National Laboratory
- Chicago Area Transportation Study Transportation District
- Chicago Transit Authority
- City of Chicago DOT Planning
- City of Gary
- Federal Highway Administration
- HNTB Corporation
- Illinois DOT
- Illinois State Toll Highway Authority Planning Commission
- Indian DOT
- Indiana State Police
- Iron Mountain Systems
- Lake County - Division of Transportation
- Marquette University
- Metra Commuter Rail
- Milwaukee County
- Navigation Technologies
- NET Corporation
- Northern Indiana Commuter
- Northwestern Indiana Regional Commission
- Pace Suburban Bus Service
- Parsons Transportation Group
- Regional Transportation Authority
- Southeastern Wisconsin Regional
- Transcore
- Transportation Consulting Services
- University of Illinois at Chicago
- University of Wisconsin at Madison
- Wilson Consulting
- Wisconsin Department of Administration
- Wisconsin DOT
- Wisconsin State Patrol

Incident Management Work Group

Agencies represented on the Incident Management Work Group include the following:

- Argonne National Laboratory
- ATA Foundation, Inc.

- Cambridge Systematics, Inc.
- Chicago – DOT
- Chicago Area Transportation Study
- Chicago Transit Authority
- City of Chicago
- City of Gary
- City of Milwaukee
- Cook County
- Federal Highway Administration
- Floyd & Sons, Inc.
- HNTB Corporation
- Illinois DOT
- Illinois Emergency Management Agency
- Illinois State Police
- Illinois State Toll Highway Authority
- Indiana DOT
- Indiana State Police
- Kenosha County
- Lake County
- Metra Commuter Rail
- Milwaukee County
- Northwestern University
- Oldenberg and Son, Inc.
- Professional Towing & Recovery Operations of Illinois
- Transportation Consulting Services
- Waffco Heavy Duty Towing
- Will County
- Wisconsin State Patrol
- Wisconsin Towing Association
- WisDOT

Multi-Modal Operations (MMO) Work Group

Agencies represented on the MMO Work Group include the following:

- AMTRAK
- Argonne National Laboratory
- Chicago Area Transportation Study
- Chicago Transit Authority
- City of Chicago DOT Northern Indiana Commuter Transportation District
- City of East Chicago
- City of Gary
- City of Milwaukee
- Cook County
- DuPage County
- Federal Highway Administration
- Federal Transit Administration
- Illinois DOT
- Indiana DOT
- Kane County
- Kenosha County
- Lake County
- Marquette University
- McHenry County - Highway Department
- Metra Commuter Rail
- Milwaukee County
- Northwestern Indiana Regional Planning Commission
- Northwestern University
- Ozaukee County
- Pace Suburban Bus Service
- Regional Transportation Authority
- Southeastern Wisconsin Regional Planning Commission
- Transportation Consulting Services
- University of Wisconsin at Madison
- Will County
- WisDOT

Awareness and Communications Work Group

Agencies represented on the Awareness and Communications Work Group include the following:

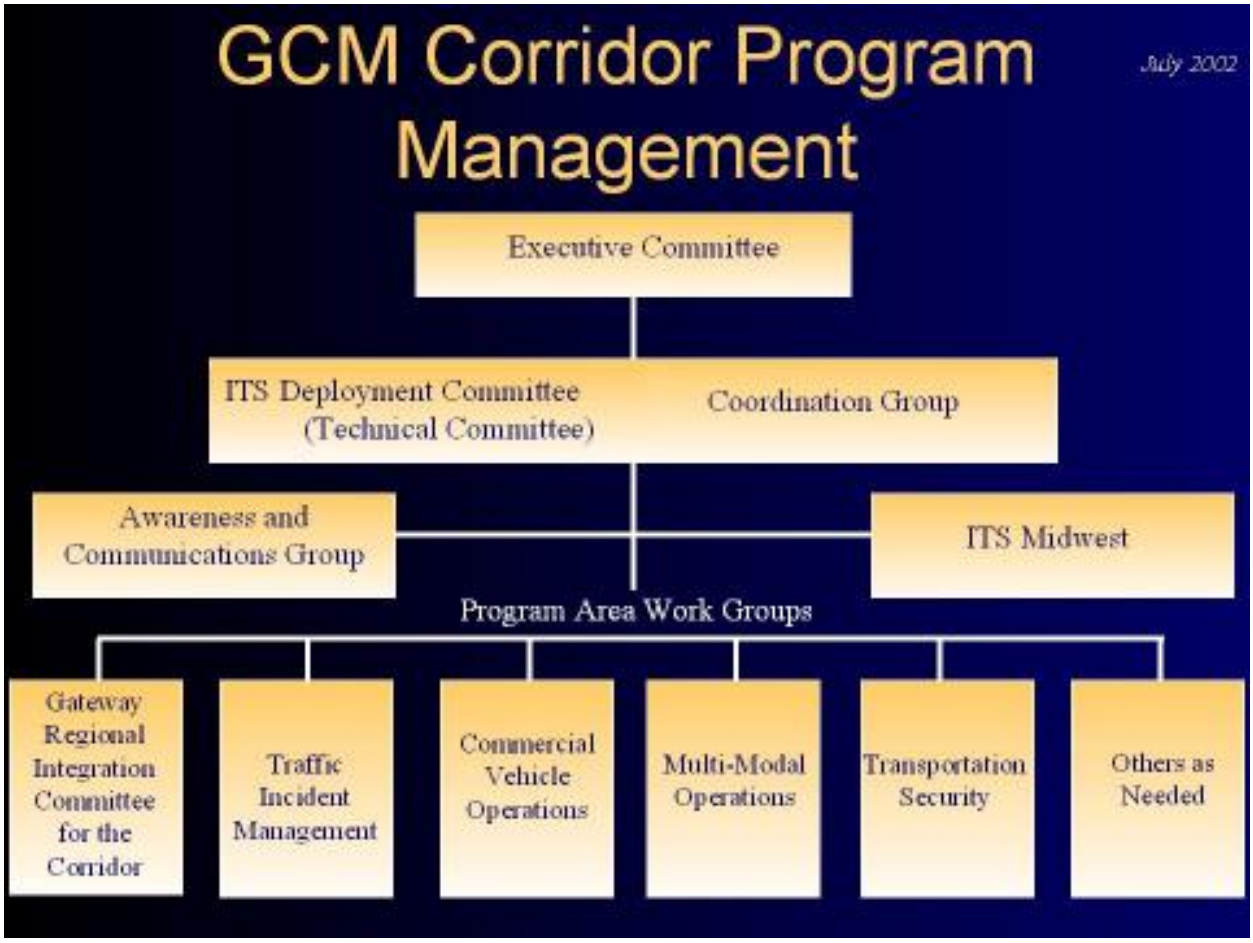
- Argonne National Laboratory

- Illinois DOT
- Illinois State Toll Highway Authority
- Indiana DOT
- Northern Indiana Commuter Transportation District [7]
- Regional Transportation Authority
- Transportation Consulting Services
- Wisconsin DOT

The GCM ITS Priority Corridor Program operates through a comprehensive structure of work groups that meet on a regular basis.

Figure **1** illustrates GCM's organizational structure. Through a tiered committee and workgroup structure the participants in the work groups have continuously met regularly to coordinate specific GCM project activities, share lessons learned, and generally engage in multi-jurisdictional, multi-modal, regional ITS cooperation, including coordination of many projects and activities not directly funded through the GCM Corridor. The following is a summary of these groups:

Figure 1 - GCM Organizational Structure



Executive Committee

The GCM Executive Committee is composed of the agency head for each of the Indiana, Illinois, and Wisconsin Departments of Transportation, and the deputy regional administrator for the Federal Highway Administration. The Executive Committee provides overall direction for the deployment of the GCM Corridor Program Plan. [2]

GCM ITS Deployment Committee

The GCM ITS Deployment Committee had a key role in the development of the GCM Corridor Program Plan with members included from each state DOT, the USDOT, regional planning organizations, and transportation agencies throughout the region. The Deployment Committee oversees the activities of each Work Group and the implementation of the Corridor Program Plan. [3]

Coordination Work Group

The Coordination Work Group is a branch of the ITS Deployment Committee and is represented by agencies from all three states. This group provides technical, planning and administrative support to the ITS Deployment Committee on the coordination and implementation of the GCM Corridor Program Plan. This Work Group coordinates its activities with ITS Midwest to assure the system architecture and communication framework, are consistent with the development of national ITS standards. [4]

Financial Programs

As noted earlier, the GCM Corridor program received dedicated Federal ITS funding during the ISTEA era through the FHWA priority corridors program. During that period, most GCM projects were funded using a combination of the Federal corridor funds and state/local matching funds, often taking the form of "match credits". The Federal priority corridors funding program was eliminated with the passage of TEA-21 in 1998.

During the TEA-21 era, GCM Corridor funding has utilized a combination of funding sources. These sources include; state/local funds, Federal ITS earmarked funds (earmarked for a particular project and obtained by a single state, not an earmark for the entire corridor), and other (non-ITS dedicated) Federal transportation funds, such as; the Surface Transportation Program (STP); National Highway System (NHS); Congestion Mitigation and Air Quality (CMAQ); and Federal Transit Administration programs.

