North Dakota Highway Patrol North Dakota Department of Transportation Federal Motor Carrier Safety Administration



North Dakota ITS/CVO Business Plan

Intelligent Transportation Systems Commercial Vehicle Operations

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EXECUTIVE SUMMARY

This document presents the findings from the business planning process undertaken to guide the deployment of Intelligent Transportation Systems in Commercial Vehicle Operations (ITS/CVO) in North Dakota. The two main purposes of this plan were to identify current CVO issues and to develop a framework for taking advantage of opportunities in ITS/CVO to address priority CVO issues in North Dakota. The plan lays out a strategic direction for deploying ITS/CVO that emphasizes the needs of North Dakota, builds on the strengths of existing partnerships among public and private stakeholders in the state, achieves consistency with the National ITS/CVO program, considers coordination with neighboring states and provinces, and takes advantage of potential funding opportunities.

The North Dakota ITS/CVO Business Plan was developed under the auspices of the North Dakota Department of Transportation (NDDOT) and the North Dakota Highway Patrol (NDHP). The Federal Motor Carrier Safety Administration (FMCSA) provided support and oversight for the plan development in conjunction with federal requirements and coordination with the national ITS/CVO program. A steering committee of public agency and private industry stakeholders assisted in the collection of data for the plan development, guided the identification of priorities for the state CVO program, formulated the strategic vision for ITS/CVO in North Dakota, and identified ITS/CVO projects to be included in the plan.

North Dakota has a long record of safe commercial vehicle operations and an administrative environment that values cooperation and coordination among state agencies and the motor carrier industry. North Dakota motor carriers are quick to point out that this open environment is built on a common goal–continue to emphasize safety and improve all aspects of commercial vehicle operations. It is clear that both of the two main agencies, the NDDOT and NDHP, have strong partnerships with the trucking industry.

There are several agencies that deal with commercial vehicle operations (CVO) in North Dakota. They include:

- 1. The Motor Carrier Section within the Motor Vehicle Division, which is part of the NDDOT, oversees most of the administrative functions related to motor carriers registration and credentials, including International Registration Plan (IRP), International Fuel Tax Agreement (IFTA), and Single State Registration System (SSRS).
- 2. The North Dakota Highway Patrol (NDHP) is the lead Motor Carrier Safety Assistance Program agency and handles roadside weight and safety enforcement.
- 3. The Federal Motor Carrier Safety Administration (FMCSA) Division office provides oversight and support for the program, and conducts compliance (terminal) reviews.

Administrative Functions and Credentials

Most of the administrative functions are conducted in one location at the NDDOT main office (except for oversize and overweight permits which are handled by the NDHP nearby). Although staff resources are very limited, registration functions are processed in a timely manner, except during the annual renewal periods when there are some delays. However, motor carriers can avoid these delays if they take advantage of sending in their renewal applications early.

The current state registration system is limited. It was developed based on a mainframe computer system and lacks the flexibility needed in addressing today's requirements. The system's main shortcoming is the inability to coordinate data entry and shared databases for reducing paperwork and expediting information access and sharing. The current system is being replaced by a new server-based Vehicle Registration and Titling System (VRTS). The current software used for the IRP and IFTA systems must be redesigned in order to interface with the new VRTS properly. In this process, both IRP and IFTA systems will be redesigned so that they are also compatible with planned ITS/CVO activities and national ITS architecture and standards. Funding for developing this interface is being requested from the North Dakota Legislature.

Enforcement

The NDHP conducts roadside safety inspections and checks Commercial Motor Vehicle weights at fixed sites and other locations. The NDHP has been very progressive in taking advantage of advanced technologies and computer systems to improve the efficiency and effectiveness of its enforcement program. All fixed-site safety and weight enforcement locations are equipped with desktop computers and various software such as ASPEN, Inspection Selection System (ISS), and other programs.

The NDHP is aware of development and opportunities in ITS/CVO and periodically examines how to take advantage of these opportunities to fit North Dakota's needs. There is also an increased emphasis on international trade as cross-border commercial motor vehicle traffic has seen a significant increase over the past few years.

Motor Carrier Industry

North Dakota motor carriers continue to enjoy significant growth as the level and geographical reach of their operations expand. They also face tremendous challenges due to market dynamics that require improved efficiency and heightened customer service requirements. Although they are generally satisfied with the current administrative and enforcement environment in the state, they identified areas for potential improvement, such as uniformity with other states, ability to take advantage of electronic transactions for registration and fee payments, and getting accurate information to the smaller carriers. The largest motor carriers based in North Dakota operate all over the United States and Canada. A number of carriers currently participate in electronic clearance in other states.

Strategic CVO Vision

The NDDOT's mission is to *provide a surface transportation system to safely move people and commerce*. It is clear that safety is the first priority. Although current CVO administrative and enforcement functions are satisfactory, there are some areas that need improvement and could greatly benefit from ITS. These areas mainly pertain to administrative process and program management. It should be recognized that, given the relatively few problems in current CVO and given the limited funding sources available for the state, this plan presents a staged and realistic approach to ITS/CVO deployment. Some of the goals and objectives identified under this strategy include

- 1. Improve CMV safety
 - a. Take advantage of new systems to improve enforcement and focus resources on vehicles and locations with higher risks
 - b. Develop systems and processes that will provide timely access to data to better allocate program resources to critical problem areas
- 2. Improve administrative process
 - a. Update existing systems to allow compatibility with ITS/CVO
 - b. Maintain and improve customer service given reduced staffing levels and increased activity
- 3. Support and participate in regional and international activities affecting motor carrier operations (such as IRP/IFTA clearing houses, CVIEW, CVISN, PRISM, and trade corridors) as funds and priorities allow

The following projects were selected to address North Dakota's CVO goals and ITS/CVO strategies:

- 1. Web-based Automated Routing and Permitting System to improve the overall effective management of the permit operations allowing online permitting which will reduce costs to both the state and motor carriers, and increase efficiency.
- 2. Electronic screening of commercial motor vehicles at fixed weight and safety enforcement locations.
- Create interagency database to share information among agencies and to be used in developing North Dakota's Commercial Vehicle Information Exchange Window (CVIEW).
- 4. Develop a Mobile Commercial Motor Vehicle Weight and Safety Enforcement System through a coordinated effort between NDDOT and NDHP to focus on CMV enforcement on bypass routes, locations which experience significant increases in truck traffic, and high-risk locations.

- 5. Redesign existing IRP and IFTA Systems from existing mainframe systems in order to create an interface with the new state Registration and Titling System and to become compatible with IRP and IFTA Clearing Houses.
- 6. Evaluate and develop an Electronic Credentials and Tax Filing System to enable motor carriers, truck licensing companies and motor vehicle branch offices to take advantage of EDI and/or web-based systems efficiencies.

In addition to the above ITS/CVO projects, two more projects were identified since they would have an impact on CVO. They are:

- 7. En-route Traveler Information: provide road and weather information to motorists via cellular phone access (#SAFE) through a partnership among NDDOT, SDDOT, FHWA, UND-RWIC, and cellular phone companies.
- 8. Road Condition and Construction Status information system for travelers, including CVO. Provide information using land-line telephone, web pages, and/or kiosks at selected rest areas across the state.

The NDDOT is also developing a statewide ITS Plan for identifying applicable ITS services and guiding their deployment across North Dakota. The two plans will be closely coordinated, especially in areas related to traveler information services. Additionally, several metropolitan planning organizations (MPOs) within the state are undertaking ITS planning and deployment efforts. It is important that the North Dakota ITS/CVO Business Plan coordinate with metropolitan ITS plans which will potentially produce traffic management and traveler information systems that would affect CVO.

1.0. Introduction

The development of North Dakota's ITS/CVO Business Plan was aimed at creating a framework for guiding ITS/CVO deployment to improve commercial vehicle safety and administrative process. The plan was developed in partnership among NDDOT, NDHP, and FMCSA Division by the Upper Great Plains Transportation Institute at North Dakota State University. The development of the plan was guided by a steering committee representing public and private stakeholders in North Dakota.

