

Midwest CVO Mainstreaming



Kansas

Missouri

Nebraska

South Dakota

Prepared for
Midwest Mainstreaming Consortium

Prepared by
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October 26, 1998

Midwest CVO Mainstreaming: Regional ITS/CVO Coordination Plan

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To access a downloadable version of this document, go to the Federal Highway Administration's ITS/CVO website located at <http://www.avalon-ais.com/itscvo/> or the Midwest Mainstreaming website at <http://www.ctre.iastate.edu/projects/attech/midwest/>.

TABLE OF CONTENTS

INTRODUCTION	1
ORIGINS OF THE ITS/CVO REGIONAL COORDINATION PLAN	3
CVISN	4
Mainstreaming	4
OVERVIEW OF THE PLANNING PROCESS	6
DESCRIPTION OF THE REGION	8
Economic and Organizational Characteristics	8
CVO Regulatory Responsibilities	11
States' Experience with ITS/CVO Applications	12
Midwest Electronic One-Stop Shopping: A Regional ITS/CVO Project	14 15
Issues and Opportunities	
STRATEGIC OVERVIEW	17
Mission Statement	17
Guiding Principles	17
Goals and Objectives	18
PROGRAM SUMMARY	20
FHWA's CVISN Deployment Strategy	20
Definiton of Level One Deployment	20
State Deployment Schedule and Incentive Funding	21
Regional Mainstreaming Plan	23
Multi-State Projects	25
Single-State Project Summary	26
APPENDICES	

The Midwestern states of Kansas, Nebraska, Missouri, and South Dakota are significant contributors to the United States agricultural economy. Together these states export commodities valued at \$259 billion annually, or almost 6 percent of commodities produced within the United States (1993 Commodity Flow Survey), while making up only 3.9 percent of the population. Because these Midwest states can also be characterized as rural, the motor carrier industry is of particular importance, providing an integral link between producers and their markets. Seventy-seven percent of all commodities originating in the region are transported by truck.

Throughout the region, state agencies responsible for the regulation of motor carriers strive to maintain the highest safety standards and to protect the citizenry's investment in transportation infrastructure. States must also strive to control the cost of regulation both for the motor carrier industry and for the taxpayer. Toward these ends, this regional Intelligent Transportation Systems/Commercial Vehicle Operations (ITS/CVO) coordination plan, along with the accompanying individual state ITS/CVO business plans, provide for the use of information and communication technology to improve the effectiveness and the efficiency of Commercial Vehicle Operations regulation.

The Federal Highway Administration's Office of Motor Carriers (FHWA OMC) has undertaken an ITS/CVO program to promote the deployment of ITS/CVO technology and to ensure that information can be shared electronically among states. At the center of the Federal Highway Administration (FHWA) ITS/CVO program is the Commercial Vehicle Information Systems and Networks (CVISN) initiative. CVISN provides a national architecture, a set of national standards, and a consistency assurance process to ensure compatibility. The Midwest Mainstreaming ITS/CVO Coordination Plan outlines the region's strategy for meeting the requirements set forth by the FHWA.

The plan was developed by the Midwest Commercial Vehicle Operations Mainstreaming (M-CVO-M) consortium. The consortium consists of state agency officials involved in the enforcement and/or regulation of commercial vehicle operations, Federal Highway Administration Office of Motor Carrier representatives, and motor carrier industry representatives from each of the member states.

To enable the implementation of interoperable, nationwide ITS/CVO services, the regional coordination plan

- Defines multi-state technical initiatives that will address issues common to two or more states
- Identifies areas where coordination is needed among individual state deployment activities, therefore creating opportunities for the states to share "lessons learned"

- Describes future activities of the regional forum and its regional champion
- Ensures coordination with other regions and the national ITS/CVO program

ORIGINS OF THE ITS/CVO REGIONAL COORDINATION PLAN

The FHWA defines Intelligent Transportation Systems (ITS) as systems which employ telecommunications, computer sensors and robotics, and electronic technologies to obtain and provide information about the performance of surface transportation facilities (highways, roads, transit, and rail), the demand for travel, vehicle to vehicle and vehicle to roadside communications, and, in some cases, weather and environmental conditions and impending crashes. These ITS applications combine the power of information with control technologies to better manage transportation. By improving the efficiency and safety of the nation's surface transportation system, ITS can significantly enhance the travel options and travel experiences of the American public.

The FHWA's ITS Program has seven major elements. The focus of this coordination plan is the ITS/CVO element. ITS/CVO includes ITS technologies which uniquely support Commercial Vehicle Operations (CVO). CVO is the movement of goods and passengers via commercial vehicles over the North American highway system and the activities necessary to regulate these activities.

The US Department of Transportation has developed a National Program Plan for ITS. The plan includes the following objectives for ITS/CVO:

- To improve highway safety
- To streamline credentials and tax administration
- To reduce congestion costs for motor carriers and
- To ensure regulatory compliance and equitable treatment

The ITS/CVO program is being organized to develop and deploy eight primary capabilities:

- Safety information
- Administrative processes
- Electronic screening
- International border clearance
- Automated inspection
- On-board safety
- Hazardous material incident response
- Fleet and freight administration

Clearly the economic well-being of the Midwest Mainstreaming region is dependent upon efficient movement of goods. The volume of commercial vehicle traffic has grown significantly in recent years and is projected to continue to grow at or above the current rate. In response to the growing demand placed on both state infrastructure and regulating offices, state agencies are actively pursuing cost effective applications of various ele-

ments of ITS/CVO technology. The regional coordination plan and state business plans reflect this pursuit.

CVISN

Commercial Vehicle Information Systems and Networks (CVISN) refers to those ITS information system elements that support commercial vehicle operations. CVISN includes information systems owned and operated by governments, carriers, and other private sector stakeholders. The CVISN Architecture will provide a technical infrastructure to link state and regional programs and information systems, including common standards for electronic communication among the participating agencies and carriers.

In addition to developing the technical infrastructure (system architecture and standards) the FHWA is promoting the deployment of the systems through the sponsorship of the CVISN pilot and prototype programs. Eight pilot and two prototype states have been selected to take part. The FHWA provides project funding, technical support and training to these 10 states. By starting with a small number of states, the FHWA seeks to both demonstrate the benefits of ITS/CVO applications and to gain insight into the issues that will continue to define ITS/CVO deployment.

One lesson learned in these early CVISN demonstration projects is that success is greatly dependent on interagency cooperation. Currently, motor carrier regulation and credentialing responsibilities are shared by several agencies within each of the Midwest Mainstreaming member states. The extent of the interagency cooperation varies from state to state. As the states and their agencies strive to meet their objectives, they will need to develop both greater interagency coordination within the states and regional coordination and cooperation in ITS/CVO activities and deployment

Mainstreaming

The FHWA has initiated the Mainstreaming program to support the formation of state ITS/CVO working groups, to facilitate strategic ITS/CVO planning at the state level, and to provide a forum for regional coordination of effort. Mainstreaming is defined as moving ITS/CVO from research, development, and testing to model deployment, then full deployment at the state and regional levels. Mainstreaming requires having the proper organizations involved, business plans developed, outreach/training, and financial commitments in place to deploy ITS/CVO core services, technologies, and information systems. Midwest Mainstreaming is one of five regional consortia participating in the program.