One of the major concerns among GCM stakeholders is the future funding of the GCM program. This concern stems from a number of factors, including the:

- Loss of the dedicated Federal priority corridors funds; the often fierce competition for use of the non-dedicated Federal funds (e.g., STP, CMAQ, etc.);
- Limited success of the GCM Corridor, working together as a corridor, in competing for and obtaining ITS deployment funding through the earmarked Integration program; and
- Uncertainty about the current and future level of funding support that can be expected from the three GCM state departments of transportation.

Future Funding Strategies

In recognition of the realities of the current and anticipated future Federal ITS funding environment, and in response to stakeholder concerns, an overall strategy for GCM funding has been developed. This strategy includes the following four major components.

United Corridor Pursuit of Federal ITS Funds

The GCM Corridor Coalition will increase efforts to obtain Federal ITS funds, including the earmarked Deployment Program funds, using a joint, three-state, "corridor" approach. This approach will include outreach and education activities focusing on the Congressional delegations of Wisconsin, Illinois, and Indiana.

Continuation of 3-Way Cost Sharing Philosophy

The basic three-way cost sharing philosophy that has served the GCM program so well in the past will continue. In most cases, the costs of corridor-wide GCM projects will be split evenly among the three states, and in these cases the projects will be structured so as to provide benefit to all three states.

Affirmation and Continuation of State DOT Funding Support

As noted previously, the recommended GCM program of projects is much smaller than has been the case under the previous Corridor Program Plans, and targeted toward multi-state or "corridor" efforts. This is in response to the specific direction of the GCM Executive Committee. Now, with a more focused program, scaled to more closely fit state funding resources, and focusing on the types of projects most valued by the Executive Committee, it is important that the three GCM states reaffirm their funding support for GCM activities. Therefore, one of the most important components of the GCM funding strategy includes continued support from the GCM state departments of transportation.

Continued Aggressive Pursuit of Partnerships [7]

One of the strategic funding priorities is the continued pursuit of public and private sector partnerships.

Five Year Work Program

As part of the GCM Corridor Project Plan Update effort, a 5-year work program has been developed for the GCM ITS Corridor. The timeline in Table 1 provides a vision of the proposed deployment and shows the estimated costs of the proposed projects. Operations and maintenance costs are not included in these estimates.

Table 1 – Gary-Chicago-Milwaukee ITS Deployment Plan

ITS Project	Deployment Timeline				
	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006
Immediate-Term Projects (Years 1-2)					
Essential Projects					
Gateway Operations and Enhancements	■	■	■	■	■
Continued Program Management Support	■	■	■	■	■
Provide Communication Links at State Borders	■	■			
Priority-One Projects					
Virtual Weigh Stations	■	■	■	■	■
Integrated Corridor-wide 511 Traveler Information Hotline Strategy	■				
Multi-State Agreements for Coordinated VMS Message Posting	■				
Endorsement of Coordinated Incident Management Handbook	■	■	■	■	■
Corridor Communications Infrastructure Plan	■	■			
Priority-Two Projects					
Corridor Electronic Data Archival Strategy	■	■			
Mobile Technologies to Measure Travel Times	■	■	■		
Near-Term Projects (Years 2-5)					
Inter-jurisdictional Construction and Maintenance Planning Program			■	■	■
Establishment of Multi-State Incident Response Teams in State Border Regions			■	■	■
GCM Corridor Education & Outreach Effort in Washington, DC			■	■	■
ITS Planning Database			■	■	
High Speed Rail Traveler Information System					■
Illinois/Indiana Transit ITS Corridor Project			■	■	■
Multi-Agency Radio Communications Integration/Compatibility at State Borders			■	■	■
Railroad Grade Crossing Delay - Traveler Information System			■	■	■
Real-Time Traffic Information Formatting for Private CV Dispatching Systems			■	■	
Multi-Agency Limited Liability Agreements			■	■	
Strategies to Speed HAZMAT Response			■	■	■
Arterial Street Incident Management at Illinois-Indiana Border			■	■	■
ITS Applications for Work Zones			■	■	■
Cross-Border Smart Corridor Project			■	■	■
Accident Database and Reporting System			■	■	■
Interstate Electronic Toll Collection Interoperability Across Borders			■	■	■

Table 2 - Estimated Project Costs

Immediate Term Projects- Initiated Years 1-2	Cost
Essential Projects	
Gateway Operations and Enhancement	3,075,000*
Continued Program Management Support	$350,000/year
Provide Communication Links at State Borders	$300,000
Subtotal	$3,725,000
Priority projects	
Virtual Weigh Stations	$500,000
Integrated Corridor-Wide 511 Traveler Information Hotline Strategy	$150,000
Multi-State Agreements for Coordinated Message Posting	$30,000
Endorsement of Coordinated Incident Management Practices, Outreach and Training	$145,000
Corridor Communications Infrastructure Plan	$300,000
Mobile Technologies to Measure Travel Times	$300,000
Corridor Electronic Data Archival Strategy	$75,000
Subtotal	$1,500,000
Years 1-2 Subtotal	**$5,225,000**
Near Term Projects- Initiated Year 3-5	
Continued Gateway Operations and Enhancements (continued)	$5,287,500
Continued Program Management Support (continued)	$350,000/year
Inter-jurisdictional Construction and Maintenance Planning Program and Scheduling Tool	$300,000
Establishment of Multi-State Incident Response Teams in State Border Regions	$500,000
"One-Stop" Shopping for Commercial Vehicle Interstate Credentials	$300,000
GCM Corridor Legislative Education and Outreach Effort	$750,000
ITS Planning Database	$500,000
High Speed Rail Traveler Information System	$750,000
Illinois/Indiana Transit ITS Corridor	$750,000
Multi-Agency Radio Communications Integration/Compatibility at State Borders	$750,000
Railroad Grade Crossing Traveler Information System	$1,000,000
Real-Time Traffic Information Formatting for Private Commercial Vehicle Dispatching Systems	$500,000
Multi-Agency Limited Liability Agreements	$100,000
Strategies to Speed HAZMAT Response	$100,000
Arterial Street Incident Management at Illinois-Indiana Borders	$750,000
ITS Applications for Work Zones	$500,000
Cross-Border Smart Corridor Project	$750,000
Accident Database and Reporting System	$500,000
Interstate Electronic Toll Collection Interoperability – Indiana/Illinois	$300,000
Years 3-5 Subtotal	**$15,437,500**
Total	**$20,662,500**

* Gateway Project costs include operations and maintenance costs, which totals $1,800,000 over the five year period.

STRATEGIC PLANS/DEPLOYMENT PLANS

Vision

Vision presented in the Initial (1995) CPP, and reiterated in summary form in the 1997 CPP Update. That summary is repeated below. *"The vision of the GCM Corridor is one of enhanced transportation productivity, mobility, efficiency and safety within the corridor with a reduction in energy use and negative environmental impact through the use of ITS technologies and systems. The vision starts with mutual cooperation between agencies within the Corridor to plan and implement advanced ITS technologies. The vision is an integrated approach to solving transportation problems. The vision seeks to improve the existing infrastructure and the choices of users and operators. The vision approaches problems that can be effectively addressed with the resources available within the Corridor. The vision for the GCM Corridor applies to all single and multimodal users who travel within and those who travel through the corridor. The vision is also for transportation operators and agencies, and the surrounding community. The vision for the GCM Corridor includes the following elements:*

- *Evolution*
- *Technology Testbed*
- *Institutional Issues and Barriers*
- *Cooperation*
- *Traveler Information*
- *Traffic Management*
- *Transit Systems*
- *Commercial Operations*
- *Pollution*
- *Travel Demand*
- *Vehicle Tracking*
- *Emergency Management*
- *Navigation*
- *Toll Collection* [7]

The objective of the GCM Corridor Program is to improve the efficiency and effectiveness of the Corridor's transportation infrastructure through the planning, design, deployment, and evaluation of leading edge ITS applications.[6]

In the wake of the tragic events of September 11, 2001, enhancing the security of the nation's transportation system and its ability to respond to emergencies is a high priority. The GCM Corridor program has already done much to support transportation safety and security efforts, s

through the development and expansion of traffic detection and monitoring systems, inter-agency communication and coordinated incident response, and agency and public information dissemination. The physical and institutional infrastructure created through the GCM Corridor effort has significantly advanced security and emergency response objectives, and represents a critical resource on which to base enhancements.

The greatest overall benefit and accomplishment of the GCM effort has been to enhance the regional coordination of advanced technology planning, implementation, and operation. The GCM program has coalesced, and provided a focus and process for on-going coordination and cooperation among a diverse spectrum of highway, transit, freight and other transportation operators, law enforcement agencies, and emergency service providers from both the public and private sectors. [10]

Current Activities

Table 3 summarizes the current activities of the organization.