The main principle that guided the development of this plan is that North Dakota CVO does not have any immediate serious problem areas that need to be addressed in the short term, however, there are opportunities to improve on current processes and take advantage of new technologies. It is further realized that certain areas in North Dakota would be affected by development in trade corridors and will experience an increase in commercial vehicle traffic. These corridors, as well as the state's economic development efforts, will benefit by embracing innovative technological systems that would facilitate the movement of freight.

The approach to deploying ITS/CVO will, therefore, focus on improvements that yield the greatest benefit to the state, as guided by this plan, and have realistic funding requirements. Further, North Dakota will keep abreast of ITS/CVO activities in neighboring states, in the region, and across the nation; and will take advantage of potential opportunities.

2.0. Overview of the Business Planning Process

The North Dakota ITS/CVO Business Plan was developed in partnership among stakeholders. The NDDOT and the NDHP initiated the plan development and provided support throughout the process. The following list describes the main tasks involved in developing the plan:

1. Select consultant

The first step in the process was to select the project consultant and to prepare the contract agreement with the Upper Great Plains Transportation Institute. The agreement outlined the role of the consultant and identified a possible time frame for its completion.

2. Establish steering committee

A series of preliminary meetings among the consultant, the NDDOT, and the NDHP identified potential membership for the plan steering committee. The membership of the committee included, in addition to NDDOT and NDHP, representatives from the FMCSA Division, NDDOT Motor Vehicle Division, ND Motor Carrier Association, and North Dakota motor carriers.

3. <u>Review federal requirements and completed ITS/CVO Business Plans</u> The consultant working with the NDDOT and NDHP summarized the federal requirements for developing a state ITS/CVO Business Plan. Further, completed ITS/CVO Business Plans from neighboring states (South Dakota, Montana, Wyoming, and Idaho) were reviewed. The review identified common elements in the approach to developing the plan, potential CVO issues considered, and types of projects selected.

4. Collect input from stakeholders

The initial point of collecting data was through the information provided by the NDDOT and the NDHP in the Request For Proposals. The steering committee was then convened to discuss the plan development, provide information about ITS/CVO activities, and collect data/information from stakeholders. A strategic vision for North Dakota's ITS/CVO Business Plan was also discussed. After the first steering committee meeting, interviews were set up with key stakeholders to obtain more information about issues and opportunities.

- <u>Document current CVO environment (Identify issues and opportunities)</u> A description of current CVO processes was developed, reflective of information collected from stakeholders. In addition, issues that could be addressed by the ITS/CVO plan and could benefit from deployment of ITS/CVO were identified. The main issues identified included 1) improve the current administrative process, 2) improve safety data access and data sharing, and 3) take advantage of opportunities through cooperation with neighboring states and provinces, such as International Trade Corridors.
- <u>Develop project listings, time frame, and funding options</u> Projects and activities from ITS/CVO services are identified by the stakeholders to address priority issues and needed improvements to the current CVO environment. Further, stakeholders identified their roles in planning for implementing these activities.

7. Document the plan

Prepare a report to document the findings from the business planning effort. Distribute it to all stakeholders, relevant decision makers, and other interested parties. The report will also be made available on the Internet on both the NDDOT and the NDHP web sites.

3.0. Description of the State

This section describes the characteristics and issues relating to commercial vehicle operations in North Dakota. It summarizes agencies, processes, and systems affecting motor carrier operations in the state. This section also outlines issues and challenges that can take advantage of ITS/CVO.

North Dakota has more miles of road per capita than any other state in the nation, approximately 166 miles of road for every 1,000 people. Therefore, it has a very large road network with a small population base (tax revenue) to support it.

The economy of the state largely relies on agriculture and agricultural processing. Naturally, trucking is a vital service for supporting North Dakota's economy. The extensive road network also serves bridge traffic from several states. In addition, North Dakota has several border crossings with two Canadian provinces, Saskatchewan and Manitoba.

3.1. Current State CVO Program

Currently, there are two agencies that interact with motor carriers and CMV drivers: the North Dakota Department of Transportation (NDDOT) and the North Dakota Highway Patrol (NDHP). The NDHP maintains fixed weigh stations which are used for checking size, weight, and credentials; and for roadside safety enforcement. The NDDOT, through its Motor Vehicle Division and Drivers License and Traffic Safety Division, is responsible for registration and licensing of CMV and CMV drivers through several programs that will be discussed in detail in the following sections.

The NDDOT has the sole responsibility for all commercial vehicle registration and CMV driver's licensing. The NDDOT works closely with the NDHP, other state agencies, and motor carrier industry groups to address issues related to facilitating the registration process, improving highway safety, and protecting the state's infrastructure from damage caused by illegal truck weights. The NDHP has authority for the enforcement of the Federal Motor Carrier Safety Regulations and the Hazardous Materials Regulations, and also conducts compliance reviews.

NDDOT--Drivers License and Traffic Safety Division

This division has two main sections: Driver's License and Traffic Safety. The Drivers License section handles the issuance and renewals of operators' licenses (including CDL). The Traffic Safety section maintains the Motor Vehicle Crash Report (MVCR) database. Traffic Safety is also responsible for developing and implementing North Dakota's Highway Safety Plan (HSP). In the Year 2000 HSP, Traffic Records were identified as an annual program to be addressed by the plan. The necessary information for effective traffic safety decisions must be based on accurate and complete traffic records. The objective of this activity is to enhance and develop an accurate traffic records system for the state and to provide MVCR training for law enforcement officers. The MVCR system is currently being revised and upgraded to accommodate new technologies and electronic transfer of data from all levels of law enforcement.

NDDOT Information Technology Division

The NDDOT has an Information Technology Division (ITD) which is responsible for various computing, communications, and media functions within the department. The NDDOT ITD has several sections that carry out these functions. Some of the most pertinent sections include:

- 1. Multimedia section which also handles the NDDOT web development
- 2. Information Records Management section which also includes planning for electronic document management
- 3. Information Technology Training section that handles all technology training for the NDDOT, including hardware, software, and other new technologies
- 4. Telecommunication section that not only handles mobile radio operations/telephone systems, but also other electronic technology services, including Road Weather Information Stations (RWIS), Weigh-In-Motion (WIM), and Automatic Traffic Recorders (ATRs)
- 5. Network Administration which supervises and supports the LAN/WAN. It also provides personal computer and client server support including specifications and purchasing
- 6. Information Systems Services section that coordinates all the application development and maintenance support for all NDDOT software programs

Every business function within the NDDOT is coordinated through the NDDOT ITD one way or another. All new business and information application development is either done in house by the NDDOT ITD, coordinated with state Information Technology Department, or with outside vendors. As a result, the NDDOT ITD handles all information technology project management for the department's business applications. This also includes determining the specifications of networking, telecommunications, software, and hardware needs. Once these system applications are developed, the NDDOT ITD handles the maintenance of those systems, including the network, software, and hardware. The NDDOT ITD also handles all the information technology research and planning for the department's business functions on a biennial basis. More importantly, the NDDOT ITD also has responsibility for budgeting all information technology systems for the department. The NDDOT ITD develops an Information Technology Plan and an Information Technology Budget which are both sent to the North Dakota State Legislature.

Since the NDDOT ITD plays a major role in coordinating all technology needs for the department, that role will certainly include ITS/CVO. It will have a critical role in carrying out and coordinating the deployment of ITS/CVO regardless of whether the resources are used from within or are out-sourced. The Division will also play a major role in developing the system architecture in accordance with the National ITS Architecture and Standards.