The Midwest Mainstreaming consortium is working with the motor carrier industry, the federal government, and academic partners to meet the requirements established by the FHWA.

OVERVIEW OF THE PLANNING PROCESS

The state business plans were developed by state ITS/CVO working groups. These working groups include representation from all state agencies involved in the regulation or enforcement of commercial vehicles, the FHWA, and the state motor carrier associations. Although each state approached business plan development somewhat differently, there were common themes. Each group began by developing a vision statement. Using the vision statement as a guide, functional area experts defined the obstacles within their area and proposed specific strategies for overcoming these obstacles. Projects were then defined and presented to the working groups for discussion and prioritization.

The working groups used two documents to guide the format of their business plans: the "ITS/CVO Business Plan Guidelines" developed by Cambridge Systematics under the direction of the FHWA OMC and the Missouri CVISN application (submitted to the FHWA in July 1996). The Center for Transportation Research and Education (CTRE) provided information regarding format and requirements and kept the working groups up to date with national ITS/CVO program developments.

A steering committee was formed to guide the development of the regional coordination plan. The information is drawn from state business plans, regional consortium quarterly meetings and directly from the steering committee. CTRE was responsible for editing each draft.

Representatives from each of the four member states and the FHWA make up the steering committee. Members include:

Kansas	Ken Gudenkauf, Department of Transportation
Missouri	Gary Steinmetz, Missouri State Patrol Jimmie Plumb, Department of Transportation
South Dakota	Dave Huft, Department of Transportation
Nebraska	Joe Botsford, Department of Motor Vehicles Capt. Steve Groshans, Nebraska State Patrol
FHWA	John Carkin, Region 7, OMC, State Programs Manager Alan Brown, Region 8, OMC, State Programs Manager

The steering committee has operated under the following timeline:

November 7, 1997	Steering committee members met to come to a consensus on the major points of the regional plan. For those items in which consensus was not possible, all options were presented in the first draft.
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| December 15, 1997 | The first draft was distributed to members of the steering committee for review and comment. |
| January 22, 1998 | A second draft was presented at the Midwest Mainstreaming quarterly meeting for review and comment. |
| May 1 , 1998 | CTRE incorporated the comments of the states into the third draft. |
| May 31, 1998 | The Midwest Mainstreaming Regional Coordination Plan was submitted to the FHWA for review. |

The Regional Coordination Plan will be updated annually. The consortium will use the Coordination Plan to document participation in ITS/CVO training and CVISN workshops and to update progress on individual plans. Revisions will be coordinated by the regional champion and the state working group leaders.

DESCRIPTION OF THE REGION

The agricultural economy of the Midwest has changed significantly in recent years. Prior to the 1980s, the economy of the Midwest consisted mostly of the production of raw agricultural products, with some processing. Raw products often made their way to processing facilities via rail. During the past two decades, the agricultural processing sector has been much more apt to locate facilities near the source of production. The primary mode of transportation, both to and from these facilities, is the truck. Both the production and processing ends of the agricultural economy have grown dependent on the motor carrier industry.

Recovery from the agricultural recession of the 1980s has not been even throughout the rural Midwest. With the emergence of the agricultural processing sector and the diversification of the rural economy overall, remoteness or distance from market has become more of a liability.¹ In comparing economic activity by county, the Federal Reserve Board of Kansas City found that rural counties in close proximity to trade centers or to the Interstate highway system have fared better than those that are not.

State policy makers must be aware that the success of the rural Midwest economy depends on its ability to overcome the liability of remoteness or to provide for efficient movement of goods from rural communities to trade centers. ITS/CVO technology is recognized as a cost effective method for improving efficiency.

Economic and Organizational Characteristics

The following summaries introduce the unique political, economical, and regulatory characteristics of the member states. For a more definitive description, please refer to the individual state ITS/CVO business plans. As referenced in the previous section, quantitative descriptions of the states' economies, road networks, and commodity flow patterns are included in the appendices in table format.

Kansas

From a political and organizational standpoint, Kansas seems a good candidate for ITS/CVO initiatives. The current governor comes from the motor carrier industry and actively promotes a more customer service oriented approach to state government. In addition, the state transportation engineer favors investing in technology for motor carrier safety instead of infrastructure for large enforcement facilities.

With several motor carriers currently using transponders for electronic toll payment on the Kansas Turnpike, the motor carrier industry has experienced the benefits of at least one ITS application. The working

group intends to explore the possibility of adding mainline weigh-in-motion and screening for traffic entering Kansas from Oklahoma, making use of existing transponders.

Kansas state agencies have begun the process of integrating CVO related databases. In 1994, Kansas completed the Motor Carrier Status Screen. This on-line real-time application links four separate databases to provide current status of a motor carrier. It provides International Registration Plan, International Fuel Tax Agreement, state tax, and authority status. The screen is available to all motor carrier inspection stations and all regulatory agencies.

Nebraska

The state has an economic base in agriculture and is a major participant in the trucking industry. Once Governor E. Benjamin Nelson established a Motor Carrier Advisory Board, industry and political support for change increased, resulting in a positive impact on ITS/CVO initiatives to improve service delivery. Nebraska has the nation's only one-house legislature, the Nebraska Unicameral. This type of legislative arrangement allows for faster passage of introduced legislation. The governor has line item veto authority on all legislation passed by the unicameral legislature.

Nebraska requires each motor carrier to register for several different credentials including registration, fuel tax, IRP, IFTA, and non-standard load permits. The ITS/CVO working group is working on a project that will link driver and vehicle data. The state agencies that have direct contact with carriers have benefited from a one-stop approach for payment of fees and issuance of operating permits. This transition also has helped to unite what was previously two separate data bases unable to communicate with one another. Currently the Motor Carrier division of the Department of Motor Vehicles is able to access both IFTA and IRP data thanks to the One-Stop shop pilot initiative. The Nebraska Department of Roads, the Nebraska State Patrol, and the Department of Motor Vehicles are working together on electronic clearance of vehicles and weigh-in-motion devices that will help carrier enforcement officials concentrate their efforts on vehicles with marginal or poor safety records.

Missouri

Prior to the Mainstreaming program, Missouri developed and now maintains a cohesive CVO working group of 10 individuals representing a variety of state agencies, the motor carrier industry and the FHWA. The Missouri Department of Transportation is the lead agency for coordinating ITS activities including ITS/CVO.