Table 3 - GCM ITS Strategic Deployment Plan Corridor 5-Year Vision

ITS Project	Deployment Timeline				
	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006
Immediate-Term Projects (Years 1-2)					
Essential Projects					
Gateway Operations and Enhancements	■	■	■	■	■
Continued Program Management Support	■	■	■	■	■
Provide Communication Links at State Borders	■	■			
Priority-One Projects					
Virtual Weigh Stations	■	■	■	■	■
Integrated Corridor-wide 511 Traveler Information Hotline Strategy	■				
Multi-State Agreements for Coordinated VMS Message Posting	■				
Endorsement of Coordinated Incident Management Handbook	■	■	■	■	■
Corridor Communications Infrastructure Plan	■	■			
Priority-Two Projects					
Corridor Electronic Data Archival Strategy	■	■			
Mobile Technologies to Measure Travel Times	■	■	■		
Near-Term Projects (Years 2-5)					
Inter-jurisdictional Construction and Maintenance Planning Program			■	■	■
Establishment of Multi-State Incident Response Teams in State Border Regions			■	■	■
GCM Corridor Education & Outreach Effort in Washington, DC			■	■	■
ITS Planning Database			■	■	
High Speed Rail Traveler Information System					■
Illinois/Indiana Transit ITS Corridor Project			■	■	■
Multi-Agency Radio Communications Integration/Compatibility at State Borders			■	■	■
Railroad Grade Crossing Delay - Traveler Information System			■	■	■
Real-Time Traffic Information Formatting for Private CV Dispatching Systems			■	■	
Multi-Agency Limited Liability Agreements			■	■	
Strategies to Speed HAZMAT Response			■	■	■
Arterial Street Incident Management at Illinois-Indiana Border			■	■	■
ITS Applications for Work Zones			■	■	■
Cross-Border Smart Corridor Project			■	■	■
Accident Database and Reporting System			■	■	■
Interstate Electronic Toll Collection Interoperability Across Borders			■	■	■

Due to the fact that GCM programs in the past several years have been large and multi-faceted, and given the ambitious long-term vision and the breadth of activity supported through the GCM program, stakeholders became concerned that progress toward the vision, goals, and objectives, have been to some extent, diffused and difficult to demonstrate. To address these stakeholder concerns, a short-term focus of the GCM Corridor vision has been developed. The short-term focus consists of the following elements:

Solidify The Gateway Traveler Information System As A Vital, Day-To-Day Tool For Transportation System Operators And Users.

More accessible, timely, and accurate information for travelers, and transportation system operators have been, and remains, one of the most critical needs in the GCM Corridor. This information supports travel decisions that will benefit individual travelers, cumulatively reduces delay, accidents and pollution, and enables more effective real-time, multi-jurisdictional traffic management.

Tremendous progress has been made toward addressing these needs through the development of the GCM Corridor Gateway Traveler Information System (GTIS). In the next few years, a major focus of the GCM program will be to complete the remaining critical missing components of the GTIS, improve its convenience and utility to users, and provide for its daily operation and management. These critical actions will serve to leverage, and capitalize on, the investments made to date in building the GTIS foundation.

Provide GCM Corridor Coalition Agencies With A Comprehensive Set Of Tools To Guide ITS Planning, Project Implementation, System Integration, And Operations.

The GCM CPP and the on-going activities of the GCM committees and work groups, have proven extremely effective in supporting project implementation and inter-agency coordination and cooperation. However, as noted by corridor stakeholders in the 2001 CPP Update outreach process, as corridor agencies have gained experience with ITS and as the corridor focus moves increasingly toward operations and integration, several additional “guidance documents”, or “tools” are needed to supplement the direction established in the CPP.

Therefore, one of the major focal points of the GCM program over the next several years will be to round out the package of tools—supplemental to the CPP—that can be used by corridor organizations to address issues related to:

- Communications among agencies throughout the corridor
- Compatibility of ITS operations in areas where agencies work in partnership,
- Maintenance and enhancement of corridor level ITS system architecture and standards utilization,
- Electronic data archival and;
- Development of planning tools

Promote On-Going Coordination And Cooperation Among Transportation Agencies Throughout The Corridor, Through Preservation And On-Going Support Of The GCM Corridor Coalition And Its Management Structure, Including Committees And Work Groups And Their Activities.

One of the major successes and benefits of the GCM program to date, as identified by corridor stakeholders, has been the establishment of a forum for directed agency interaction, through the corridor committee and work group structures. These groups have provided a forum that would not otherwise exist but for the development of coordinated and cooperative strategies, facilitation of technology transfer, and dissemination of lessons learned, all of which has allowed agencies to work more effectively and efficiently. Therefore, one of the focal points for the GCM program over the next several years is to maintain the committee and work group structure and administrative, programmatic, and technical support to these groups.

Promote The Capability Among Local Agencies For Coordinated, Multi-Agency Incident Management, Including Both Freeways And Arterial Streets.

Along with the need for improved transportation information for travelers and operators, traffic incidents have, and remain, one of the highest priority concerns among GCM corridor stakeholders. Over the last eight years, the GCM program has focused considerable resources on providing travelers the means to avoid or prepare for incidents, and for operators to reduce the impact of incidents. Through the outreach process conducted as part of the 2001 CPP Update, it was made clear that continued efforts in this area are critical. Incidents continue to be one of the

most severe transportation problems facing the corridor, and although progress has been made, many agencies have only just initiated programs to develop multi-agency incident management strategies.

Therefore, one of the primary focal points for the GCM program over the next several years will be to continue to promote consensus based and coordinated incident management practices through training, outreach, education, and capital investments that provide agencies with the information and other necessary tools.

Continue And Enhance Efforts To Secure Federal Funding For The GCM Corridor, Working Jointly As The GCM Corridor Coalition

The GCM Corridor was created through the support of the Federal Highway Administration's ITS priority corridors funding program. That program was eliminated and since the passage of the current national transportation legislation, TEA 21, in 1998, the GCM program has not benefited from Federal funding dedicated to corridor use. Under TEA 21, nearly all of the Federal funds targeted specifically for ITS have been distributed through an earmarking process whereby individual project proponents, working through their congressional delegations, secure funding commitments.

Since the passage of TEA 21, the GCM Corridor Coalition has not received any Federal ITS earmarks to support corridor-level program coordination, system integration, architecture development, or standards testing. This is largely due to the fact that competing programs were more successful.

Therefore, one of the primary focal points for the GCM program over the next several years will be to enhance the coalition's efforts to obtain Federal ITS funds, including increased outreach and education to state legislators and congressional delegations for each of the three states.

Aggressively Pursue Individual And Various Meritorious ITS Projects When Specific Funding Or Partnership Opportunities Present Themselves And/Or Where New Technologies Or Techniques Can Generate Significant And Visible Benefits.

The GCM program described in the CPP Update is a more streamlined one that focuses a greater percentage of effort and resources on a more narrowly defined set of activities and investments. This strategy recognizes the scarcity of ITS resources and the loss of focus, momentum, and cohesiveness that can result from an ambitious, but relatively thinly stretched program.

However, despite this increased focus and concentration of effort, an important function of the GCM program remains the promotion and support of specific individual projects that warrant particular attention based on unique funding, partnership potential, or because they utilize innovative technologies or techniques. Although the total number of these types of projects has been reduced, capitalizing on these opportunities, in a selective fashion, will remain one of the focal points of the GCM program over the next several years. [7]

LESSONS LEARNED

Three general themes can be learned from the GCM Corridor

- By taking a coordinated multi-state approach, the three states have been able to integrate ITS programs beyond their borders, pool funds, and deploy projects that benefit the entire region
- In some cases, a corridor may need to be defined to allow for a wide range of solutions for movements throughout the corridor including tollways, public transit, and CVO.
- Develop an overall strategy for the corridor funding has been developed
- To spread the financial burden, agency will need to continuously and aggressively pursuit new partnerships.

Having a more streamlined program that focuses a greater percentage of effort and resources on a more narrowly defined set of activities and investments, is important in the wake of the scarcity of ITS resources and the loss of focus, momentum, and cohesiveness that can result from an ambitious, but relatively thinly stretched program.

Successes

The following summarizes some of the key success of the partnership.

Overall Relationship Between GCM Program and Transportation Safety and Security Activities

The GCM Corridor program has, and will continue, to significantly enhance surface transportation safety and security in the region. The GCM program has enhanced capabilities in these areas both through implementation of specific infrastructure and systems, and by fostering the agency coordination needed to support safety and security activities.

Overall, the systems and strategies developed and promoted through the GCM program, improve the ability of agencies to respond to and ***manage*** transportation ***operations***, both on a day-to-day and incident basis. The tools developed through the GCM effort allow agencies to collect and share information and develop and execute coordinated strategies, including controlling traffic and disseminating information to travelers. These same resources constitute critical components of overall safety and security strategies. Safety and security are just two of the applications of the tools that the GCM program has been promoting for more than seven years; security and emergency conditions represent but one of the critical types of "incidents" that the GCM program effort is intended to address. GCM program contributions to transportation safety and can be categorized as follows:

- Implementation of **traffic detection and surveillance field infrastructure**, including traffic detectors that can be used to quickly pinpoint traffic disruptions and closed circuit television cameras that can be used to verify security threats, along with other incidents.

- Implementation of **traffic management center** infrastructure, including central system software, which allows for the monitoring and control of field detection and surveillance infrastructure, and provide a focal point for information processing, communication, and information dissemination.

- Support for traffic/incident management **operations staff positions** and development of incident management **agreements, plans, and procedures** for major incidents. These resources can be utilized in support of transportation safety and security.

- Implementation of an integrated, regional transportation **information system (Gateway)** that allows for the sharing of information resources and shared control of systems. These systems collect information, including real-time information, from a variety of sources and make it easily available to agencies and travelers. These powerful information and dissemination networks represent key tools for agency coordination and public information in major emergencies.

- Implementation of **communications and dispatching systems** to support coordinated incident management.

Infrastructure Resources

In terms of infrastructure, the GCM Corridor has made great strides in the area of communications and data processing, having established the Gateway Traveler Information System, and planned enhancements to the Gateway identified as immediate action items. Accelerated completion of planned enhancements to the Gateway, and linkages to more agencies, especially emergency response agencies, is critical.