NDDOT--Motor Vehicle Division

The Motor Vehicle section of the NDDOT handles all vehicle registration in the state. The Motor Carrier section within the Motor Vehicle Division is in charge of all interstate motor carrier and commercial vehicle registration, including the International Registration Plan (IRP), International Fuel Tax Agreement (IFTA), and the Single State Registration System (SSRS) programs. Most of the administrative functions are conducted at the main office in Bismarck–which is located in close proximity to the NDHP where oversize/overweight and single trip permits are issued. Practically, the operations function as a one-stop shop. New and renewal carrier registrations must be filed and processed at the main office. However, branch offices throughout the state can process supplemental applications.

Motor carriers that operate a for-hire commercial motor vehicle in North Dakota and haul non-exempt loads are required to obtain an operating authority and a Single State Registration. Currently, there are about 20,422 trucks (with Gross Vehicle Weight exceeding 12,000 lbs) registered in North Dakota. In addition, there are close to 38,690 farm trucks. North Dakota does not require special permits for hauling hazardous material. (Federal regulations for hazardous material apply.) However, carriers hauling hazardous waste must obtain approval from the North Dakota Department of Health.

International Registration Plan

IRP is an agreement allowing carriers to pay vehicle registration fees only to their base jurisdiction which handles the distribution of fees to other jurisdictions in the agreement as necessary. IRP does not attempt to determine what each jurisdiction's fees shall be, but does allow carriers to write only one check to pay for a vehicle's registration in several jurisdictions. The IRP prorates a jurisdiction's registration fee based on the percentage of a total of the vehicle's miles that are traveled in that jurisdiction.

The IRP allocates fees based on the amount of miles traveled in each jurisdiction as percentage of total miles. For example, if a carrier drives 10 percent of its miles in a jurisdiction, then he/she pays 10 percent of that jurisdiction's vehicle registration fee. A formula is used to find Jurisdictional Percentage of registration fees as follows:

Jurisdictional Percentage = miles traveled in jurisdiction/total miles traveled

The Jurisdictional Percentage is then multiplied times that jurisdiction's vehicle age and weight fee chart to estimate its prorated registration fees. This calculation is applied for each registered vehicle and each IRP jurisdiction, and summed to determine the total fee owed by that carrier.

The initial IRP registration and future renewals must be filed at the Motor Vehicle Division main office in Bismarck. Changes such as additions, deletions, adding jurisdictions, and weight increases may be issued from branch offices in Fargo, Grand Forks, Minot, Dickinson, and Williston. Forms for commercial motor vehicle registration are available on the Motor Vehicle Division web page in electronic format for downloading. Electronic filing is currently not available. This is an area that represents an ITS/CVO opportunity to allow electronic filing, as will be discussed in this plan.

The Motor Vehicle Division processed 8,812 prorated trucks and 5,350 prorated trailer registration applications during 1999. The division strives to provide a high level of service by processing registration requests in a timely fashion. However, the end of each of the four quarterly renewal periods usually experiences a high level of activity due to carriers making renewal requests at the last possible time. The division is trying to work with carriers to avoid this rush and mails out renewal notices two months before they are due. Carriers are encouraged to file their applications a month in advance so that they can be guaranteed to have their credentials before the start of their new registration period.

The International Registration Plan mandates much of the information requested on the application form, such as the company name, address, phone number, and information about the vehicle that is being registered. Carriers must also identify the IRP jurisdictions in which they will be traveling. New carriers (or first-time IRP registrants) based in North Dakota are asked to estimate the number of miles that will be traveled in each IRP jurisdiction. Established carriers use the previous year's mileage history in different jurisdictions to estimate registration fees for the current year. Carriers must also show proof of payment of the Federal Heavy Vehicle Use Tax. The required registration fees must be paid at the time of application. Once the registration is approved, carriers are issued a cab card, license plate, and decal for each prorated tractor and/or trailer. These registration items must be placed on or in each unit at all times. Prorate registrations expire quarterly. Renewal notices are sent out two months prior to expiration. The estimated miles for renewals are taken from previous year's actual mileage history in each IRP jurisdiction. In case a new IRP jurisdiction is requested by the carrier at renewal time, the carrier must estimate the mileage to be traveled in the new jurisdiction or use the default mileage from Motor Vehicle Division charts. The new jurisdiction's estimated mileage is included in the total mileage calculations (to make up 100%). However, if a carrier estimates mileage in a jurisdiction for consecutive registration periods, these fees are assessed on top of the total (i.e., will exceed 100%). The reason for this is to protect revenues for jurisdictions where travel actually occurs.

Upon payment of appropriate fees, credentials are issued to the carriers who should properly place them in the appropriate trailer or tractor units. If a vehicle is sold or destroyed during the registration period, North Dakota will allow a credit to be used in a future addition to the carrier's fleet. Some jurisdictions also allow credit to be used on the next addition.

International Fuel Tax Agreement

The underlying concept that makes fuel taxes for interstate vehicles cumbersome is that the carrier should have to pay taxes on the fuel consumed in the jurisdiction, not on the amount of fuel purchased in that jurisdiction. This is an equitable idea given that, since different jurisdictions charge different tax rates, motor carriers could simply purchase fuel in low-tax jurisdictions and avoid paying higher fuel tax rates. However, this places a burden on motor carriers in two areas: 1) determining the amount of fuel consumed in each jurisdiction and 2) paying the appropriate fuel taxes to each jurisdiction.

The International Fuel Tax Agreement (IFTA) was developed to help ease the burden of paying appropriate jurisdictional fuel taxes. Some of the technologies that are part of ITS/CVO may be able to help carriers with keeping records to determine the miles they travel in each jurisdiction and, therefore, the amount of fuel consumed. Additionally, ITS/CVO technologies may help with automated fund transfers.

Carriers in North Dakota apply for a fuel license in Bismarck at the Department of Transportation's Motor Vehicle Department. If they are an established carrier with an application on file, additional decals can be obtained at branch offices in Fargo, Grand Forks, Minot, Dickinson, and Williston.

Carriers are asked to fill out a one-page application form that asks for company name, address, contact person, phone number, Federal ID number, IFTA account number, IRP Account Number, and number of vehicles needing decals. The application also has check boxes for carriers to indicate IFTA jurisdictions where the carrier will be operating. A question also is asked regarding the types of fuel used and where bulk

storage is maintained, if applicable. Many of the items on the application are specified by the IFTA agreement and are the same in all IFTA jurisdictions, but individual jurisdictions do have the authority to add questions that they feel are necessary.

New applications (first time) must be made at the North Dakota Department of Transportation's Motor Vehicle Department in Bismarck. The application must be filled out and accompanied by payment in the form of cash, a money order, or a check. The staff subjectively determines if a background check is needed. They also try to educate the new motor carriers on related regulations and requirements.

After receiving the application and fees, the DOT issues the company one fuel license. A copy of this license must be carried in each of the company's trucks. The company is responsible for making and distributing these copies. Not only is a copy of the company's fuel license required to be in each truck, there must also be decals affixed to its exterior. These credentials may be issued on the spot if everything is in order.

Under the IFTA agreement, the base jurisdiction collects all fees and issues a license and decals that are recognized in all IFTA jurisdictions. The decals are similar in appearance for all jurisdictions with the exception of a background silhouette of the state where the decal was issued. This allows enforcement officials to 1) easily distinguish an IFTA decal and 2) if necessary, identify the issuing jurisdiction to verify information.

In North Dakota, there are several fees that apply. The first time a carrier applies for a fuel license there is a \$25 fee. For vehicle additions during the year, the supplemental IFTA license fee is \$3. At renewal time, the license fee is \$5. North Dakota also charges \$1 for each set of two decals.

Taxes are filed quarterly. The fees due are based on the total fleet miles in each IFTA jurisdiction, the fuel purchased in each IFTA jurisdiction, and an estimate of the fuel consumed in each jurisdiction (based on an average miles per gallon estimate for the entire fleet). If payment is due, a check, money order, or cash must accompany the return. If a substantial credit exists (more than \$20) the jurisdiction will issue a check before the next filing period. Small amounts may be held and applied to future taxes.