In 1993 the states of Missouri and Kansas participated in an ITS institutional issues study to determine what state barriers existed among Missouri state agencies and between Missouri and other states. This study looked at state and federal regulatory requirements and processes within each agency. From this review, Cambridge Systematics Inc. with WHM Transportation Engineering Inc., issued the "Kansas-Missouri ITS Institutional Issues Study" in December 1994. Missouri, unlike many other states, had very few institutional barriers. For enforcement purposes, regulatory agencies and the Missouri State Highway Patrol have shared data for many years. One area of regulation data not shared related to the oversize and overweight permits.

Missouri felt that an additional study was needed to determine a strategic direction for implementing electronic screening of commercial vehicles. The Center for Transportation Research and Education at Iowa State University was contracted to look at existing conditions, electronic screening architecture, and a comparison of alternatives for implementation and guidance for electronic screening implementation. This study considered commercial vehicles traveling on the Oklahoma and Kansas turnpikes because they often traveled in Missouri as well. This joint travel could possibly be an opportunity for Missouri to bundle electronic screening with electronic toll collection. Missouri was looking for a strategic direction that would minimize the financial investment and technical risk of implementing electronic screening.

In 1995 Missouri was invited to participate in an operational field test called the Midwest Electronic One-Stop Shop Program (MEOSS). This program would test the feasibility of electronic data transmission to states from the motor carrier's place of business for compliance with IFTA, IRP, the Single State Registration System (SSRS), and the oversize/overweight (OS/OW) permits. Software would be developed that would allow the state agencies and the motor carrier to electronically communicate with each other to request and receive motor carrier credentials.

During this time, members of each Missouri state agency involved in motor carrier regulation and enforcement and representatives from the motor carrier association and the regional FHWA were continually meeting and planning state CVO activities. It was decided to formalize this group into an ITS/CVO Standing Committee.

South Dakota

State agencies in South Dakota have significantly reduced staff in recent years, increasing workloads for existing staff. ITS/CVO projects have been introduced in states precisely because the technologies and services that are developed offer solutions to agencies that are trying to find ways to regulate the commercial vehicle industry and provide customer services at the same time that staffs are shrinking and budgets are not increasing.

South Dakota is a participant in number of ITS/CVO projects. These projects range from providing up-to-date weather information to all motorists via cellular phone, the Internet, and electronic mail, to exploring the feasibility of electronic credentialing for motor carriers.

The following table is a break down of CVO regulatory responsibilities by agency for the four states of the Midwest Mainstreaming Consortium:

Activity	Missouri	Kansas	Nebraska	South Dakota
Oversize/ Overweight Permits	DOT	DOT	Department of Roads	Highway Patrol with the DOT
Commercial Drivers' Licenses Issuance/ Administration	DOR (Driver Vehicle License Drivers' Bureau)	DOR	DMV	Dept. of Com- merce and Regulation
IFTA	DOR (HRC)	DOR	DMV	DOR
IRP	DOR (HRC)	DOR	DMV	DOR
Credentials Enforcement	Highway Patrol	Highway Patrol	CED	Highway Patrol
Safety Compliance Reviews	DECD-MCRS	C C	CED	FHWA/OMC
Hazardous Materials- Permitting	Not Required	Not Required	CED	Not Required
Hazardous Materials- Enforcement	Highway Patrol	Highway Patrol	State Patrol	Highway Patrol
Single State Registration CommissionSystem	DED	C C	DMV	Public Utilities
Size & Weight Inspections	Highway Patrol	Highway Patrol	CED	Highway Patrol
Safety Inspections	Highway Patrol	Highway Patrol	CED	Highway Patrol
Federal Motor Carrier Safety Regulations	Terminal- MCRS Roadside-MSHP	C C	CED	Highway Patrol
Toll Collections	Not Applicable	Turnpike Authority	Not Applicable	Not Applicable

CVO Regulatory Responsibilities

Key to abbreviations in the table:

DOT-Department of Transportation

DOR-Department of Revenue

DED-Department of Economic Development

DMV-Department of Motor Vehicles

CED-Community/
Economic
Development

HRC-Highway Reciprocity Commission

CC-Corporation Commission

IFTA-International Fuel Tax Agreement

IRP-International Registration Plan

MCRS-Motor Carrier and Railroad and Safety Division

MSHP-Missouri State Highway Patrol

States' Experience with ITS/CVO Applications

ITS/CVO applications are not new to the states of the Midwest Mainstreaming Consortium. Motor Carrier Enforcement agencies in each of the states have been utilizing national databases to track and document carrier safety records for years. Here is a list of applications being used by the states along with a brief description of each application.

Missouri

- SAFETYNET local area network
- Desktops link interstate weigh stations to SAFETYNET
- The portable units use ASPEN software and MCREGIS
- The Missouri State Patrol's laptop inspection computers are loaded with ISS

Kansas

- Motor Carrier Status Screen and a Motor Carrier Central Permit system
- The Kansas Statewide Telecommunications Roads Access (ASTRA)
- The laptop based ISS system is used by the highway patrol

Nebraska

- SAFETYNET system applied in a frame relay network
- ASPEN and ISS

South Dakota

- PRISM
- RWIS,
- SAFETYNET
- ASPEN

MCREGIS

(Motor Carrier Regulation Information System) This distributed database contains updated descriptions of federal regulations that pertain to the motor carrier industry.

PRISM

(Performance and Registration Information Systems Management) The PRISM program ties commercial vehicle registration privileges to the carrier's safety performance. Chronically unsafe carriers risk losing their registration privileges if they prove unable or unwilling to reach acceptable safety levels after a designated improvement period. The project is a cooperative effort involving the FHWA OMC and five pilot states: Iowa (lead state), Oregon, Colorado, Minnesota, and Indiana. South Dakota intends to join these five states.

RWIS

(Road Weather Information System) State transportation agencies from Iowa, Missouri, Illinois, and Wisconsin have formed FORETELL, a public-private partnership to integrate ITS with advanced weather systems to enhance highway maintenance management and traveler information. The FORETELL partnership submitted a proposal for the development and operational testing of a weather information system for surface transportation. In October 1997, the FORETELL proposal was selected to receive \$1.3 million in funding from the FHWA. The objective of this effort is to implement an integrated weather system that improves the scope of atmospheric and road surface condition information available to highway users.

SAFETYNET

This distributed system is used to manage safety data for both interstate and intrastate motor carriers. SAFETYNET allows federal and state offices to electronically exchange data with the Motor Carrier Management Information System (MCMIS) MCMIS is a central repository of comprehensive safety data on interstate motor carriers maintained by the FHWA's Office of Motor Carriers.

ASPEN

The Aspen roadside inspection system software enables inspectors to conduct, document and upload roadside commercial vehicle/driver inspections using laptop computers.

ISS

The Inspection Selection System was developed as part of the Aspen roadside inspection software system. It allows for the use of prior carrier safety data to guide the selection of vehicles and drivers for roadside inspections. The functions of ISS are being incorporated into the SAFER system.