Great progress has been made in surveillance and detection coverage, with many major interstate routes covered, but many key locations still lack coverage or are not adequately covered, including some interstate segments, portions of major regional non-interstate routes, and some bridges. Significant progress has also been made in deploying traffic and incident management infrastructure and equipment, but considerable additional work remains, especially on arterial streets, and significantly beyond that which is currently planned.

Institutional Resources

The GCM program has been very successful in increasing the level of coordination and cooperation among state departments of transportation, and to a lesser extent among law

enforcement and between law enforcement and transportation agencies. In the area of incident management, the dialog among transportation and law enforcement agencies has also been successful. However, in other areas of traffic management, operations, and communications, additional efforts beyond those currently planned are needed. These efforts include: formalization and further definition of specific roles and responsibilities development of agreements; plans and procedures in areas where they do not exist and are not planned; expansion of the scope of existing agreements; plans and procedures to address the full range of security and emergency scenarios; and to involve the associated organizations (efforts to date have focused primarily upon transportation and law enforcement, without significant involvement by hazardous materials, disaster management, the military, and other organizations involved in transportation security and emergencies.) [10]

GCM Successes By State

The following are representative projects and programs that have been funded in part or entirely through the GCM Program.

Indiana

- **The Borman Traffic Management Center -** The Borman Expressway or Interstate 80/94 is one of two east-west limited access highways serving Northwestern Indiana. In response to growing congestion, the Indiana Department of Transportation launched the Borman Expressway Traffic and Incident Management System. A key component of the system is the Borman Traffic Management Center (TMC) facility. The Borman TMC is designed to serve as a hub for all traffic management activities in the northwestern portion of the state. The TMC uses closed-circuit television cameras and sensors to monitor real-time traffic conditions and variable message signs, highway advisory radio, pagers, and the Internet to provide information to motorists and others. From the onset, the Borman TMC was intended to be a prototype system for Indiana. In addition, both the Borman and the Indianapolis TMC's control all traveler information devices throughout the state.

- **Hoosier Helpers -** A second component of the Borman Expressway Traffic and Incident Management System is the Hoosiers Helpers program. Hoosier Helpers are motorist

assistance technicians who assist stranded motorists and expedite the removal of stalled vehicles along highly congested roadways in Indiana. This program has evolved into one of the Midwest's most comprehensive and technologically advanced incident response programs. The Hoosier Helper program operates 24 hours a day, 7 days a week and has the capability for on-site incident management.

Due to their full time presence on the Borman Expressway, the Hoosier Helpers aggressively respond to incidents, initiate assistance from emergency response agencies, and electronically provide information to the public. The innovative system that is being deployed allows for the programming of highway advisory radio messages and variable message signs directly from the Hoosier Helper vehicles. The program has significantly improved traffic flow and reduced secondary crashes by up to one-third. A cost effectiveness evaluation estimated that, for daytime operations, the total annual benefit of the program is $1,937,800 ($1,241,300 from reduction of nonrecurring delay, $618,200 from secondary crash reduction and $78,300 from vehicle operating costs). With a cost of operations for the same time period of $411,200, the estimated benefit to cost ratio approaches 5 to 1. Due to its success, the Hoosier Helper Program has been expanded to Indianapolis and to southern Indiana near the Louisville metropolitan area, where the program is experiencing similar success. It has also been successfully deployed on a temporary basis in several work zones.

Wisconsin

- **Motorist Assistance Programs -** Wisconsin has implemented two motorist assistance programs through the GCM program. The Gateway Patrol program serves the Racine and Kenosha County part of the corridor, and the Enhanced Freeway Patrol program serves the Milwaukee County freeway system. The Gateway Patrol program uses tow trucks based out of dispatch centers in Racine and Kenosha to provide minor on-site service and tow disabled vehicles to designated off-freeway crash investigation sites. The vehicles operate during weekday peak traffic periods and for extended 10-hour periods on weekends and selected holidays. The Enhanced Freeway Patrol Program consists of two push bumper equipped patrol squads operated by the Milwaukee County Sheriff's Department. The squads serve the entire Milwaukee County freeway system with a primary focus on traffic control and

enforcement assistance at construction zones. Marquette University and the University of Wisconsin, Madison, conducted an evaluation of these two motorist assistance programs. The study concluded that, for the study period;

- The Gateway Program resulted in a 14% reduction in secondary crashes and a 52% reduction in the time that stranded motorists had to spend on the freeway.
- The Enhanced Freeway Patrol resulted in an 8% reduction in secondary crashes.

- **Traffic Incident Management Enhancement (TIME) Program -** TIME is the Southeast Wisconsin's incident management program. In addition to the aforementioned motorist assistance program, TIME includes transverse pavement markings, crash investigation sites, enhanced location reference signs, and emergency responder computer aided dispatch.

Illinois

- **Traffic Systems Center (TSC) Upgrade, Design and Installation -** GCM has funded hardware and software enhancements of the Illinois' Freeway Traffic Management System. The real-time instrumented network operated through IDOT's TSC, now covers nearly 150 centerline miles with 2,400 loop detectors, including; circular loops for the most recent mainline installations; 22 changeable message signs; 113 ramp meter stations; and closed circuit television cameras. A recent renovation of the TSC, which included replacement of the center's computer hardware and software enhancements, was funded, in part, through the GCM program. This upgrade will significantly enhance the capabilities of the TSC and create a state of the art traffic management system to serve IDOT well into the future.

- **Video Cameras for the Stevenson Reconstruction -**As part of an update to the freeway traffic management system, the GCM program funded the design and installation of traffic cameras for use during the reconstruction of the Stevenson Expressway. Three cameras were installed in the vicinity of changeable message signs on routes approaching the Stevenson to enhance traffic management and traveler information capabilities. Early experience with these cameras was favorable and the system has been expanded to 13 additional sites as part of the I-55 rehabilitation.

- **RTA Itinerary Planning System for Transit Trips-** The Itinerary Planning system allows the RTA to assist more than 10,000 commuters a day in planning transit trips utilizing Chicago Transit Authority, Metra, and Pace routes and schedules.

- **RTA Active Transit Station Signs, Connection Protection, and Parking Management Systems -**A feasibility study, preliminary engineering, and system demonstrations for these three Transit ITS initiatives, have been funded through the GCM program.

- **Cicero Avenue "Smart Corridor"-** The Illinois Department of Transportation and the Chicago Department of Transportation, selected the Cicero Avenue Corridor between Interstate 55 and the Midway Airport, as the site for a "smart arterial" operational test. The operational test will demonstrate the effectiveness of improved arterial street traffic signal operations, when integrated with freeway operations, and a focused traveler information system. The primary objective is to improve arterial flow and coordinate it with expressway traffic management and information. The preliminary engineering phase of this project was funded through the GCM Program.

- **Enhancement of Emergency Traffic Patrol (ETP) Vehicles -** Thirty-four ETP vehicles were retrofitted with advanced technology underlift vehicle clearance and relocation equipment (20 of the retrofits were funded through the GCM Program.) With this equipment, the Emergency Traffic Patrol is able to more quickly clear blocked lanes, regain lost capacity, and reduce incident related congestion and secondary accidents.

- **Railroad In-vehicle Warning System Prototype -**The GCM ITS Corridor Program funded the design of the warning system and installation, on approximately 300 vehicles as part of a pilot study.[7]

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Greater Detroit 511[1]

SUMMARY

This case study (although incomplete for the draft report) demonstrates the successful cooperation of multiple jurisdictions in the US and Canada, to successfully implement a 511 service that serves advanced traveler information services. The cooperation that has developed, and coordination approach to transportation operations, has proven the advanced traveler information services, can be a driver for delivering coordinated traffic information and operations management across multiple jurisdictions.

Michigan, but more specifically greater Detroit, is considered one of seven "early adopter" regions for 511 implementation by the U.S. Department of Transportation. The Detroit region operates a successful freeway management program within two counties. Detroit borders Windsor, Ontario, which also operates a freeway management system named COMPASS which extends into the Toronto area. The combined traffic congestion resulting from two international border crossings at the Detroit/Windsor Tunnel and the Ambassador Bridge, which provide connectivity to two areas of urban traffic congestion areas, created an opportunity for coordinated operations and sharing of traveler information across the borders.

[1] This information was adapted from the 511 Case Studies provided on the FHWA web site located at http://www.its.dot.gov prepared by David Fierro and Patrick Shortal of DFA Communications in February 2001.

ORGANIZATIONAL BACKGROUND

Historical Perspectives

After several previous petitions requesting N11 assignment for uses besides the commonly known 411 and 911 services for information and emergencies respectively, the Federal Communications Commission assigned the number 311 for non-emergency police and state/local government services and 711 for telecommunications relay services under a First Report and Order in 1997. In that Report and Order, the FCC also clarified jurisdiction over N11 assignment, citing the Communications Act of 1996, which allowed for State regulatory or other government entities to incur all or a portion of that jurisdiction.

This was important for the United States Department of Transportation's petition for an abbreviated dialing number for traveler information. On July 21, 2000, the FCC approved 511 on a national basis for the provision of traveler information, but the ruling has left it to state and local governments to decide whether and how to implement. The FCC also stated that the lead 511 implementing agencies are advised to work with telecommunications carriers, state, and local regulatory commissions, to determine the appropriate courses of action to make 511 available within a region. (1)

The use of 511 greatly expands upon the functionality of Advanced Traveler Information Systems (ATIS). Traveler information systems provide information to travelers either before the trip begins or during the trip itself. This information will allow travelers to avoid congested traffic areas, avoid traffic incidents of significance, and determine transit options, among other things, all in "real-time."