Fuel licenses must be renewed by January 1. All carriers renew during the same time of the year, November and December. This puts quite a burden on both the carriers and the state to meet this deadline. While officially IFTA allows motor carriers a 30-day grace period to get the decals on the trucks, many commercial vehicle drivers complain that troopers are out checking and fining on January 1.

A carrier may be given permission to file taxes annually if approval is granted by all affected jurisdictions. This status is reviewed annually, and the taxes are paid at the end of the year.

Some of the forms required by IFTA are available on the Motor Vehicle's web page (http://www.state.nd.us/dot/formsmv.html). Motor carriers can download or print these forms, and fill them out for submitting. However, electronic filing and payments are not available. This is an ITS/CVO opportunity that will be potentially accomplished once the IFTA system in North Dakota is rewritten.

NDDOT--Operation and Maintenance

The NDDOT has, with the University of North Dakota in Grand Forks, developed the *Advanced Transportation Weather Information System* which provides road and weather information to travelers. The system currently uses weather data collected from 14 Road Weather Information System (RWIS) sites across the state to develop forecasts and road condition reports. That information is combined with reports from maintenance crews and snow/ice control operations and provided to the traveling public through telephone hotlines, the Internet, and a toll-free cellular telephone number that can be accessed enroute (#SAFE). The NDDOT is evaluating plans to provide this information through other methods, such as variable message signs, highway advisory radio, and information kiosks at key locations across the state. The department also maintains maps of road construction and maintenance information, and seasonal weight limits imposed on certain roadways in the state. That information is available on the Internet as well.

North Dakota's Information Technology Department

The ND ITD does not have a direct role in motor carrier functions, however, it was designated with the responsibility of supporting information technology needs and functions for all government agencies in North Dakota. In that role, the ND ITD maintains and supports computer systems, including hardware and software, Internet development, and other functions. Since the ND ITD deals with numerous agencies, it faces a high demand for services while operating with limited resources. As a result, there is sometimes a backlog of needs that may not be met in a timely basis. There is also the issue of lack of familiarity with ITS/CVO systems, including CVISN technical and architecture requirements.

North Dakota Highway Patrol

The primary function of the NDHP is to enforce the provisions of the laws of the state of North Dakota relating to the use of public highways and the operation of motor vehicles. The NDHP is the lead agency for the Motor Carrier Safety Assistance Program and has the charge of developing and carrying out an annual state Commercial Vehicle Safety Plan (CVSP). The NDHP has strong partnerships with the NDDOT, the FMCSA, and the motor carrier industry in the state. The headquarters of the North Dakota Highway Patrol (NDHP) are located on the capitol grounds in Bismarck (within a close proximity to the NDDOT offices).

The NDHP's Motor Carrier Division is responsible for all roadside enforcement activities in North Dakota, which includes, operating weigh stations, conducting safety inspections, and performing other traffic enforcement. This section is also responsible for issuing all oversize/overweight permits in the state. The section also provides several training and outreach programs to motor carriers, CMV drivers, and the driving public.

Roadside Enforcement

Most CMV enforcement activities of the NDHP are mainly conducted from 8 staffed, fixed weigh-inspection stations and 20 motor carrier troopers. The number of fixedsite facilities has been reduced from 13 weigh stations in 1996 to the current number of 8 stations. The reduction came as a result of NDHP and NDDOT efforts to eliminate unnecessary sites. Sites that were either not needed due to changes in heavy truck traffic patterns or as a result of coordination with other states were eliminated. For instance, the NDHP screens west-bound traffic on Interstate Highway I-94 while Minnesota screens east-bound traffic at its border facility. There are similar arrangements with the Canadian province of Manitoba.

The NDHP is working with the NDDOT to expand its ability to conduct roadside mobile enforcement beyond the fixed facilities. The two agencies developed a plan that takes advantage of programmed road construction and maintenance work to build turnouts (inspection areas) by widening a section of the road for NDHP use. This plan is in its first year but will continue into the 2001 and 2002 construction program.

Safety Information Exchange

The NDHP maintains an inspection database in accordance with CVISN requirements. Field data which are mainly entered in to the ASPEN program are collected and uploaded to SAFETYNET. However, exchanging safety data for intrastate carriers is not available, nor is real-time access to carrier safety performance data. The NDHP has plans to enable electronic safety data exchange within the next two years.

The NDDOT has a single weigh-in-motion (WIM) site which is located on I-94. This site is mainly used for estimating average daily traffic volumes to be used for planning and design. The site was initially equipped with communications capabilities in order to allow remote access to real-time data (speed and weights). However, the fixed site inspection facility downstream from the WIM is now closed.

Oversize/Overweight Permits

To protect North Dakota's highway system from excessive damage and to promote safety on the highway system, legal vehicle size and weight limits have been imposed on the system. If these limits cannot be met by a load, there are provisions to allow loads that exceed legal size and weight limits to travel the highways after obtaining the proper permits and paying the applicable fees.

The permit allows a load and/or vehicle to exceed legal limits for a single trip movement. The load and/or vehicle must be non-divisible, which means it cannot be readily or reasonably dismantled, and reduced to a minimum practical size and weight (a house for example). If the load is capable of being divided, it must be divided to fit within the legal size and weight limitations.

An oversize/overweight permit contains vehicle information (year/make/license number/unit or serial number), the axle configuration and tire sizes of the truck-tractor semitrailer combination, load description, overall dimensions of the load, axle weights, gross vehicle weight, route of travel, and dates of travel. The permit also stipulates applicable safety requirements and travel restrictions. The permit is valid for a single trip movement. Oversize/overweight permits must be in possession prior to movement. Receipt issued oversize/overweight permits can be obtained from the NDHP Permit section located in Bismarck, from any one of the eight weigh/inspection stations, and from a NDHP trooper. Permits can be faxed out to any location from the Permit section or weigh-inspection station.

Motor carriers can also obtain self-issued single trip permits and identification supplements for routine oversize/overweight load movements. The identification supplement describes the power unit and stipulates the maximum size and weight limitations for load movements. A self-issued trip permit is completed for each load movement. The identification supplements and the self-issued single trip permits are purchased by motor carriers in advance. Self-issued permits expedite the process for motor carriers in obtaining necessary permits for routine oversize/overweight load movements. Self-issued permits account for approximately 80 percent of the permits issued in North Dakota. Loads of excessive size and/or weight are processed by special permit application. The load movements are subject to analysis by NDDOT engineers.

In North Dakota, the fee depends upon the load, the type of vehicle, and the highway and miles traveled. Fees can be paid with cash, check, money order, or credit card. These fees are not applicable to publicly owned vehicles. Commercial carriers doing charity hauling are also exempt from these fees. Oversize/overweight permits are administratively different than the IFTA or IRP processes. In North Dakota, they are administered by the Highway Patrol, not the Department of Transportation. The permits are issued to control and regulate the movement of oversize/overweight loads on the North Dakota highway system. More importantly, they are issued to ensure and promote safety.

Federal Motor Carrier Safety Administration (FMCSA)

The FMCSA administers a number of safety, funding, technical assistance, and education-related programs. The FMCSA also conducts safety compliance reviews on carriers selected according to a prioritization system which focuses on carriers' safety histories and known carrier problems. The FMCSA also requires trucking companies to establish drug and alcohol programs.

The FMCSA reviews and approves the state CVSP. The FMCSA also funds and supports the state CVO program, including ITS/CVO and CVISN efforts and provides technical expertise through training programs, technical documents, and other sources.

3.2. Economic and Political Characteristics

North Dakota can be characterized by a vast land-locked area, a low population density, an economy which is largely based on agriculture and agricultural processing, and a vast road system. North Dakota has more miles of road per capita than any other state in the nation, approximately 166 miles of road for every 1,000 people. Therefore, it has a very large road network with a small population base (tax revenue) to support it. In North Dakota there are more vehicles registered than there are residents of the state.