SAFER

The Safety and Fitness Electronic Records system is a national database under development by the FHWA. SAFER will provide standardized carrier, vehicle, and driver datasets (snapshots and reports) containing limited safety and credentials information to authorized users. SAFER is an on-line system that will be available to users over a nationwide data network, and will return an interstate carrier, vehicle, and/or driver snapshot to the requester within a few seconds. The design goal for a query response for a single record is 10 seconds or less 90 percent of the time; not accounting for dial-up time.

**Midwest Electronic
One-Stop Shopping:
A Regional ITS/CVO
Project**

The primary purpose for the SAFER/CVIEW (Commercial Vehicle Information Exchange Window) snapshots is to support automated screening of vehicles at commercial vehicle check stations at mainline speed. In one operating scenario, as a vehicle approaches the check station, identification numbers for the carrier, vehicle, and driver would be read from the truck's transponder. Based on a preset identification number, the information from the SAFER snapshots would be accessed and a decision made as to whether or not the vehicle is to be pulled into the static scale. A signal would then be sent to the transponder informing the driver whether to pull into or bypass the weigh station. The snapshots also provide cross reference information useful to inspection and enforcement personnel once a vehicle has been brought in for inspection.

The Midwest Electronic One-Stop Shopping (MEOSS) program is the only one of three FHWA-funded operational tests of electronic credentialing that covers all four major credential areas required for commercial vehicle operation in the United States. The four credential areas include:

- Fuel tax credentials and permits through IFTA
- Registration credentials and permits through IRP
- Operating authority/proof of insurance through SSRS
- OS/OW credentials and permits issued by each individual state

The two main objectives of the MEOSS project were to

- 1) Design and test a simple, easily deployable, low cost, and upwardly compatible one-stop electronic system for the purchase of motor carrier credentials that will make it possible for a motor carrier to apply for and receive all the necessary credentials or permits electronically from either the base state or the necessary individual states, and
- 2) Evaluate the improvements in both state and motor carrier productivity offered by streamlining the process for motor carriers to purchase credentials by utilizing a simple, easily deployable, low cost, and upwardly compatible one-state electronic system.

The states participating in the MEOSS program will continue to benefit from the increased testing and standardization made possible through sharing development with CVISN, just as CVISN pilot states will benefit from the large test coverage and inclusion of electronic one-stop shopping for oversize and overweight permitting by the Midwest project. All parties will benefit from the resulting increased standardization of ITS/CVO protocols.

The following is a summary of those issues and opportunities that were identified in both the state business planning process and at the Midwest Mainstreaming consortium meetings. Issues and opportunities are divided into those germane to the regulation of commercial vehicle operations and those germane to the anticipated ITS/CVO deployment.

Commercial Vehicle Regulatory Issues and Opportunities

Issue

The overriding objective of state motor carrier enforcement activities is to provide the highest degree of highway safety for both motor carriers and the traveling public.

Opportunity

ITS/CVO applications such as electronic screening and incorporation of the SAFER database in the inspection process allow for more targeted and thus cost effective enforcement.

Issue

State transportation agencies are responsible for the preservation of highway infrastructure.

Opportunities

Automated oversize/overweight permitting will simplify the process of compliance for motor carriers and enhance the states' ability to track oversize/overweight operations. Electronic screening applications allow weight enforcement officers to check a significantly greater percentage of commercial vehicles for compliance.

Anticipated ITS/CVO Deployment Issues and Opportunities

Issue

The motor carrier industry is an integral part of the regional economy. Many trucking firms are dependent on very small profit margins and can ill afford to absorb additional costs without realizing equal or greater additional benefits. To gain the support of the motor carrier industry, tangible benefits must be demonstrated.

Opportunities

State agencies in the region have developed a strong working relationship with the motor carrier industry. Through the mainstreaming initiative, the motor carrier industry representatives are given a real opportunity to

participate in both the state and regional planning process. Some key motor carriers have expressed support for the concept of electronic data interchange (EDI) as a way to reduce paperwork. Technical advancements support efficiency enhancements. As members of the business community, the motor carrier industry recognizes the potential long term value of ITS/CVO applications.

Issue

There is currently no secured source of federal funding. It is difficult to develop state plans without a greater degree of certainty.

Opportunity

The member states, through their involvement in the Mainstreaming program and planned involvement in the CVISN workshop program, will be in position to take advantage of future federal funding opportunities if and when they come available.

Issue

Generally, the larger carriers are better situated to take advantage of ITS/CVO applications. State regulatory strategies should not give one segment of the industry competitive advantage over another.

Opportunity

Development of an outreach strategy is part of the business planning process. Through outreach, the ITS/CVO working groups can educate smaller motor carriers and incorporate their concerns into the planning process.

The Midwest ITS/CVO Mainstreaming consortium supports the mission, guiding principles, and goals and objectives of the Federal Highway Administration's ITS/CVO program. The Midwest Mainstreaming Consortium and each of the member states have developed similar statements that both support the intent of the FHWA and reflect the unique philosophy and approach of the consortium members.

To achieve safe and efficient movement of commercial vehicles through the use of cost-effective methods and technologies to streamline state regulatory, enforcement, and motor carrier practices while increasing levels of safety and productivity for both carriers and state agencies.

CVISN Guiding Principles

- A balanced approach involving ITS/CVO technology as well as institutional changes will be used to achieve measurable improvements in efficiency and effectiveness for carriers, drivers, governments, and other CVO stakeholders. Specific technology and process choices will be largely market driven.
- The CVISN architecture will enable electronic information exchange among authorized stakeholders via open standards.
- The architecture deployment will evolve incrementally, starting with legacy systems where practical and proceeding in manageable steps with heavy end-user involvement.
- Safety assurance activities will focus resources on high risks and be structured so as to reduce the compliance costs of low-risk carriers and drivers.
- Information technology will support improved practices and procedures to enhance CVO credential and tax administration efficiency for carriers and government.
- Roadside operations will focus on eliminating unsafe and illegal operations by carriers, drivers, and vehicles without undue hindrance to productivity and efficiency of safe and legal carriers and drivers.

Midwest Mainstreaming Guiding Principles

- When possible the member states will realize efficiencies of scale by working together. This effort may include coordinating weigh station and inspection activities, group purchase of ITS/CVO equipment, and/or multi-state deployment initiatives.
- The member states agree, in principal, to electronically exchange enforcement data in support of electronic screening, out of service verification, and other enforcement activities.

STRATEGIC OVERVIEW

Mission Statement

Guiding Principles

Goals and Objectives

- The member states will carefully consider the economic impact of all proposed ITS/CVO projects on both the motor carrier industry and state government.
- The Midwest ITS/CVO Mainstreaming consortium will continue to serve as a regional forum for the discussion and coordination of both state and multi-state ITS/CVO initiatives.
- The member states will strive to provide the same capabilities and level of service for interstate and intrastate carriers.
- The member states will strive to address the needs of both large and small carriers.

The FHWA's ITS/CVO program is an integral part of the National ITS strategy. ITS/CVO initiatives such as Mainstreaming can be understood as tasks carried out in support of the overall ITS program goals.