Impetus for Formation of the MSTOP

Michigan, but more specifically greater Detroit, is considered one of seven "early adopter" regions for 511 implementation by the U.S. Department of Transportation. The Detroit region operates a successful freeway management program within two counties. Detroit borders Windsor, Ontario which also operates a freeway management system named COMPASS which

extends into the Toronto area. The combined traffic congestion resulting from two international border crossings at the Detroit/Windsor Tunnel and the Ambassador Bridge, which provide connectivity to two areas of urban traffic congestion areas, created an opportunity for coordinated operations and sharing of traveler information across the borders. In addition, there were a number of diffuse telephone systems disseminating traveler information as summarized in Table 1.

Table 1 – Summary of Traveler Information Telephone Systems

Phone Number	Operated By	Information Available	Coverage Area
800-411-4823	AAA Michigan	Traffic Conditions	Detroit
519-944-4111	City of Windsor - Transit	Transit Information	Windsor
888-DDOT-BUS (888-336-8287)	Detroit DOT	Trip Planning, Route and Schedule Info	Detroit
313-226-3134	Detroit & Canada Tunnel Corporation	Detroit-Windsor Tunnel Information	Detroit/Windsor
800-642-1978	Detroit Int'l Airport (DTW)	Metro Airport Parking	Detroit
313-849-5244	Detroit International Bridge /Canadian Transit Companies	Ambassador Bridge Information	Detroit/Windsor
800-641-MDOT (6368)	Michigan Department of Transportation	Construction on State Highways	Statewide
MEP (*637)	Michigan Emergency Patrol	Real-time Traffic Info	Southeastern Michigan
519-354-7504 or 800-634-0002	Ontario Ministry of Transportation	Road Condition and Visibility	Windsor, Ontario
248-858-4804	Road Commission of Oakland County	Local Road Construction Info	Oakland County
313-963-RIDE	Southeast Michigan Council of Governments (SEMCOG)	Ride Share	Southeastern Michigan
(313) 962-5515	Suburban Mobility Authority for Regional Transit (SMART)	Bus Routes, Schedules and Fares	Wayne, Oakland, and Macomb Counties
734-973-6500	Washtenaw County	Car Pool	Washtenaw County

The establishment of the 511 number by the US Department of Transportation provided an opportunity to provide a clearinghouse of traveler information via the 511 number.

Geographic Areas Covered

Traveler information is provided on the expressway system in the greater Detroit area and at the two international border crossings. The expressways involved include:

- I-94
- I-75
- I-375
- I-275
- I-696
- M-10
- M-39
- M-59

Table 1 summarizes the multimodal and ridesharing information that is also available through the 511 system.

Organization Members and Structure

The following organizations are involved in the 511 deployment.

Michigan Department of Transportation (MDOT)

MDOT is the state's transportation agency with headquarters in East Lansing and having seven regional offices across the state. MDOT has jurisdiction on the 9,725 route-mile state highway system. The system includes over 27,000 lane miles, almost 4,500 bridges, and approximately 4,000 traffic signals. Almost 35 percent of the statewide annual vehicle miles traveled occur in the Detroit metropolitan area ("Metro Region") even though the area only represents 16 percent of the state's lane mileage. MDOT's Metro Region is where the MITS Center for ITS operations on the Detroit freeways is located. The MITS Center also houses the Michigan State Police (MSP) District 2 Dispatch Center. All MSP resources for southeastern Michigan, including

Wayne, Oakland, and Macomb counties, are dispatched from the MITS Center. The dispatch center also is the public safety answering point (PSAP) for the area's wireless 911 calls.

Southeast Michigan Council of Governments (SEMCOG) - SEMCOG is a regional planning partnership, accountable to member local county governments in Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne Counties. As a comprehensive regional planning agency, SEMCOG has a technical staff working on problems of transportation, including traffic safety, traffic engineering, and regional airport planning. SEMCOG also provides a free regional RIDESHARE program with car and vanpool matching services for individuals, businesses, and other organizations as well as offering telecommuting assistance.

Road Commission of Oakland County (RCOC)

RCOC maintains 2,600 miles of county roads, over 310 miles of state highways and more than 1,200 county, city, and state traffic signals in Oakland County. RCOC utilizes an advanced arterial ATMS system called FAST-TRAC (Faster And Safer Travel Through Routing and Advanced Controls), which employs state-of-the-art computer and communications technologies to improve traffic flow, decrease travel time, enhance safety, and reduce the vehicle tailpipe emissions at signalized intersections.

Wayne Road Commission

Wayne County offers a free e-mail alert system that reports on possible delays on more than 1,000 miles of major streets and freeways, due to construction and maintenance activities. The county is also planning to deploy a toll-free telephone number for construction information in 2001.

Macomb County Road Commission

The Road Commission of Macomb County constructs, operates, and maintains 2,942 lane miles of county, primary, and local roads as well as 756 bridges and drain structures. Further, the Road Commission maintains 166 miles of state trucking routes and freeways under contract for the Michigan Department of Transportation.

Detroit Department of Transportation (D-DOT)

D-DOT is the largest bus transit carrier in Michigan and it is responsible for operating the Detroit's fleet of 540 buses along 54 fixed-route bus lines and serving over 80 percent of the region's bus passengers. D-DOT also operates the Detroit People Mover (DPM), which is a fully-automated light rail system that operates on an elevated single track loop in the central business district with 13 stations, and the Downtown Trolleys, which is a fleet of nine trolleys featuring seven closed vehicles and two open-air vehicles.

Suburban Mobility Authority for Regional Transit (SMART)

SMART is responsible for the planning, construction, and operation of the public transportation facilities and services within four counties of southeastern Michigan (Wayne, Oakland, Macomb, and Monroe); excluding the City of Detroit in which this responsibility belongs to the Detroit Department of Transportation. Currently, SMART has a fleet of 435 buses.

Transportation - Border Crossings & Ontario

In January of 1994, the North American Free Trade Agreement (NAFTA) created the largest single free trade market in the world by dropping the trade barriers between Mexico, the United States, and Canada. Combined, the following two (2) Detroit/Windsor border crossings handle more than one-third of all trade volume between the U.S. and Canada.

Ambassador Bridge - In 1970 when I-75 was completed through downtown Detroit, the Ambassador Bridge became directly connected to the Interstate system via I-75. In the early 1990's, the bridge became the busiest international border crossing in North America. It is estimated that over 25 percent of all merchandise trade between the U.S. and Canada crosses this bridge by truck, much of which is "just-in-time" delivery via high-speed trucks.

Detroit-Windsor Tunnel - The Detroit/Windsor Tunnel is a one-mile vehicular border crossing considered to be the second busiest crossing between the United States and Canada. Spanning the Detroit River between Detroit, Michigan and Windsor, Ontario, connecting the US Interstates (I-75, and I-94) to Ontario's Highway 401. Motorists can tune into AM 760 WJR, the tunnel's only radio station for regular programming and traffic information.

Ontario Ministry of Transportation (MTO) - The MTO is responsible for over 16,500 centerline kilometers in the Canadian province of Ontario, which includes the cities of Toronto, Ottawa, and Windsor. The MTO's ITS initiatives to date have centered on the greater Toronto area which is over 220 miles northeast of Windsor. Highway 401 is the southern backbone of Ontario connecting Detroit/Windsor to Montreal through Toronto. Highway 402 connects Sarnia, Ontario, and Port Huron, Michigan, via the Blue Water Bridge, which is the third busiest international crossing.

Transit Windsor

Transit Windsor provides public transit service to residents of the City of Windsor, Ontario and surrounding communities, with a fleet of over 100 transit coaches. During the last couple of decades, Transit Windsor has diversified through increased ventures including charters, servicing special events, and international operations.

Telecommunications - Southeastern Michigan

Various telecommunications infrastructures in Michigan, such as landline and wireless companies, and the Michigan Public Service Commission (MPSC), which regulates all landline telecommunications, would be involved in an abbreviated dialing implementation. Any such implementation would have to adhere to the Michigan Telecommunications Act (MTA) of 1991, passed by the Michigan Legislature in an effort to improve opportunities for economic development and promote customer choice. The MTA revised the MPSC's role in telecommunications regulation and is designed to promote competition in the marketplace.

Michigan Public Service Commission (MPSC)

The Michigan Public Service Commission is a three member regulatory body that is responsible for three (3) operating divisions - electricity, natural gas, and communications. The Commission's mission statement "is to formulate and administer policies and regulations necessary to ensure that regulated energy, communication, and transportation services are provided in an efficient, reliable and safe manner, sufficient to adequately meet the needs of Michigan citizens."

Some of the goals of the MPSC are to: 1) provide a fair and efficient ratemaking process that accurately identifies revenues needed to provide regulated services, balances cost to consumers, assures adequate supply, reliability and safety, and to 2) provide for reduced regulation and increased reliance upon market forces where competition is sufficient to protect the public interest.

Each member is appointed by the governor to a six (6) year term with each respective term's expiration offset by two (2) years. One member acting as chair of the commission. The commission appoints a chief administrative officer to oversee the daily operations of the MPSC. The MPSC communications division regulates both the local and long distance providers of telephone service. Research for this case study has found:
- There are currently 39 Incumbent Local Exchange Carriers (ILECs) that are licensed by the state to operate in Michigan, and 154 Competitive Local Exchange Carriers (CLECs). Although there are multiple ILECs, Ameritech and Verizon (formerly GTE North) are the predominant local telephone exchange carriers.