The economy of the state largely relies on agriculture and agricultural processing. Naturally, trucking is a vital service for supporting North Dakota's economy. The extensive road network also serves bridge traffic from several states. In addition, North Dakota has several border crossing with two Canadian provinces, Saskatchewan and Manitoba.

In recent years, there has been a significant increase in agricultural processing activities which require truck shipments of farm commodities. Major processing plants can result in several hundred truck shipments per day. There has also been an increase in light manufacturing activities which, too, rely heavily on truck transportation.

During the same period, commercial vehicle traffic to and from Canada across North Dakota roads has increased significantly (Table 1). Much of the increased activity has taken place on state roads which may not be designed to withstand the additional heavy truck traffic. In addition to increased infrastructure damage as a result of additional weights, there are several safety concerns among the driving public, the NDHP, and even some state legislators. That,

in turn, results in pressure for more enforcement activities. On the other hand, there is tradeoff of course, of supporting the economic viability and facilitating commerce to enable North Dakota to compete in today's global market economy. The same issue that presents a challenge also presents potential opportunities to gain efficiencies through cooperating with other jurisdictions and taking advantage of new technologies such as ITS/CVO.

These trends all indicate that there is and will be increasing pressure on the resources of the state to administer CVO, including increased demands not only on the roadway system, but also on the administrative system, and the safety enforcement and management systems. It is, therefore, imperative to improve efficiencies in the system to support and maintain the economic well-being of the state.

Table-1 Truck Traffic from Canada-Latest Month Available Data Comparisons				
Port of Entry	Highway	March 2000	March 1999	Percent Change
Pembina, ND	I-29	19,874	17,649	13%
Portal, ND	US-52	5,636	5,764	-2%
Neche, ND	ND-18	510	908	-43%
Walhalla, ND	ND-32	643	558	15%
Westhope, ND	US-83	527	465	13%
Dunseith, ND	US-281	1,406	1,955	-28%

Source: NDDOT Pavement Management System

3.3. Issues and Opportunities

A number of issues which impact current CVO operations were identified in the business planning effort. These issues present potential obstacles to the successful implementation of the ITS/CVO Business Plan. On the other hand, there are a number of opportunities which could positively impact ITS/CVO deployment.

1. Electronic credential application and issuing not available

Current CVO administrative and credential issuing systems are paper-based systems that are not compatible with ITS/CVO. The state's new registration and titling system addresses the improvement of vehicle registration which mainly impacts intrastate registration. However, this new system does not include provisions for IRP and IFTA functions. Therefore, a substantial amount of investment is needed to convert the current IRP and IFTA systems to the new system. A request for funding for this purpose will be submitted to North Dakota State Legislature for consideration in the 2001-2003 biennium as part of the NDDOT budget request. The current processes do not conform to CVISN architecture and designated standards. Further, North Dakota does not currently participate in the IFTA or IRP clearing houses.

2. Limited registration and credential information exchange

The current system does not allow for effective use of registration information which could be useful for program management if that information were in electronic format. Electronic information and transaction exchange would also reduce the amount of paperwork and cut the cost of processing payments and refunds for the IRP and IFTA programs.

3. Limited access to safety data

Current safety data systems do not support real-time access to information. Further, the Motor Vehicle Crash Report data system has a time lag receiving crash information from the field. The Traffic Safety section at the office is currently implementing changes to the system and working toward electronic data collection statewide. The new revisions are intended to alleviate the delays in receiving and entering data. Additionally, requests for crash information and analysis will be addressed, including requests external to the NDDOT. This issue is extremely important for the effective management of safety programs in the state and also for any implementation of ITS/CVO.

4. Limited resources

Most state agencies have significantly reduced staffing levels, which has caused an increase in existing staffing workloads. This not only impacts their ability to meet necessary functions, but it also limits their involvement in learning about new systems and tools, such as ITS/CVO, that can create additional efficiencies. This is even more critical in the area of information technology. The heavy demands on the information technology services at both the NDDOT and the State ITD from various state agencies will only increase as new technologies and systems are implemented. Because of the significant requirements of ITS/CVO systems, additional resources must be obtained for ITS/CVO development, especially when, for some agencies, contracting for outside help may be very difficult.

5. Funding levels and mechanisms

One of the challenges involved in implementing ITS/CVO is to overcome funding barriers. Because of the institutional and funding arrangements established in the state, ITS, in general, does not benefit from a designated source of funding. Additionally, in an environment with very limited resources and extensive maintenance needs for the road system, the main focus of state funding is traditional road improvements. Several state systems, such as the current registration and titling system, are not compatible with the functionality and architecture requirements of CVISN and, therefore, will need a major update before ITS/CVO can be implemented.

4.0. Strategic Overview

This section explains North Dakota's vision and direction in developing the business plan, and the guiding principles in developing and implementing ITS/CVO activities.

4.1. Mission Statement

The NDDOT's mission is to *provide a surface transportation system to safely move people and commerce*. It is clear that safety is the first priority. Further, efficiency is also a major focus as resources continue to be further reduced.

In addition to the DOT's main mission, a possible vision for the ITS/CVO program in North Dakota is to provide high quality, efficient, safe, legal commercial vehicle shipping and busing services throughout the state.

4.2. Guiding Principles

Although current CVO administrative and enforcement functions are satisfactory, there are some areas that need improvement and could greatly benefit from ITS. These areas mainly pertain to administrative process and program management.

It should be recognized that, given the relatively few problems in current CVO and given the limited funding sources available for the state, this plan presents a staged and realistic approach to ITS/CVO deployment in North Dakota. Any ITS/CVO projects generated by this plan must have a clear and substantial benefit to the state in order for them to sustain stakeholders' and decision-makers' support.

It is also important to emphasize the excellent CVO environment in North Dakota. All stakeholders, including public agencies and private motor carriers, enjoy outstanding working relationships. The relatively small size of the state's government agencies often results in personal-level relationships and contacts with very little bureaucracy. Both public and private sides have a good understanding of each other's issues and challenges, and work together closely to resolve problems.

4.3. Goals and Objectives

The guiding principles for the ITS/CVO planning in North Dakota were used by the stakeholders to develop potential goals and objectives for the plan. These goals and objectives represent high-priority areas for North Dakota's CVO program, and may be described as follows:

- 1. Improve CMV safety
 - a. Take advantage of new systems to improve enforcement
 - b. Develop systems and processes that will provide timely access to data and better allocate program resources to critical problem areas
 - c. Encourage and facilitate safety information sharing with all relevant stakeholders
- 2. Improve administrative process
 - a. Update existing systems to allow compatibility with ITS/CVO
 - b. Maintain and improve customer service given reduced staffing levels and increased activity
 - c. Explore the ability to provide electronic credentials
- 3. Support and participate in regional and international activities affecting motor carrier operations (such as CVIEW, CVISN, PRISM, IRP and IFTA clearing houses, and trade corridors) as funds and priorities allow
 - a. Review all relevant initiatives
 - b. Work on updating state systems to be compatible with national and regional efforts

5.0. Program Summary

This section describes the main initiative identified in the business planning process. It provides a detailed description of ITS/CVO projects, a potential schedule for implementing various project phases, and approximate funding requirements for these projects. This section also outlines the roles of various stakeholders in the implementation of these projects.

The projects developed in this plan are based on the goals and objectives developed by the stakeholders after the critical CVO issues were identified. Further, throughout the development of these projects, the national ITS/CVO and CVISN architecture and operational standards and requirements were fully considered. As stated in Section 3.0 of this report, North Dakota has an excellent CVO environment, one with probably the least level of agency bureaucracy. The open and cooperative nature of the agency-carrier relationship became clear during the planning process as partners worked together to identify improvements and enhancements.