ITS National Program Goals

- Improve safety
- Increase efficiency
- Reduce energy and environmental impact
- Enhance productivity
- Enhance mobility
- Create a United States ITS industry

The Midwest ITS/CVO Mainstreaming consortium strives to optimize resources, utilize the new technology available, and better serve all the stakeholder groups in line with the national ITS/CVO and CVISN programs. The following goals and supporting objectives have been drawn from the ITS/CVO business plans of member states and created by the regional coordination plan steering committee. These goals and objectives were reviewed and endorsed by the consortium as a whole.

Member State ITS/CVO Program Goals and Objectives

- To improve highway safety by focusing enforcement resources on high-risk carriers, drivers, and vehicles
 - Insure compliance of size and weight requirements
 - Improve deskmade and roadside access to safety information
 - Improve safety inspection and review processes
 - Enhance ability to monitor the enroute safety status of the vehicle and driver

- To streamline CVO tax and regulatory functions
 - Enable electronic credentialing and tax filing
 - Enhance interagency and interstate data and funds exchange
 - Provide credentials information to authorized officials electronically
- To reduce congestion costs for motor carriers
- To ensure regulatory compliance and equitable treatment
- To improve customer service
 - Provide for electronic credentialing
 - Provide for electronic funds transfer
- Interoperability/compatibility of transponders
 - Compatible with other regions
 - Compatible with the national architecture

Midwest ITS/CVO Regional Mainstreaming Goals and Objectives

- To approach marketing to regional carriers on a regional basis
 - Provide seamless electronic credentialing to motor carriers on a regional basis
 - Assess and document benefits to carriers on a regional level
 - Focus marketing on regional initiatives that benefit regional carriers (electronic screening initiative)
- To use the Midwest ITS/CVO Mainstreaming consortium as an ongoing forum for the sharing of ITS/CVO ideas and experiences among states
 - Coordinate recruitment of additional states on a regional level
 - Develop a schedule for additional regional meetings beyond the formal Mainstreaming program
- To leverage ITS/CVO investments through shared resources or reciprocal access to data at the regional level
- To coordinate efforts with other Mainstreaming regions and the national ITS/CVO program on a regional level

PROGRAM SUMMARY

The ITS/CVO program has developed an architecture, is completing the definition of supporting standards, has prototyped critical system elements, and is conducting a model deployment program in 10 states. The next step is deployment to all interested states.

FHWA's CVISN Deployment Strategy

The FHWA has adopted a number of guidelines to be followed in implementing the ITS/CVISN deployment strategy. Relevant guidelines include:

- An anticipated \$25 million (25 percent of the ITS total) per year Deployment Incentive Funding would all go to states for ITS/CVISN and International Border Clearance Deployment Projects.
- Entire projects should be funded up-front so they can complete CVISN Level One deployment even if out-year ITS funding is not available.
- Funds should be obligated up-front, but disbursed incrementally in order to reward high achievers based on measured progress.
- The base level of funding to each state would be the same. An initial estimate of \$6–10 million (\$3–4 million federal, \$3–7 million state) per state to fund a three year deployment project will be used. The total cost may vary on a per state basis, depending on the size of the state, the scope of its CVO program, existing systems capabilities, use of off-the-shelf software, and other factors.

Definition of Level One Deployment

“CVISN Level One” capability refers to the following specific items:

- An organizational framework for cooperative system development has been established among state agencies and motor carriers.
- A state CVISN system design has been established that conforms to the CVISN Architecture and can evolve to include new technology and capabilities.
- Elements of three capability areas have been implemented using applicable architectural guidelines, operational concepts, and standards.

Safety Information Exchange

- ASPEN (or equivalent) at all major inspection sites
- Connection to SAFER
- CVIEW (or equivalent) for snapshot exchange within state and to other states

Credentials Administration

- End to End processing (i.e., carrier application, state application processing, payment, credentials, credential issuance) of at least IRP and IFTA credentials; ready to extend to other credentials (inter-state, titling, OS/OW, carrier registration)
- Connection to IRP and IFTA Clearinghouses
- At least 10 percent of the transaction volume handled electronically; ready to bring on more carriers as carriers sign up; ready to extend to branch offices where applicable

Electronic Screening

- Electronic screening implemented at a minimum of one fixed or mobile inspection site
- Ready to replicate at other sites

States will be able to deploy CVISN Level One using a process proven in early model deployments. Management and technical documentation will be available to serve as guides. Several information systems will be available from various vendors which may (with some modifications) meet the requirements of other states.

States which have completed at least two training courses will be eligible for a \$100,000 grant to proceed through a series of CVISN workshops. Each workshop in the series produces a draft product. These include a state top-level design, a state CVISN Project Plan, a state detailed Work Plan, and detailed designs. After completing the workshops, the participating states will have a CVISN Project Plan that can be submitted to the FHWA as a proposal for a CVISN Deployment Incentive grant. FHWA will fund selected proposals based on a predefined selection criterion and available funding.

Model Deployment states are on schedule to finish CVISN Level One deployment by the end of calendar year 1999. Successive groups of 4–7 states will be funded each year starting in FY2000 to begin their deployment programs. Funding is provided over three years to provide \$100,000 grant to any interested state to go through the CVISN workshop process and develop a proposal for a CVISN deployment project. An allocation of \$1.5 million per year for two years has been reserved to support deployment of several core infrastructure systems, including the IRP and IFTA Clearinghouses.

State Deployment Schedule and Incentive Funding

The bulk of the funding, \$97 million, over the six-year period goes to supporting deployment projects in up to 32 additional states.

The FHWA will use an open Request for Application (RFA), proposal evaluation, and award process to make ITS/CVO Deployment Incentive Grants to states. Any state that completes the CVISN Workshops can use this process to submit its CVISN project plan to the FHWA as a proposal for matching funds. Funding will be awarded based on a scoring algorithm that is a weighted checklist of criteria. It is anticipated that four to six states will be funded (at a 50 percent matching level) up to \$3–4 million federal (matching \$3–4 million state) per deployment state. States can resubmit each year.

The deployment strategy includes several elements aimed at increasing the likelihood that states will be in conformance. Training builds the professional capacity of the people involved to implement systems that conform to the CVISN Architecture.

The FHWA ITS/CVO course list is as follows:

Introduction to ITS/CVO	June 1998
ITS/CVO Technical Project Management for Nontechnical Managers	July 1998
Understanding ITS/CVO Technology Applications	November 1998

In addition to the FHWA training, the Center for Transportation Research and Education will develop and facilitate a series of seminars that will provide information on areas of interest or perceived need among the regional consortium participants. Using the Model System Architecture Diagram (included in Appendix 4a–c) as a guide, participants will prioritize their training needs. Seminars will be held in conjunction with quarterly meetings to minimize costs and inconvenience.