- Wireless providers who have a presence in Michigan, including the Detroit metropolitan area, are: SBC/Ameritech (Cingular), Verizon, Sprint PCS, AT&T Wireless, VoiceStream, Nextel, and Cellnet (a re-seller of Ameritech).
- In 1999, the most recent year for complete data, the MPSC staff registered 161 payphone providers and 58 operator service providers (OSP) under MTA provisions that require all payphone and OSPs operating in Michigan to register with the Commission.

Canadian Radio-television and Telecommunications Commission (CRTC)
The Canadian Radio-television and Telecommunications Commission (CRTC) was established by Parliament in 1968. It is an independent public authority constituted under the Canadian Radio-television and Telecommunications Commission Act (R.S.C. 1985, c. C-22, as amended) and reports to Parliament through the Minister of Canadian Heritage.

The CRCT is an independent public authority in charge of regulating and supervising Canadian broadcasting and telecommunications, as governed by the Broadcasting Act of 1991 and the

Telecommunications Act of 1993. Under the Acts, the Cabinet may appoint up to 13 full-time and six part-time commissioners for renewable terms of up to 5 years. Only full-time commissioners are involved in the decision-making process for telecommunications, but all commissioners participate in broadcasting decisions.

Full-time positions include that of the chairperson, the vice-chairperson of broadcasting, and the vice-chairperson of telecommunications. The CRTC regulates more than 61 telecommunications carriers including major Canadian telephone companies. In 1999, the CRTC processed 1,533 telecommunications applications, issued 1,230 orders and granted 90 licenses to telephone companies that provide international long distance services.

- The Ontario Telecommunications Association (OTA) lists 22 ILECs in Ontario with Bell Canada being the predominant local exchange carrier.
- There are five (5) wireless service providers in Canada. They include Rogers Cantel (a division of AT&T), Mobility Canada, Clearnet, Microcel, and Telus Mobility.

Financial Programs

The 511 deployment for the Greater Detroit area was funded through a private partnership involving the Federal Highway Administration, Michigan DOT, and the Ontario Ministry of Transportation.

NEEDS

Additional coordination is needed with this organization to complete the case study for the MSTOP project.

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www.nasco-itc.com - North America's Superhighway Coalition

www.ota.on.ca - Ontario Telecommunications Association

www.rcocweb.org - Road Commission of Oakland County

www.semcog.org - Southeast Michigan Council of Governments

www.telecommich.org - Telecommunications Association of Michigan

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www.smartraveler.com - SmartRoute Systems

www.southam.com/windsorstar/community.html - The Windsor Star
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www.itsmi.org - ITS Michigan
www.southam.com/windsorstar/community.html - The Windsor Star
www.nanpa.com - North American Numbering Plan

Case Study Contacts

The principal point of contact for the Detroit 511 deployment is Deputy Director Louis Lambert of the Michigan Department of Transportation (lambertl@mdot.state.mi.us or (517) 373-0343).

High Plains Corridor Coalition

SUMMARY

The High Plains Corridor Coalition is an emerging MSTOP that involves the states of Colorado, Kansas, Missouri, Nebraska, Utah & Wyoming and focuses on the sharing of travel conditions that affect the I-70, I-80, I-76, I-25 and I-15 corridors. The emphasis of the coalition is to enhance operations and safety. The coalition cooperates and shares information during major emergencies, disasters, or major weather events that lead to road closures. Information is provided to travelers during these emergencies using dynamic message signs, 511, commercial services and the internet. Since the corridors involved are inter-city corridors, notification of travelers over long distances is critical. A common example cited by the coalition members is for an incident involving roadway or lane closures for traffic traveling at 70 MPH with delays anticipated to occur over an hour results in a notification requirement of 70 miles up stream from the incident. The corridors involved also have limited detour routes available making multi-state coordination even more essential. The users of the corridors involve transportation operations, public safety, emergency management, homeland security, motor carriers and personal travlers.

The approach the coalition has taken is to initially share basic information on road/lane closures, restrictions, major incients, serious weather and disasters. Since the member states are at varying levels of ITS maturity, this information sharing ranges from verbal communications over the telephone to integrated 511 notifications. Web-based information sharing across all organizations is a targeted first step with each member state allowed to populate the system and make their own decisions about information dissemination and response.

Recent activities of the coalition have included a decision to move forward as a coalition and organization of the members to identify future needs and actions. An Executive Committee of member chief executive offers (CEOs) has been formed with ITS personnel on a Working Committee. The coalition has begun documenting the existing infrastructure that supports transportation operations and ITS, policies and procedures for internal and external agency

cooperation, and procedures and techniques for disseminating information to the public. An FHWA "Pooled Funds Study" has been formed funding the organization at $100,000 per state per year for a two-year commitment.

Future activities planned by the organization include developing of a formal concept of operations to define:

- Information and data flows between states
- Data exchange mechanisms
- New dissemination infrastructure including a regional web site
- Standard operating procedures (SOP) for triggering notifications and response actions
- Regional organizational structures
- Common dynamic message sign message sets
- Implementation of a phased construction program
- Requests for Proposals for administration, development, operations and maintenance of future systems

Case Study Contacts

Dottie Shoup, Nebraska Department of Roads dshoup@dor.state.ne.us
Frank Kinder, Colorado Department of Transportation, frank.kinder@dot.state.co.us
Joe McBride, Utah Department of Transportation, joemcbride@utah.gov
Vince Garcia, Wyoming Department of Transportation, vince.garcia@dot.state.wy.us

Multi-State Highway Security Network Building Workshop

No formal operational partnerships for transportation operations or detailed case study was prepared in this study. However, because of the importance of homeland security and infrastructure vulnerability in today's operating environment, a summary of the results of this recent workshop is included to highlight the experiences and issues that may be a concern to other multi-state partnerships. Continued coordination with these and other multi-state transportation organizations who are addressing homeland security and infrastructure vulnerability, is needed as part of this project.

SUMMARY

On April 20 and April 21, 2004 several states met to discuss multi-state issues related to homeland security and infrastructure vulnerability. The workshop was considered a first step in the development of a multi-state partnership for and information sharing strategy. Specifically, there was consensus on the following topics:

- States are seeking federal guidance on the priorities, developing action plans, best practices that provide leadership, and improved communications on security issues.
- Federal agencies have authority to order the states into compliance of any guidelines, but the states are seeking leadership in developing practices and opportunities to share experiences, successes, and lessons learned.
- Specific priorities differ from state to state, but all states are seeking best practices on how to utilize their limited resources.
- Sharing of information and intelligence on infrastructure is critical to the success of all agencies.
- Funding distribution and allocation processes need to be better understood. Guidelines and best practices are also needed to support how the resources can be best allocated.

The participating agencies in the workshop included:

- Office of Maritime and Land Security of the Department of Homeland Security
- US Department of Transportation, Federal Highway Administration
- Iowa Department of Transportation
- Illinois Department of Transportation
- Minnesota Department of Transportation
- Missouri Department of Transportation
- Nebraska Department of Transportation
- South Dakota Department of Transportation
- Wisconsin Department of Transportation

Future actions of the partnering states included the following:

- Sharing of each state's action plans for homeland security and emergency response
- Develop subcommittees who will address the coordination of action plans, threat procedures, best practices, and lessons learned.
- Involve law enforcement and national guard groups in the next steps
- Development of secure means to coordinate sensitive information generated by this work group.

North America Superhighway Coalition

SUMMARY

North America's Superhighway Coalition (NASCO) is a not-for-profit corporation that lobbies for federal, regional, and state planning and funding for the NASCO Corridor, North America's premier trade, security, and transportation corridor.

The corridor that they and all NASCO members are working for, will combine smart planning, good maintenance, and the latest technology to secure US borders, promote safer travel, increase business efficiency, and improve the infrastructure and quality of life of US communities. In the process, the NASCO Corridor will be transformed into the kind of high-tech highway system that will give the United States and its North American partners, Canada and Mexico, a head start on their global competition. This is reflected in NASCO's mission statement which calls for the agency to maximize economic opportunity and investment in the North American mid-continent corridor, through development and advocacy of an efficient, seamless, intermodal trade, and transportation system.

Through the development of International Trade Processing Centers (ITPC's), NASCO will enable intermodalism and encourage the application of leading edge technology (International Trade Data Systems and Intelligent Transportation Systems). Possible locations - Des Moines, Kansas City, Oklahoma City, Dallas/Fort Worth, or San Antonio.

NASCO plans to facilitate economic development, trade, and tourism along the corridor by promoting and encouraging the location of corporations along the ITC, improving business to business contracts for our private sector members, developing Chamber of Commerce networks for all chambers along the corridor.

Since 1997, NASCO has made a great deal of headway toward its goal of making the economic trade corridor it serves, one of the nation's premiere transportation lifelines in this hemisphere. Coalition members continue to work diligently with members of the U.S. Congress to safeguard federal highway funds.

ORGANIZATIONAL BACKGROUND

Historical Perspective

The main need for the NASCO Corridor seems to be of an economic nature as most of the activities involved with the Corridor are geared towards improving the economic benefits. More than $190 billion of trade flows along the NASCO Corridor on a daily basis-up and down the Corridor, which is comprised of I-35, I-29, and I-80/I-94 in the U.S., as well as Highways 401 and 75 in Canada and the Pan-American Highway in Mexico.