It should also be noted that North Dakota's geographical location also implies other issues related to trade and international, cross-border traffic (two Canadian provinces and three states). North Dakota motor carriers with interstate operations do take advantage of ITS/CVO systems and would benefit from further implementation in North Dakota and neighboring jurisdictions.

5.1. Business Plan Structure

The framework for guiding the identification and development of ITS/CVO projects and activities in North Dakota's Business Plan is supported by the following strategic goals and initiatives:

- 1. Improving commercial motor vehicle safety
- 2. Improving the state's CVO administrative process
- 3. Supporting regional, national, and international ITS/CVO activities

The eight projects identified by the planning process fit under one or more of the above goals. They also fall under one of the ITS/CVO program areas as outlined in Table 2.

Table-2 North Dakota's ITS/CVO Projects	
Project	Goal
Automated Routing and Permitting System	Improve administrative process Support national ITS/CVO
Roadside Electronic Clearance	Improve safety/efficiency Support national ITS/CVO
Interagency Database	Improve safety Improve administrative process Support national ITS/CVO
Mobile CMV Enforcement	Improve safety
IRP and IFTA System Enhancements	Improve administrative process Support national ITS/CVO
Electronic Credentialing and Tax Filing	Improve administrative process Support national ITS/CVO
En-route Traveler Information	Improve safety Support national ITS
Road Condition and Construction Status	Improve safety Support national ITS

5.2. Description of Projects

The following sections describe ITS/CVO projects and initiatives identified by the stakeholders throughout the business planning process. These projects generally are multiphased, as will be discussed, and present a framework rather than detailed system designs. Final designs and implementation schedules will be finalized as the business plan is implemented and funding becomes available.

5.2.1. Automated Routing and Permitting System

The annual increase of permit requests dictates a more efficient system to improve service to customers and reduce the workload on the Permits section. An Automated Routing and Permitting System would provide faster and more efficient service to the public without the need to increase staffing levels, while improving the safe operations of commercial motor vehicles. It will also allow 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. The adoption of "online permitting" will, over a period of time, reduce costs to both the state and motor carriers and increase efficiency.

This project will be conducted in three phases:

- Phase 1. Each of the relevant agencies and divisions involved in issuing and processing permits (NDDOT and NDHP) will evaluate their current processes and identify their needs to upgrade to an automated system.
- Phase 2. An evaluation of existing technology will be conducted to determine the best system to meet the identified needs. Potential alternatives include developing a state-funded system, using the VISTA/PA system managed by Lockheed Martin, or using a system developed by another state.
- Phase 3. Implement the selected system.

The total cost of this project will depend on the type of system chosen. It will vary from about \$200,000 for a third-party private vendor system to \$1 million for a state owned and maintained system.

5.2.2. Electronic Screening

Commercial motor vehicles that are compliant with state and federal regulations should not have to stop at every weigh or inspection facility along a route. Automatic Vehicle Identification (AVI) (electronic transponders and roadside readers) can be used to identify the vehicle and carrier, and check relevant safety and credential information. Vehicles that have been cleared at one weigh/inspection station can bypass subsequent stations, thus eliminating unnecessary stops. The current technology allows the inspectors to determine the need to verify credentials of a vehicle while the vehicle is still in motion. With the addition of weigh-in-motion equipment, they can also monitor the weights of not only the vehicles with transponders, but all commercial motor vehicles passing the WIM site. Inspectors would be able to focus their efforts on commercial motor vehicles which have not been cleared by other inspection sites or ones which may have weight violations. Since this will allow CMVs to move quickly through the weigh/inspection stations, the industry and the inspectors will save time and improve safety as a result of reducing the potential of backups on the ramps.

The project will be conducted in several phases and, because of some limiting factors, will only include the weigh/inspection stations at Fargo (Interstate 94) and Mooreton (Interstate 29). The other locations either do not have the volume of traffic to justify the bypass or the location may not meet geometric requirements for implementation of WIM and a clearance zone (located on curves).

This project will be conducted in five phases:

- Phase 1. The criteria to determine the qualifications needed by motor carriers to register in the bypass system will be established by mutual agreement with the public and private sectors.
- Phase 2. Study all the necessary ITS/CVO systems required by an electronic clearance (bypass) system, and evaluate various technological alternatives.
- Phase 3. Evaluate existing alliances and pre-clearance systems (i.e., NorPass and PrePass-Help); and choose one which meets the state's requirements and offer the most cost-effective system development, operations, and maintenance.
- Phase 4. Prepare for implementation of the electronic clearance system at the Fargo location on I-94.
- Phase 5. Prepare for implementation of the electronic clearance system at the Mooreton location on I-29.

The total cost of the project will be determined by what type of bypass system is chosen and the potential level of support from the 2005 North Dakota Legislature. However, considering the substantial investment to incorporate the necessary ITS/CVO technologies (AVI capabilities) into the weigh/inspection stations and the installation of weigh-in-motion, the cost could well exceed \$1 million for both sites with ongoing costs for maintenance of at least \$40,000 per year.

5.2.3. Mobile CMV Weight and Safety Enforcement

The majority of commercial motor vehicle enforcement operations take place at the fixed weigh/inspection stations located on our interstate system and major US highways. In order to improve safety, reduce crashes, and protect the public infrastructure, it is imperative that we extend enforcement operations to the rural and secondary highway system.

This project will require the cooperation of the ND Department of Transportation and the ND Highway Patrol to develop advanced driver information systems, weigh-in-motion, and safe locations in which to carry out these enforcement activities (turn-outs).

This project has four phases as follows:

- Phase 1. Implement recommendations from the Upper Great Plains Transportation Institute study to improve crash reporting, data collection, and analysis.
- Phase 2. Develop a monitoring system based upon Montana's "Stars" system to determine areas for a high increase in traffic volume and enforcement.
- Phase 3. Identify high-risk areas, install automated driver information systems, and verify the effectiveness of the system.
- Phase 4. Construct vehicle inspection sites on high-risk roadways that will allow for safe CMV inspections and weighing operations.

5.2.4. Interagency Database

Currently, each agency involved in commercial vehicle enforcement and credential issuing maintains its own database with little interaction with the other agencies. A database of safety and credential information controlled by each agency, but available to other agencies to view and use data when appropriate would be beneficial to all agencies. Data from this database will be used to develop North Dakota's Commercial Vehicle Information Exchange Window.

Phase 1. Determine what agencies collect data (enforcement, safety, and credentials) that are important to the success of this project.

Phase 2. Each of the agencies involved will define the databases they currently use and which of these databases are necessary for the project.

Phase 3. Each of the agencies specifies what data within their respective databases should be viewable by other agencies and what data should remain restricted.

Phase 4. Selection of software for achieving a virtual database. This software will be required to have user-level security and to access databases in an industry standard way.

Phase 5. Testing of and modifying the virtual database.

Phase 6. Evaluate methods for development of North Dakota CVIEW.

Phase 7. Build interface from database to CVIEW using EDI.

Phase 8. Test, evaluate, and modify North Dakota CVIEW.

The completion of this project will require the ability to incorporate all the existing databases while still maintaining agency control and oversight. The assistance of the State Information Technology Division will be of vital importance.

5.2.5. Update IRP and IFTA State Systems

The current IRP system needs to be rewritten for several reasons. North Dakota joined the IRP in 1981 as the 26th member. The IRP now has 52 members with at least 6 more Canadian provinces coming on board within the next 6 months. Mexico is working on joining as well. The current IRP system in North Dakota does not capture the federal DOT number which will be required in the near future. The system currently used to process IRP applications in North Dakota was developed in 1980 on a mainframe computer platform.

The companion Motor Vehicle Department's Registration and Titling system moved to a server system in October 2000. Therefore, the IRP system needs to be rewritten to interface with the new Registration and Titling system's; otherwise, similar data will need to be entered on both systems.

Mandated participation in the IRP clearing house looks likely. The current IRP system cannot support the operational requirements of the clearing house. Finally, safety and enforcement agencies need real-time access to the registration/credential database, which the current system does not allow.