A CVISN Operational and Architectural Compatibility Handbook (COACH) is being prepared to provide a comprehensive set of checklists which can be used to evaluate whether plans, processes, and systems are in conformance. Plans describing the systems to be developed are written in sufficient technical detail to use the COACH to determine whether the plans will conform with the CVISN Architecture. Incremental builds of operational systems are submitted to conformance tests to determine if developed systems meet the minimum criteria to conform with the CVISN Architecture.

In addition, the FHWA published “Interim Guidance on Conformity with National ITS Architecture and Standards” in October 1998 (included

as Appendix 7). The objective of the document is to foster integration, encourage the incorporation of ITS into current transportation planning processes, and to focus on near-term ITS projects with the greatest potential for affecting regional integration. It is expected that a final policy will be developed through formal rulemaking.

Progress to Date

The Midwest Mainstreaming Consortium came into being in March 1997. For the first year, the immediate objectives of the consortium were

- To form cohesive interagency working groups within each state. A high level of participation in Midwest Mainstreaming quarterly meetings and prompt completion of state business plans are proof that these state working groups are functioning well.
- To develop state ITS/CVO business plans and a regional coordination plan. All four state working groups have completed their State ITS/CVO Business Plans and have submitted their plans to the FHWA.
- To familiarize the working groups with the issues and technologies that shape CVISN and ITS/CVO. The Midwest Mainstreaming quarterly meetings have been well attended. A variety of topics have been covered. CTRE, the regional champion, introduced ITS/CVO technologies and their potential applications for states. The second quarterly meeting included a progress report and demonstration of the SAFER system presented by Paul North, the SAFER project manager. The consortium members were also given a chance to tour the FHWA's Technology Truck.

Planned Activities for Midwest Mainstreaming Regional ITS/CVO Forum and Champion

The role of the champion is to coordinate Commercial Vehicle Information Systems and Networks (CVISN) and other ITS/CVO activities for the region. Through continued facilitation of quarterly meetings, the Regional champion will provide an ongoing forum for sharing ITS/CVO information among consortium members.

The Midwest Mainstreaming consortium will meet on a quarterly basis for the remainder of 1998. Beyond 1998, the frequency of meetings will be determined by consortium members. Frequency will depend on both the level of ITS/CVO activity within the region and perceived need for formal coordination. Ideally, the working groups will be gathering for participation at CVISN project planning workshops. The path to CVISN deployment is included as Appendix 5.

Regional coordination

Members of the Mainstreaming consortium will meet regularly after the completion of the state and regional coordination plans. Both the regional coordination plan and the individual state business plans will continue to be updated, amended, and expanded as ITS/CVO planning and implementation evolves.

Training

CTRE staff will conduct a series of ITS/CVO training sessions for consortium members. The training program has been developed by the Federal Highway Administration's Office of Motor Carriers. Training is scheduled to begin in June 1998.

With the reorganization of the Federal Highway Administration and the imminent closure of the FHWA Region Seven Office in Kansas City, the Midwest Mainstreaming consortium will become even more of a focal point for ITS/CVO activities. Division FHWA OMC staff have been very involved in the development of state business. The consortium will encourage their continued involvement through participation in the regional forums and the ITS/CVO training program.

Marketing

Marketing is woven into several of the Consortium's activities. The Midwest Mainstreaming website, which is maintained by the regional champion, provides information on ITS/CVO and the mainstreaming program. Through the website, individuals can learn about the FHWA's ITS/CVO program, read the state business plans, and check the status of the ITS/CVO projects within the region.

The executive summary of this Regional Coordination Plan is intended to be an introduction to both ITS/CVO and the plans of the Midwest Mainstreaming consortium. Consortium members will redistribute the document to decision makers within their organizations.

Finally the target audience of the first training courses, "Introduction to ITS/CVO" includes motor carrier industry representatives, legislative staff, budget and programming office staff, and information system staff as well as state agency staff directly involved in enforcement. This introductory course provides an excellent opportunity to get more people involved in the ITS/CVO mainstreaming program.

National coordination

As the regional champion, CTRE will facilitate the participation of Midwest Mainstreaming states in both the CVISN workshops and CVISN Conformance Assurance Process. CTRE will track deployment and document it in the Regional Coordination Plan.

Although participation, time lines and funding will be determined by each state individually, the Midwest Mainstreaming consortium members have agreed in principal to coordinate their efforts on the following initiatives.

Electronic Screening

Interoperability Agreement

At the Midwest Mainstreaming quarterly meeting held January 24, 1998, consortium members chose to endorse AASHTO's Policy Resolution PR 14-97 "Commercial Vehicle Electronic Screening Interoperability" (included as Appendix 1).

Electronic Screening Product and Service Review

Over the summer of 1998, representatives from Help Incorporated, Lockheed Martin, Transcore, International Road Dynamics, and Advantage CVO accepted invitations to present information on electronic screening business models and, for Transcore and International Road Dynamics, to describe their products and services. Through these presentations, the Midwest Mainstreaming Consortium develop a better understanding of current offerings and opportunities.

Regional Screening Program

Kansas, Nebraska, and Missouri, the Turnpike Authorities of Kansas and Oklahoma, representatives of the motor carrier associations in each state, and the Owner Operator Independent Drivers Association are in the process of creating a Memorandum of Understanding. The objective of the memorandum is to build upon the current and significant populations of transponder equipped vehicles in the region in the development of an electronic screening program.

Safety Assurance

Remote Enforcement Systems

State business plans suggest that these rural states are interested in enhancing remote enforcement capabilities. An upcoming regional meeting will be dedicated to exploring system design options and reviewing products currently on the market.

Credentials

Credentialing Website Development

All member states have expressed an interest in electronic credentialing. The consortium will explore the feasibility of developing a regional website as one medium for interacting with the motor carrier industry. Electronic Credentialing software and website development services will

Single-State Project Summary

be discussed at the quarterly meeting to be held August 13, 1998. Further action items will be developed at this time.

Automated Routing Systems

All states are interested in developing or purchasing automated routing systems to complement their overdimensional permitting processes. The states will explore the feasibility of developing a regional routing system.

Each state ITS/CVO working group defined the scope of a proposed ITS/CVO project differently. As a result, a project for one state would clearly fit in the category of task for another.

Model architectures have been completed for Kansas, Missouri, and Nebraska and are included in Appendix 4(a-c). These architectures illustrate both the components of proposed ITS/CVO systems and the relationships and modes of connection between the components.

Kansas

Safety Assurance

Improving the CVSA reporting process for MCSAP inspectors Provide equipment at MCI stations to allow for faster upload of CVSA inspections. This equipment will benefit both the inspector and MCI station personnel by providing access to CDLIS for driver license checks.

Remote weight/video monitoring systems Through the use of fixed weigh-in-motion scales, video monitoring and a paging system, a truck that trips the thresholds will be captured via the video monitor and a page will be sent to the nearest enforcement location for follow-up.

Specially equipped inspection sites Inspection sites will include paved pull-off areas, high speed weigh-in-motion, video monitoring, and cellular connectivity. These sites will be stand alone facilities located in remote areas of the state.