It is estimated that by the year 2020, total domestic freight tonnage will increase 67 percent, while international trade will double--much of that growth benefits the 11 NASCO Corridor states, economic powerhouses that enjoy a $2.3 trillion total gross domestic product. Combined they are the world's fifth-richest economy – ahead of Japan, France, and England. Furthermore, trucks account for 36 percent of Corridor traffic, levels projected to grow up to 80 percent in some locations – through 2025.

NASCO states believe that meeting the Corridor's investment needs would generate economic growth in the range of 10-20 percent, and that planned investments likely would generate North American trade valued at $360 billion annually by 2020– along with the accompanying jobs, economic growth and stable tax revenues.

Geographic

The NASCO involved a number of states including:

- Illinois
- Indiana
- Iowa
- Kansas
- Michigan
- Minnesota
- Missouri
- North Dakota
- Oklahoma
- South Dakota
- Texas

In addition Canada and Mexico are also participants in the corridor coalition.

Programmatic Areas Addressed

NASCO proposes to aggressively deploy Intelligent Transportation Systems for Commercial Vehicle Operations (ITS-CVO) along the International Trade Corridor system (ITC). Plans include the development of an integrated Commercial Vehicle Operations Management System (CVOMIS) to augment the passage of goods along the designated route. The system will build on existing and planned elements and integrated proven technologies.

The International Trade Data System (ITDS) and the Commercial Vehicle Information Systems and Networks (CVISN), established by the U.S. Department of the Treasury, will be integral elements of the proposed trade corridor CVOMIS. The commercial vehicle inspection and enforcement facilities of each state along the route will be integrated with the region's advanced traffic management systems, to support improved corridor operations. The existing communications infrastructure of the region, including high speed fiber optic cables and data transmission lines, will form the communications backbone for the CVOMIS.

The CVOMIS will collect and integrate specific commercial vehicles credentials, cargo, and operational data required to allow a non-stop along the corridor by fully-compliant carriers, vehicles, and drivers. The CVOMIS will support the state and federal laws enforcement agencies in monitoring commercial vehicle traffic as it traverses the corridor system. Vehicles will be evaluated for compliance with state and federal regulations. Those in compliance will be given priority to bypass all other state inspection facilities. In addition, electronic data interchange will accommodate the collection, processing distribution and sharing of information among carriers, law enforcement agencies, customs officials, and other authorized users of the system.

Adoption of standardized commercial date, agreed to by the three countries, as the basis for government processing and implementation of pre-arrival information processing, will facilitate a green (go) or red (stop) signal to trucks carrying cargo across the international borders.

In addition, the growing traffic between Mexico and Canada (in-transit Mexican goods entering at the port of Laredo, bound for Canada and traveling in-bound through the U.S.) will be tracked and managed by the NATAP system.

International Trade Processing Centers (ITPC) would serve as the focal point in a compliance system, providing the means for various levels of government to monitor compliance with several different categories of regulations. Some of these compliance issues, such as the weights, are directly related to safety and others focus on interstate and international trade issues. The compliance measures and the implementation of technology applied to carry them out will minimize delays for freight companies, while simultaneously assuring the governmental bodies that the correct level of fees will be collected.

ITPC's will be instrumental in assuring the safe and efficient movement of goods and people along the corridor. In addition to the physical infrastructure improvements which occur, the technology advanced services provided by the ITPC will further enhance the ability of the surrounding transportation network to carry additional traffic, more safety, with the unnecessary time delays.

The Kansas City area has selected the former Richards-Gebaur Air Force Base as a demonstration site to construct a new rail/truck intermodal facility. They are working to obtain an ITPC designation of the facility under TEA-21 and have performed a study of this site. This ITPC will be a location where freight bound for export can be staged, mixed with other shipments, have tariffs paid in advance, and be electronically filed with all appropriate agencies in the U.S. and the receiving country. NATAP would also be implemented at this site.
In addition, the Oklahoma Continental Gateway Authority has formed a Trust and located a site with rail and I-35 access to develop an ITPC along the I-35 International Trade Corridor (ITC). The center will be located near Purcell, Oklahoma.

The Oklahoma Continental Gateway Authority plans to develop a raw land site into an Industrial Park, whose major attractions are easy access, cheap land, and utilities. Auto parts, construction equipment, split-truck cargoes, and food import and export are their current product focus.

Organization Members and Structure

The following are members of the NASCO:

- The Alamo Area Council of Governments
- The Ambassador Bridge –Detroit Intl. Bridge Co. Canadian Transit Co.
- Ardmore (Okla.) Chamber of Commerce
- Bexar Metro Water District
- Booz-Allen & Hamilton
- City of Winnipeg, MB
- Daktronics, Inc.
- DeMent O'Flaherty & Collier Communications
- Gainesville (Tex.) Economic Development Corp.
- Greater Austin (Tex.) Chamber of Commerce
- Greater Kansas City (Mo.) Chamber of Commerce
- Hillwood-Alliance Airport
- International Bank of Commerce of Laredo (Tex.)
- Kansas City SmartPort
- Kansas Turnpike Authority
- Laredo National Bank
- LDS Corporation
- Love's Country Stores
- Maverick County (Tex.) Development Corp.
- New Century Air Center
- Oklahoma Good Roads & Trans. Association
- Penton Publishing
- Province of Manitoba
- Scrub Oak Technologies
- State of Iowa
- State of Kansas –
- Cities of Kansas City and Wichita
- Counties of Johnson and Sedgwick
- State of Missouri –
- City of Kansas City
- State of Oklahoma
- State of Texas –
- Cities of Dallas, Ft. Worth,
- Burleson, Eagle Pass and Lubbock
- Counties of Bell, Cooke, Dallas,
- Denton, Ellis, Johnson, LaSalle,
- Tarrant, Webb and Williamson
- Waco (Tex.) Chamber of Commerce
- Watkins Real Estate
- Wichita (Kan.) Area Chamber of Commerce
- Wichita (Kan.) Area Chamber of Commerce

The following MOUs have been created:

- With eight U.S. States and a Canadian Province for continued cooperation toward technology development and infrastructure enhancement of the I-35/I-29I-94 Corridor
- With US Treasury Dept. and NASCO to develop ITPCs along I-35.
- With the U.S. Department of Energy, the Environmental Protection Agency, the United States Postal Service and the Texas General Land Office to promote alternative fuels along the corridor.

NASCO employs two full-time professionals, an executive director, and a director of marketing:

Executive Director

Ken Miller is the Executive Director of NASCO. He manages all aspects of the trade corridor initiative. Miller is responsible for government relations, lobbying efforts, and legislative initiatives. He manages fund-raising and membership activities in both the private and public sectors, and serves as the official national and international representative of NASCO.

National Director of Marketing

Paula Baucum serves as the NASCO Director of Marketing and is actively involved in public service at the local and state level.

Financial Programs

NASCO helped gain more than $30 million in Corridor projects in FY 2002 through the National Corridor Planning and Development program—a program that NASCO lobbied for its creation under the Transportation Equity Act of the 21st.

NASCO also successfully lobbied to take the Highway Trust fund "off- budget" which resulted in increased transportation formula funding for NASCO's corridor states.

STRATEGIC PLANS/DEPLOYMENT PLANS

Goals and Objectives

NASCO’s Mission is to maximize economic opportunity and investment in the North American international trade corridor, through development and advocacy of an efficient, seamless, intermodal trade, and transportation system.

To date, NATAP operations have proved beneficial and informative. The standardized data appears to meet the needs of the three trading partners. The Internet has been used successfully to transmit data, and the encryption employed in NATAP ensures that the data remains secure. The transportation technology used in NATAP has the potential to meet all three governments’ needs in identifying conveyances as they cross the border. To date, there have been a few

problems in system stability which officials believe will be improved during the extension of NATAP.

CURRENT ACTIVITIES

NASCO will continue working with representatives from the Clean Cities Coalition and the Department of Energy to further their agreement to work and provide alternative fuel re-fueling stations along the I-35, I-29, and I-94 Trade Corridor to help the environment.

NASCO will continue to focus on issues important to Mexico. To date, they have had the support of Mexican officials and companies, but no actual Mexican memberships. It is important to NASCO to have Mexican participation so they may assist in the efforts in Mexico to improve infrastructure and create/upgrade the Mexico section of the ITC.

NASCO has been working to develop close working relationships with the Land Transportation Standards subcommittee (the harmonization committee).

Next steps for NASCO include a proposal to the Heads of Customs from the three NAFTA nations that NATAP migrate, from a prototype to and operational pilot. Such a decision would ensure that transactions processed through NATAP would be the bonafide release, and there would be no need for additional processing of goods through each country's current system. It is anticipated that conversion from prototype to operational pilot will take place.

NEEDS

Even with full funding by Corridor states and provinces – unlikely given budget struggles--added funding must be found. For example, currently in the Corridor:

- Sixteen (16) percent of interstate miles are in poor condition;
- Twenty-one (21) percent of bridges are obsolete; and
- 65 percent of I-35 – the Corridor's back bone – will require major upgrades and maintenance in the next 20 years

Without additional investment, the Corridor's ability to serve North America's security and economic interests will be further compromised by traffic, economic and population growth.[1]

LESSONS LEARNED

The following are some of NASCO's key successes:

- Created the term "International Trade Corridor," which is now used internationally by all corridor coalitions
- Facilitated creation of Iowa's successful "Intelligent Infrastructure" study application for Federal funding under TEA-21's National Corridor Planning and Development program, FY 2000.
- Developed the "Clean Corridor" concept - working to promote the use of clean, alternative fuels.
- Developed the concept of International Trade Processing Centers (ITPCs)
- Provided a model for other successful trade corridor initiatives through its work on I-35.