The IFTA system needs to be rewritten for several reasons. North Dakota joined the IFTA in 1990 as the 18th member. Currently, IFTA has 58 members. (The District of Columbia and Mexico are looking to join.) The current IFTA system does not capture the federal DOT number, which will be required in the near future. It utilizes Social Security Numbers, which is contrary to several proposed privacy statutes. The computer system currently used to process IFTA applications in North Dakota was written in 1989 on a mainframe platform. This system ,therefore, needs to be redesigned to enable an interface with the server-based Registration and Titling system in operation since October 2000. Mandated participation in the IFTA clearing house looks likely. The current state IFTA

system cannot facilitate participation in clearing houses. Finally, safety and enforcement agencies need real-time access to the IFTA database, which the current system does not allow.

The NDDOT is investigating three different approaches to rewriting the current state IRP and IFTA systems. The first approach is to use a private vendor system (i.e., Lockheed Martin, Polk, and Cachi) on a lease-based program where the state has to pay an annual or monthly fee. The second approach is for North Dakota to develop its own system by building upon or redesigning existing systems. Finally, other IRP and IFTA jurisdictions that have developed their own systems may be willing to share those systems with North Dakota.

The NDDOT will potentially include this project in its request for funding to the North Dakota State Legislature. If this request is not funded through state dollars, PRISM or other federal funds will be pursued.

The NDDOT is once again investigating three different approaches to becoming clearing house compatible. Leasing canned systems from one of three vendors, rewriting the home grown systems, or obtaining these systems from another jurisdiction, are all possibilities.

The NDDOT has not included a legislative funding request to join these clearinghouses in the current legislative session. Current costs are \$6,000 to \$10,000 a year for the IRP clearinghouse and a current nominal fee of 1 dollar for the IFTA clearinghouse. State dollars or federal funds (such as PRISM) may be pursued.

This project will be conducted in three phases:

- Phase 1. Moving the IRP and IFTA systems from the mainframe to a server-based system to alleviate the need to double enter information.
- Phase 2. IRP and IFTA systems will be rewritten to be compatible with joining the clearinghouses. The IRP system will be able to electronically transmit funds to the clearinghouse. The IFTA system will not electronically transmit fees to the clearinghouse.
- Phase 3. Rewrite existing IRP and IFTA systems to be compatable with CVIEW by capturing federal DOT numbers. The DMV's portion of CVIEW is credential related. Information will be shared with safety and enforcement personnel.

5.2.6. Electronic Credentials and Tax Filing System

Motor carriers and truck licensing businesses desire the ability to apply for licenses and file taxes electronically. The current IRP and IFTA systems do not support online functionality. Additionally, safety and enforcement agencies need real-time access to credentials and registration databases, which the current systems do not allow.

The NDDOT is investigating three different approaches to electronic credentials and IFTA tax filings. These alternatives include leasing a canned system from one of three vendors, rewriting the system internally (i.e., by the NDDOT ITD), or obtaining these capabilities from another jurisdiction.

The NDDOT has not included a legislative funding request for these initiatives because they are too far down the road. Potential sources of funding include state and/or federal funds.

Phase 1. Rewrite current IRP and IFTA systems to be compatible with electronic credentials and tax filing. Motor carriers, truck licensing companies, and motor vehicle branch offices would be potential users of the system. Electronic Data Interchange (EDI) and/or web-based technology will be developed.

Phase 2. Implement Electronic Credentials and Tax Filing system at selected locations.

The schedule for completing these phases will be as follows:

Phase 1. Completion date is scheduled for June 30, 2000

Phase 2. Completion date is scheduled for June 2006

5.2.7. En-route Traveler Information

A partnership among NDDOT, SDDOT, FHWA, UND-RWIC, and several cell phone companies has created the ATWIS (Advanced Transportation Weather Information System) and has developed an in-vehicle traveler information system called #SAFE (#7233). This technology is delivered to travelers via cell phone, giving travelers the weather conditions and road conditions for the road ahead as they travel. As technology evolves, it is planned to explore including this information using in-vehicle displays as well as other technologies. This information should also be available on the web, at kiosks, and by land line telephone for pre-trip planning. Motor carriers and commercial vehicle drivers would benefit from this information to better plan their trips.

This project is currently underway and has the following goals:

1. Provide road/weather information via Internet with completion scheduled for late 2000.

- 2. Provide voice recognition to cell phone users, so users do not need to push buttons while they drive in order to access road/weather information.
- 3. Provide land line telephone for pre-trip planning. Estimated late 2001.
- 4. Examine alternative In-Vehicle-Delivery System.

This project has the following four phases:

Phase 1. Evaluate the different systems.

- Phase 2. Implement system; estimated late 2001.
- Phase 3. Acquire PDA prototypes and evaluate. Estimated completion of evaluation is mid 2002. The target group is the trucking industry.
- Phase 4. Evaluate delivery to vehicle equipped displays. Evaluation to begin in 2004. (Auto industries, such as GM and Ford, are planning to have as standard equipment at that time.)

5.2.8. Trip Planning and Road Condition Information

The NDDOT is planning to implement a kiosk system in selected rest areas across the state. These kiosks will be available to provide the traveling public with the information required to provide safe and efficient travel. It is also likely that the successful vendor will contact truck stops, motels/hotels, and restaurants to place kiosks in those areas also.

The NDDOT will also be placing Variable Message Signs throughout the state. The process for implementation will be (is) outlined in the NDDOT ITS Strategic Plan.

Following are the implementation phases.

Phase 1. RFP due to NDDOT by December 8, 2000.

- Phase 2. Award of contract to successful vendor by December 22, 2000.
- Phase 3. Work completed November 29, 2002.

5.3. Ranking of Projects

Table 3 below categorizes ITS/CVO projects identified in the North Dakota ITS/CVO Business Plan. The classification scheme includes the following categories:

- 1. Priority to the state (need addressed, impacts, who will benefit)
- 2. Cost (deployment, operations, staff, expertise). Low cost refers to under \$250,000 project cost, medium refers to \$250,000 to \$750,000 project cost, and high refers to project cost in excess of \$750,000.
- 3. Relationship to CVISN deployment
- 4. Required time to deploy (less than one year being Short, Medium is for 1-3 years, and Long for over 3 years)

Table-3 North Dakota's ITS/CVO Project Prioritization				
Project	Priority	Cost	Relationship Time to CVISN Deploy	
Automated Routing and Permitting System	Medium	High	High Long	
Roadside Electronic Clearance	Low-Medium	Medium-High	High	Long
Mobile CMV Enforcement	Medium-High	Medium	Medium	Medium
Interagency Database	Medium	High	High	Long
IRP and IFTA System Enhancements	High	Medium - High	High	Long
Electronic Credentialing and Tax Filing	Medium	High	High	Long
En-route Traveler Information	High	Medium	Low-Medium	Short
Road Condition and Construction Status	Medium-High	Medium	Low-Medium	Medium

6.0. Organization and Management Approach

6.1. Stakeholders

The development of the North Dakota ITS/CVO Business Plan was guided by a steering committee which consisted of various agencies which affect CVO and private motor carriers. The two main agencies which will take the lead role in implementing the North Dakota ITS/CVO Business Plan are the NDDOT and the NDHP.

The NDDOT has an ITS Manager who coordinates ITS activities for the department. The ITS Manager was also selected to be the Chair of the steering committee. He will be responsible for coordinating the committee activities after the plan is completed, including project development, raising awareness throughout the agency, and updating the plan. The steering committee felt that the plan should be updated at least every two years, or when there is a major change the CVO environment.

The Motor Carrier Section of the NDHP handles all of the enforcement functions in North Dakota and is designated as the lead MCSAP agency. Therefore the NDHP will be the lead agency in developing ITS/CVO projects related to roadside enforcement and electronic clearance. Both the NDHP and the NDDOT will work on projects related to safety information exchange and permitting.