Annual program of compliance reviews Perform compliance reviews on all carriers which have received a written complaint. If the violations are serious enough in nature, proceed with a show-cause hearing and appropriate penalties, such as a fine and/or suspension of authority. If the violations are not serious, the violator shall be given a written cease-and-desist warning.

On all new Kansas-based intrastate common and contract motor carriers applying for operating authority, perform a compliance review and provide information about safety compliance.

Continue to perform compliance reviews on private motor carriers and interstate exempt motor carriers on a random basis, and issue show-cause orders to cease-and-desist when necessary.

Credential Administration

Join IRP Clearinghouse Programming is completed and implementation is under way. Joining the IRP Clearinghouse will provide groundwork to join the IFTA Clearinghouse in the future.

Electronic renewal/supplement processing As a follow up to the Midwest One-Stop Shop project, agencies will define requirements and develop software to allow for electronic renewal.

Electronic Heavy Vehicle Use Tax (HVUT) reporting IRP inc. is piloting a project that will allow states to provide electronic files to the Internal Revenue Service for verification of HVUT. Kansas looks forward to participating.

Streamline property tax and insurance verification This process improvement for credential renewal will benefit motor carriers and the taxpayer. It will allow for easier access to verify payments of property tax. Also, insurance verification process improvements for carriers that are not part of SSRS are being explored.

Document scanning Providing scanned images of documents that are currently available only in paper format will allow more areas direct access. Auditors and registration sections reside in different physical locations. Also, space limitations dictate that only current files are kept on the premises. Older files are placed in storage and have to be retrieved if needed. Providing online access to imaged files will improve record access for both sections.

"Apportioned" tags for trailers This administrative change will improve customer service by allowing carriers to register both trailers and power units in the same location and with the same registration time period. (Began November 1, 1997)

Provide optional mileage reporting for IRP registrations This project will redefine the methods and processes of mileage reporting, tie-ins with IFTA mileage reports, and expanding the renewal processing time.

Implement permanent trailer plate This proposal is being studied by industry and agency groups. Timeline and details have not been completed.

Register owner/operators This proposal is being studied by industry and agency groups. Timelines and details have not been completed.

Electronic Screening

Motor carrier inspection stations Evaluate and implement Automated Vehicle Clearance for the South Haven Station. South Haven will be used as the model project. If implementation is successful, Olathe, Kanorado, Wabaunsee, and Belleville locations will be evaluated and suitable electronic clearance technology will be installed.

Carrier Operations

Road and Weather Information Systems Kansas, along with the states of Colorado, Nebraska, Wyoming, and Utah, has developed a Road Weather Information Systems proposal. The consortium of states proposes to design, develop, operate, and evaluate an integrated system that meets highway operators' and users' needs for clear and accurate weather and road information, particularly in rural areas. Current road conditions would be available to motor carriers via kiosks at truck plazas and rest areas.

Outreach/Education Projects

Internet access Include the Traveling through Kansas booklet on the Internet, and provide links to a number of information sites.

FHWA technology truck The FHWA technology truck was displayed at the Kansas capitol grounds for April 7, 8, and 9, 1998. Tours were made available for legislators and other interested citizens.

Coordinate efforts between agencies Keeping motor carrier needs as a priority will be the focus of this effort. This project group will coordinate reengineering efforts between state agencies and the motor carriers. This effort includes sharing information at Kansas Motor Carrier Association conventions and area meetings.

Nebraska

Electronic Screening

Research equipment and technology Research the equipment and technology needed to accomplish electronic screening.

Work with weigh-in-motion (WIM) vendors to incorporate AVI technology By working with vendors, Nebraska personnel would be able to determine if existing computer systems could accommodate the planned electronic screening system.

Implement CVO electronic screening for mainline and ramp operations

Establish a plan and secure funding sources to deploy WIM and electronic screening at all volume fixed scale facilities and other key locations for use by portable units.

Safety Assurance

Connect to the State of Nebraska Frame Relay Wide Area Network for state-wide data exchange Connect all CVO agencies within the state through the Nebraska Frame Relay Wide Area Network (WAN) to facilitate data exchange.

Establish a database for intrastate carriers Create a database for Nebraska intrastate carriers to include the history of inspections, accidents, and citations for each individual carrier.

Establish selection system for intrastate carriers in need of a safety compliance audit Develop a system similar to that developed by the FHWA OMC. The system will identify intrastate motor carriers that have high Safety Compliance Enforcement (SCE) scores.

Establish software to track Intrastate USDOT Numbers Develop a system which will identify and track intrastate motor carriers by assigning each individual motor carrier a unique number.

Use developed software for intrastate compliance review Use software that recognizes, compiles, and interjects regulations into the formulas system, similar to the FHWA OMC.

Conduct complete intrastate compliance reviews Use developed systems, data, software, and programs to conduct complete in-depth intrastate compliance reviews.

Credentials Administration

Redefine duties and procedures in IRP Office Redefine employees' duties and procedures to optimize staff productivity. The introduction of the AS/400 Based IRP will potentially allow for more efficient work flow.

Develop and implement electronic data interchange within the IRP process Develop the capability to electronically send and receive registration applications for motor carriers, transfer registration invoices within Nebraska state agencies, and verify registration credentials.

Define software needs for connection to statewide systems Define the software and/or computer programming needed to connect new systems with the state's existing systems.

Participate in IRP workshop Continue to participate in and travel to IRP workshops to ensure compliance with the base state agreement.

Enhance the AS/400 motor carrier one-stop system Make changes based on evaluation of success and failures after major processing milestones, i.e. IRP renewal and IFTA quarterlies.

Organize a “staggered registration” task force The objective of staggered registration is to alleviate backlogs in the renewal process. The task force will be comprised of representatives from the Nebraska State Patrol, the Nebraska Department of Motor Vehicles, Central Data Processing (CDP), Nebraska Department of Roads, and the motor carrier industry.

Process the quarterly IFTA returns and distribute the funds As part of the final development of the Nebraska IFTA software application, the system will be brought up to production environment, problems will be identified, and changes made as needed.

Participate in IFTA workshops Continue to participate in IFTA workshops to ensure compliance with the base state agreement.

Develop and implement electronic data interchange (EDI) methods for IFTA functions Develop the capability to electronically send and receive registration applications for motor carriers, and to receive, process, send, and transfer fuel tax credential data and verify fuel tax credentials.

Develop and implement EDI methods for financial responsibility information and registration Receive and collect interstate registration and financial responsibility information from motor carriers and their insurance companies electronically.

Establish communication networks to receive and transmit financial responsibility and registration data The objective is to link federal and state databases and to provide easy access to enforcement and regulatory agencies.

Automate the Overdimension permitting process Use state of the art communication and information technology to enhance the overdimension permitting process.

Develop an automated routing system Reduce the amount of manual processing currently needed to provide overdimension permit applicants with approved routes.