Challenges

International Trade Processing Centers (ITPC) would serve as the focal point in a compliance system, providing the means for various levels of government to monitor compliance with several different categories of regulations. Some of these compliance issues, such as the weights, are directly related to safety and others focus on interstate and international trade issues. Diverse climactic conditions and industrial specializations, plus different governmental structures, possess certain system challenges that must be addressed if an ITPC is to be successful. A master prototype for in ITPC was formulated with the understanding that each region would tailor the concept to meet its own specific situations and geography. The ITPC chapter focuses on general classifications of services needed and potential ways in which these needs could be met by the ITPC's.

Although each ITPC will ultimately have its own individual configuration and design specially suited to the needs and situation of that location, the following information describes possible components of an ultimate prototype.

ITPC's will be instrumental in assuring the safe and efficient movement of goods and people along the corridor. In addition to the physical infrastructure improvements which occur, the technology advanced services provided by the ITPC will further enhance the ability of the surrounding transportation network to carry additional traffic, more safety, with the unnecessary time delays.

The Kansas City area has selected the former Richards-Gebaur Air Force Base as a demonstration site to construct a new rail/truck intermodal facility. They are working to obtain an ITPC designation of the facility under TEA-21 and have performed a study of this site. This ITPC will be a location where freight bound for export can be staged, mixed with other shipments, have tariffs paid in advance, and be electronically filed with all appropriate agencies in the U.S. and the receiving country. NATAP would also be implemented at this site.
In addition, the Oklahoma Continental Gateway Authority has formed a Trust and located a site with rail and I-35 access to develop an ITPC along the I-35 International Trade Corridor (ITC). The center will be located near Purcell, Oklahoma.

The Oklahoma Continental Gateway Authority plans to develop a raw land site into an Industrial Park, whose major attractions are easy access, cheap land, and utilities. Auto parts, construction equipment, split-truck cargoes, and food import and export are their current product focus.

Other significant lessons learned through the corridor coalition have included:

- The creation of a trade processing center, such as ITPC, would help in the compliance process, providing the means for various levels of government to monitor compliance with several different categories of regulations. It will also help minimize delays for freight companies, while simultaneously assuring the governmental bodies that the correct level of fees will be collected.
- Innovative thinking can help generate funding as in the case of NASCO’s lobbying effort to create the National Corridor Planning and Development program under the Transportation Equity Act of the 21st.

- NASCO also successfully lobbied to take the Highway Trust fund "off- budget" which resulted in increased transportation formula funding for NASCO's corridor states.
- Standardizing data also seems to help meet the needs of the trading partners.
- The Internet has been used successfully to transmit data, and the encryption employed in NATAP ensures that the data remains secure.

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Northwest Passage Transportation Pooled Fund Study

SUMMARY

The goals of this Transportation Pooled Funds study are to implement and evaluate integrated traveler information systems and coordinate maintenance operations across state borders. Using appropriate delivery systems, traveler information will be made available to internal staff and the traveling public via 511, dynamic message signs, and other systems. The long-term vision of the North/West Passage Corridor states is to influence ongoing standards development; operate database systems that can transmit and receive multiple data streams; and, utilize effective methods for sharing, coordinating, and integrating traveler information across state borders.

The North/West Passage Corridor includes I-94 and I-90 from Wisconsin to Washington. Traveler information will be made available to internal staff and the traveling public via 511, dynamic message signs and other systems.

The North/West Passage Corridor states have systems for collecting transportation data, processing and integrating the data, and delivering information to users. Currently this information is not easily shared across state borders. The goal of this study is to create and facilitate workable cross state information sharing for transportation agencies, commercial vehicle operators, and travelers.

The current Transportation Pooled Fund (TPF) study focuses on traveler information across state borders. The states of North Dakota, Wisconsin, Minnesota, Washington, Idaho, Wyoming, Montana, and South Dakota have been in contact since February 25, 2002 discussing the development of a coalition for the North/West Passage Corridor. North Dakota, Minnesota, and Wisconsin secured funding to initiate development of a North/West Passage TPF study.

The Minnesota Department of Transportation has taken the initial lead in the development of the coalition, and the study is currently being advanced by Minnesota, Wisconsin, and North Dakota. The states of Washington, Idaho, Wyoming, Montana, and South Dakota have continued to show an interest in the study.

A draft Organization Charter has been developed but has not yet been approved. A Steering Committee guides the North/West Passage TPF Study. The Steering Committee approved a Work Plan in December 2003 that identified nine (9) projects to pursue as Phase I. Committees were developed to initiate and complete the projects. The project teams started to meet in March 2004 and will meet on a regular basis to accomplish their project needs. A copy of the Work Plan is attached. Two proposed projects were postponed to be revisited in 12 months. The remaining Phase I projects include:

1. Integrate North Dakota, Wisconsin and Minnesota Reporting Systems
2. Deploy Limited CARS Study Application for Wisconsin
3. Develop Automated Road Condition Reporting System
   (project tabled and will be revisited in 12 months)
4. Provide Integrated Communications capabilities for North Dakota DMS
   (project tabled and will be revisited in 12 months)
5. Preliminary Design for DMS Deployment on I-94 Eastbound in North Dakota
6. Preliminary Design for DMS Deployment at the I-94 & I-90 Split at Tomah, Wisconsin
7. Develop a North/West Passage Program Web Site
8. Develop a Communication Plan for the De-icing System to be Installed on the I-94 Bridges at Red River
9. Develop a Lessons Learned Document Comparing Requirements for CARS Deployment in Wisconsin to Meridian's System Deployment in North Dakota

Phase I Projects are funded by contributions from:

Minnesota - $50,000 (SP&R Dollars)
North Dakota - $25,000 (SP&R Dollars)
Wisconsin - $25,000 (80/20 I-90/I-94 Earmark Dollars)

ORGANIZATIONAL BACKGROUND

Historical Perspectives

States are currently developing many of their ITS projects as stand alone or site specific systems. This program supports deployment of multi-state ITS projects along rural corridors.

Impetus for Formation of the MSTOP

The need for multi-state coordination of rural ITS projects, is to provide road users a more seamless road information system across state borders. Advance warnings of construction, maintenance, weather, security, or other special road conditions will let drivers make earlier safety decisions no matter which state they are headed to.

Geographic Areas Covered

North Dakota, Minnesota, and Wisconsin along the I-94 Corridor have secured funding to participate in the North/West Passage TPF Study. However, Washington, Idaho, Montana, Wyoming, and South Dakota have continued to express interest in the North/West Passage TPF Study along the I-90 and I-94 corridors.

Programmatic Areas Addressed

Implement and evaluate integrated traveler information systems (ATIS) and coordinate maintenance operations across state borders. Trucking is addressed through traveler information (CVO systems).

Organization Members and Structure

North/West Passage Transportation Pooled Fund Study includes Minnesota Department of Transportation, North Dakota Department of Transportation, and the Wisconsin Department of Transportation. Specific contacts with each of the member organizations include:

Mark Nelson	Phil DeCabooter	Ed Ryen
Minnesota DOT	Wisconsin DOT	North Dakota DOT
mark.nelson@dot.state.mn.us	phil.decabooter@dot.state.wi.us	eryen@state.nd.us

The responsibilities of each member of the pooled fund study are to:

- Share project, research, and funding ideas.
- Participate in meetings to assist in deployment of ITS technology along the I-94 corridor and the I-90 corridor if participation increases.

The Steering Committee approved a Work Plan in December 2003 that identified nine (9) projects to pursue as Phase I. Committees were developed to initiate and complete the projects. The project teams started to meet in March 2004 and will meet on a regular basis to accomplish their project needs. A copy of the Work Plan is attached. Two proposed projects were postponed to be revisited in 12 months. The remaining Phase I projects include:

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Financial Programs

Phase I Projects are funded by contributions:

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Wisconsin - $25,000 (80/20 I-90/I-94 Earmark Dollars)

The 7 projects identified in the North/West Passage TPF Study Work Plan. As additional states join, the Work Plan will be revised for Phase II projects.

STRATEGIC PLANS/DEPLOYMENT PLANS

No formal strategic or deployment plan exists beyond the current TPF Work Plan, but current strategies include:

- To gain interest of other states to join the North/West Passage.
- To complete projects identified as Phase I in order to create seamless traveler information across state borders.
- To fund Phase II projects with current member states along with other interested states.

CURRENT ACTIVITIES

As of March 2004, Project Work Team Kick-Off meetings are being held to begin work on accomplishing the identified 7 projects.

RECOMMENDATIONS

Mark Nelson of the Minnesota Department of Transportation, provided the following recommendations for national efforts to support the Northwest Passage Pooled Fund Study:

- Documentation of efforts needs to be made more readily available. The Study team has a plan to develop and maintain a project website but this has not been accomplished as of present. The website would help research efforts.
- The Study team has a plan to develop and maintain a project website but this has not been accomplished as of present. A Steering Committee was recently established and is to meet regularly. Posting the agendas, meeting minutes, and referenced information to the website would be helpful.
- Participation by other interested states in the pooled fund project would help expand the current and proposed efforts. The other states include Washington, South Dakota, Idaho, Montana, and Wyoming.

REFERENCES

http://www.pooledfund.org