In summary, the following is a list of ITS/CVO projects identified in the Business Plan with the corresponding lead agencies:

- 1. Automated Routing and Permitting System: NDHP Motor Carrier Section, NDDOT, NDDOT ITD
- 2. Roadside Electronic Clearance: NDHP
- 3. Mobile CMV Enforcement: NDHP
- 4. Interagency Database: NDHP, NDDOT Traffic Safety, NDDOT ITD
- 5. IRP and IFTA System Enhancements: NDDOT Motor Vehicle Division, NDDOT ITD
- 6. Electronic Credentialing and Tax Filing: NDDOT Motor Vehicle Division, NDDOT ITD
- 7. En-route Traveler Information: NDDOT Office of Operations, NDDOT ITD
- 8. Road Condition and Construction Status: NDDOT Office of Operations, NDDOT ITD

6.2. Deployment Scheduling and Milestones

This section describes the major phases and milestones for the various projects identified in the Business Plan. Table 4 provides a summary of approximate schedules for these projects.

- 1. Automated Routing and Permitting System
 - Phase 1. Each of the relevant agencies and divisions involved in issuing and processing permits (NDDOT and NDHP) will evaluate their current processes and identify their needs to upgrade to an automated system. (July 2001 September 2002)
 - Phase 2. An evaluation of existing technology will be conducted to determine the best system to meet the identified needs. Potential alternatives include, developing a state-funded system, using the VISTA/PA system managed by Lockheed Martin, or using a system developed by another state. (July 2001 - December 2002)

Phase 3. Implement the selected system. (January 2003 - December 2003)

The total cost of this project will depend on the type of system chosen. It will vary from about \$200,000 for a third-party private vendor system to \$1 million for a state owned and maintained system.

- 2. Electronic Screening
 - Phase 1. The criteria to determine the qualifications needed by motor carriers to register in the bypass system will be established by mutual agreement with the public and private sectors. (October 2002 - September 2003)
 - Phase 2. Study all necessary ITS/CVO systems required by an electronic clearance (bypass) system and evaluate various technological alternatives. (October 2003 to September 2004)
 - Phase 3. Evaluate existing alliances and pre-clearance systems (i.e., NorPass and PrePass-Help) and choose one which meets the state's requirements and offer the most cost-effective system development, operations, and maintenance. (July 2004 - September 2004)
 - Phase 4. Prepare for implementation of the electronic clearance system at the Fargo location on I-94. (October 2004 September 2005)
 - Phase 5. Prepare for implementation of the electronic clearance system at the Mooreton location on I-29. (October 2005 September 2006)

- 3. Mobile CMV Weight and Safety Enforcement
 - Phase 1. Implement recommendations from the Upper Great Plains Transportation Institute study to improve crash reporting, data collection, and analysis. (July 2001 - September 2002)
 - Phase 2. Develop a monitoring system based upon Montana's "Stars" system to determine areas for a high increase in traffic volume and enforcement. (October 2002 September 2003)
 - Phase 3. Identify high-risk areas, install automated driver information systems, and verify the effectiveness of the system. (October 2003 September 2004)
 - Phase 4. Construct vehicle inspection sites on high-risk roadways that will allow for safe CMV inspections and weighing operations. (October 2004 September 2006)

4. Interagency Database

Phase 1. Determine what agencies collect data (enforcement, safety, and credentials) that are important to the success of this project. (October 2001 - September 2002)

Phase 2. Each of the agencies involved will define the databases they currently use and which of these databases are necessary for the project. (October 2002 - March 2003)

Phase 3. Each of the agencies specifies what data, within their respective databases, should be viewable by other agencies and what data should remain restricted. (April 2003 - September 2003)

Phase 4. Selection of software for achieving a virtual database. This software will be required to have user-level security and to access databases in an industry standard way. (October 2003 to December 2003)

Phase 5. Testing and modifying the virtual database. (January 2004 - March 2004)

- Phase 6. Evaluate methods for development of North Dakota CVIEW. (April 2004 June 2004)
- Phase 7. Build interface from database to CVIEW using EDI. (July 2004 December 2004)

Phase 8. Test, evaluate, and modify North Dakota CVIEW. (January 2005 - March 2005)

The completion of this project will require the ability to incorporate all existing databases while still maintaining agency control and oversight. The assistance of the State Information Technology Division will be of vital importance.

- 5. Update IRP and IFTA State Systems
 - Phase 1. Moving the IRP and IFTA systems from the mainframe to a server-based system to alleviate the need to double enter information (July 2001 June 30 2003)
 - Phase 2. IRP and IFTA systems will be rewritten to be compatible with joining the clearinghouses. The IRP system will be able to electronically transmit funds to the clearinghouse. The IFTA system will not electronically transmit fees to the clearinghouse. (July 2003 June 2004)
 - Phase 3. Rewrite existing IRP and IFTA systems to be compatable with CVIEW by capturing federal DOT numbers. The DMV's portion of CVIEW is credential related. Information will be shared with safety and enforcement personnel. (July 2004 - June 2005)
- 6. Electronic Credentials and Tax Filing System
 - Phase 1. Rewrite current IRP and IFTA systems to be compatible with electronic credentials and tax filing. Motor carriers, truck licensing companies, and motor vehicle branch offices would be potential users of the system. Electronic Data Interchange (EDI) and/or web-based technology will be developed. (July 2001-June 2002)
 - Phase 2. Implement Electronic Credentials and Tax Filing system at selected locations. (July 2002 June 2006)
- 7. En-route Traveler Information
 - Phase 1. Evaluate the different systems currently available and used in other locations to identify a traveler information system that can be used in North Dakota (Completed)
 - Phase 2. Implement the selected traveler information system North Dakota (October 2000 September 2001)
 - Phase 3. Acquire PDA prototypes and evaluate. The target group is the trucking industry. (October 2001 June 2002.)
 - Phase 4. Evaluate delivery to in-vehicle displays, anticipating auto makers would have this equipment part of their standard vehicle package. (July 2004 June 2003)

8. <u>Trip Planning and Road Condition Information</u> Phase 1. Issue Request for Proposals (December 2000)

Phase 2. Award of contract to successful vendor (December 2000)

Phase 3.	Implement	system	(January	2001 -	December 2002)
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Table-4 North Dakota's ITS/CVO Projects Timetable			
Project	Start Date	Completion Date	Lead Agency
Automated Routing and Permitting System	2002	2003	NDDOT, NDHP
Roadside Electronic Clearance	2003	2005	NDHP, NDDOT
Mobile CMV Enforcement	2002	2006	NDHP
Interagency Database	2002	2005	NDHP, NDDOT
IRP and IFTA System Enhancements	2002	2005	NDDOT
Electronic Credentialing and Tax Filing	2004	2006	NDDOT
En-route Traveler Information	2001	2004	NDDOT
Road Condition and Construction Status	2001	2002	NDDOT

7.0 Contact Names

Steve Busek	Federal Highway Administration - Safety / Traffic Engineer
Melissa Dixon	Interstate Truck Licensing
LeRoy Ernst	ND Motor Carriers Association - Managing Director
Lynn Heinert	ND Department of Transportation - Driver Licensing and Traffic Safety
Jerry Horner	ND Dept of Transportation - Maintenance Engineer
Jeff Jensen	Federal Motor Carrier Safety Administration - ND State Director
Dennis Klipfel	Information Technology Division - Technology Planner
Frank Laqua	ND Department of Transportation - Motor Carrier Services Administrator
Gary Peters	TMI Systems Design Corp
Ed Ryen	ND Department of Transportation - Assistant Maintenance Engineer (Chair)
Julie Rodriguez	UGPTI -NDSU
Doyle Schulz	ND Highway Patrol - Motor Carrier Operations Director
Ayman Smadi	ATAC-UGPTI-NDSU - Director, ATAC
Dave Tuhy	Wiest Truck Line - General Manager

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