Pursue opportunities for participation in multi-state permit programs

Establish communication networks to transmit permit status to Nebraska State Patrol Provide current permit status to weight enforcement officers.

Missouri

Electronic Screening

Implement mainline screening at a fixed weigh station on Interstate 44 Install radio frequency (RF) readers at a SHRP site near a fixed weigh station located on an eastbound lane on Interstate 44 in Newton County near

Joplin, Missouri. The roadside readers will be connected to a local area network (LAN) located at the fixed weigh station. Current data on IRP, IFTA, SSRS, Financial Responsibility, OS/OW permit status, Missouri Special Fuel User Tax, accident history, and safety ratings will be used to determine compliance for pre-clearance. The AVI system will be capable of reading all transponders presently being used in the ITS/CVO arena.

Implement mainline screening at a fixed weigh station on Interstate 70 Fixed weigh stations located on the eastbound and westbound sides of Interstate 70 in St. Charles County, near Foristell, will be upgraded with transponder readers and mainline weigh-in-motion scales. The roadside reader will be connected to a LAN server located at the fixed weigh station.

Construct new weigh stations on Interstate 70 The eastbound and westbound weigh stations on Interstate 70 in Lafayette County west of Odessa will be replaced by new facilities east of Odessa. Mainline screening, ramp WIM scale and sorter, lane control signals, and inspection buildings will be constructed. The weigh station will be similar to the new weigh station at Foristell, Missouri.

Implement mainline screening at two fixed weigh stations Fixed weigh stations located on the northbound and southbound lanes of Interstate 29 in Atchison County, near Watson, Missouri and in the northbound and southbound lanes of Interstate 35 in Harrison County, near Eagleville, Missouri, will be updated with AVI systems and mainline WIM scales.

Upgrade seven weigh stations Seven weigh stations will be retrofitted to include mainline screening, ramp weigh-in-motion scales and sorters, lane control signals, scale buildings, and paved parking areas.

Credential Administration

Participation in a multi-state permit program The Missouri Department of Transportation joined the Southeast Association of State Highway and Transportation Officials (SASHTO) multi-state permit program in September 1997. Missouri committed to participate contingent on the program being included in its revised administrative rules. Participation includes the issuance of multi-state permits by the latter part of calendar year 1998.

Safety Assurance

Wireless mobile enforcement data systems and computer aided dispatch systems The mobile enforcement data systems will allow the commercial vehicle enforcement's mobile units the capability to generate electronic driver/vehicle examination reports, uniform complaint summons, accident reports, warnings, and officer daily reports. All can be downloaded to the Missouri State Highway Patrol mainframe computer and uploaded to

SAFETYNET. A computer aided dispatch system will be used to both dispatch enforcement personnel to an incident and automatically alert enforcement teams located in the vicinity of the weigh station when a commercial vehicle fails to pull into a weigh station when directed to do so by transponder.

South Dakota

Carrier Operations

Proactive information dissemination Weather, road conditions, and construction information are currently disseminated to motor carriers and other motorists by several media. This information helps carriers operate safely and efficiently. Delivery of educational information regarding CVO agency resources, regulatory procedures, and compliance is planned. Carriers that were interviewed in the business planning process indicated that information like this would increase their ability to comply with regulations. In addition, customer services will be enhanced.

Information helpline Provide motor carriers with a single point of contact in state government for answering questions regarding CVO regulations.

Credentials Administration

CVO database architecture A plan for linking the CVO databases will be developed in this project. The actual linking of databases will occur incrementally as other ITS/CVO projects are implemented and new systems are installed. Linked databases will result in more efficient and cost-effective administrative processes as agencies share information with one another and motor carriers are not required to provide the same information to multiple agencies. Currently, most of the CVO agencies cannot share information with one another, and agencies often collect the same data from motor carriers. The agency representatives who were interviewed in the business planning process expressed strongly their desire to receive and share data.

Automated routing and permitting Implement an automated routing and permitting system for oversize and overweight vehicles. Automated routing and permitting will improve the routing of OS/OW vehicles resulting in safer operations, and it will improve the management of permit operations resulting in greater agency productivity. It will also enable optional electronic permit applications by motor carriers that will reduce the time needed to apply for permits and enable them to receive permits at convenient locations. Permitting is currently a manual process. Permit information is recorded by hand, and permit guidelines, highway information, and complex manual procedures are used to verify routes. Routing errors sometimes occur. Staff time required for this process is considerable. The cost/benefit analysis performed for the South Dakota

Department of Transportation in 1997 calculated a benefit to cost ratio of 1.58, indicating that an automated routing and permitting system will save the state a considerable amount of money each year, approximately \$111,000. Because the system will also provide carriers greater flexibility in applying for and receiving permits, resulting in time savings, it is likely to provide a similarly positive benefit/cost ratio to carriers.

Implement electronic one-stop shop South Dakota will be searching for alternative software, or designing a system that would be simple for the state and industry to use. In addition to implementing one-stop shop for interstate operations, MCRS will implement electronic renewal of credentials and electronic filing of proof of insurance for intrastate operations.

Two-dimensional bar coding Use two-dimensional bar codes to provide quick retrieval of vehicle, carrier, and driver information. Selected information will be translated into a two-dimensional bar code format and printed on a credential or driver's license.

Safety Assurance

Roadside data transfer Use cellular modems to enable timely roadside data transfer. Cellular modems have the potential to provide fast and reliable data exchange between the roadside and deskside resulting in improved enforcement of regulations. Cellular modems will be deployed with laptop computers equipped with electronic data entry capability. Electronic data entry and cellular transmission will replace the current paper-based reporting process and speed up the process of uploading safety information to the SAFETYNET thereby providing more timely data for use by the Highway Patrol, enforcement agencies in other states, and the FHWA.

Linking registration to safety performance Unsafe motor carriers will be identified and entered into safety improvement programs resulting in improved motor carrier operations and generally improved highway safety. Developing an information system and a process of sanctions or limitations on operations will help ensure that a carrier is operating safely. This project is also known as PRISM.

Electronic Screening

Automated Vehicle Identification AVI technology will determine the state of registration and plate number for commercial vehicles passing through a weigh station. It will enable focused enforcement on high-risk carriers resulting in improved highway safety. AVI is an essential part of linking registration to safety performance.

Safety data access Roadside enforcement personnel will use laptop computers to access motor carrier safety and driver's license data. An improved

method is needed for officers to quickly and reliably access information in order to target inspections on carriers with unknown or poor safety records.

Electronic credentialing Motor carriers will apply for, pay for, and receive credentials electronically from their office or other locations or through third-party service providers. This has the potential of reducing the costs of doing business for both the agencies and carriers.

Weigh-in-motion Commercial vehicles will be weighed automatically on the approach ramp to a port of entry, and, at the discretion of facility personnel may be allowed to bypass the static weighing process, thereby reducing delays for compliant vehicles. Currently, all vehicles must be weighed on the static scale at a facility.