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AN OVERVIEW OF DEVELOPMENT OF A STRATEGIC PLAN FOR COMMERCIAL VEHICLE OPERATIONS IN TEXAS

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16. Abstract

The Texas Transportation Institute (TTI) conducted a one-year study for the Texas Department of Transportation (TxDOT) to develop a statewide strategic plan for commercial vehicle operations (CVO). This report presents the strategic plan for commercial vehicle operations in Texas. To develop this plan, it was necessary for the research team to understand trucking activity; commodity movements; truck size, weight, and safety regulations; and administrative processes in the state. It was also important to investigate current advances in information and transportation technology and their potential applications in Texas. Several tasks were involved with the development of this plan, including a comprehensive literature review; an extensive analysis of commodity movements and trucking activity in the state; a CVO stakeholder survey; development of goals, objectives, and projects for the CVO plan; and a cursory evaluation of the safety and economic implications of the proposed ways to streamline motor carrier activities and administrative procedures in Texas.

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IMPLEMENTATION RECOMMENDATIONS

It is recommended that the state of Texas become part of the U.S. National Mainstreaming Program. This first requires the submission of a Business Plan, which will place Texas in a position to receive federal funding for Commercial Vehicle Operations. In conjunction with the Business Plan, it should develop a strategy to address the following 12 projects.

PROJECT 1. Statewide Information Database System (SIDS) Deployment: This project involves purchasing additional laptop computers and installing SIDS and other software for enforcement in all regions. This is the first step toward automation of the inspection process in the state. Immediately following inspection of a commercial vehicle, troopers will enter the information about that particular vehicle directly into the laptop computer, rather than on a conventional paper report form.

PROJECT 2. Motor Carrier Identification System: This project involves developing and implementing a system for DPS to identify all Texas-based motor carriers that operate in the state. Currently there are many unknown motor carriers operating in the state. This results in an undesirable advantage for motor carriers that are not known by DPS since they are not subject to facility audits, carrier ratings, and compliance reviews.

PROJECT 3. Automation of Roadside Safety Inspections: This project will automate roadside safety inspections by providing enforcement personnel with real-time access to vehicle, driver, and motor carrier facility records. This includes information about previous roadside safety inspections and out-of-service defects, motor carrier credentials, permits, and safety ratings.

PROJECT 4. Upgrading of Designated Weighing Areas: This project will upgrade designated weighing areas to ensure safe Level I inspections. Almost one-half of these designated weighing areas (44 percent) are not suitable for Level I inspections. The upgrade will consist of infrastructure improvements at each weighing area and the installation of weigh-in-motion (WIM) devices in advance of the scale for both directions of traffic.

PROJECT 5. Use of WIM and AVC Devices for Enforcement: This project will evaluate the use of the existing TxDOT network of WIM and AVC systems for improved DPS enforcement of weight and safety regulations. It will make use of telephone lines or wireless communication technology to link these data collection sites with a central DPS location (or dispatch office).

PROJECT 6. Statewide Incident Management System: This project will use global positioning systems (GPS) in a uniform and coordinated manner to provide real-time information about incidents involving hazardous materials. It will also involve the development of a system in which motor carriers involved in crashes are automatically linked to emergency response. In cases where hazardous materials are involved in the crash, the incident management system

enables emergency responders to have real-time access to hazardous material information on the scene.

PROJECT 7. Implementation of a One-stop Shop: This project will develop a plan to implement either a single physical location or point of contact where motor carriers will obtain all permits and credentials needed to operate in the state.

PROJECT 8. Technology User Training Program: This project involves developing and implementing a training program for users of the new technology introduced by the different agencies involved in commercial vehicle operations.

PROJECT 9. Implementation of Information Systems: This project will investigate and develop a plan to use multi-media methods to provide timely information about traffic conditions, incidents, and other travel-related issues. Information systems could be implemented at the roadside in the form of dynamic message signs, or at truck stops and rest areas.

PROJECT 10. Share-the-Road Campaign: The project would develop and launch a campaign to educate all drivers on how to share the road with vehicles having different operating characteristics from their own. The campaign would educate car drivers on how to share the road with large commercial vehicles, and it would also help truck drivers in sharing the road with smaller vehicles and other trucks.

PROJECT 11. Creation of a Special Task Force: This project will create a special task force to address institutional issues that affect motor carriers and agencies involved with commercial vehicle operations.

PROJECT 12. Electronic Clearance at the Texas-Mexico Border: This project will deploy electronic clearance at the Texas-Mexico border. Texas is currently participating in the Texas Regional International Border Electronic Crossing (TRIBEX) project, which is a public-private partnership created to demonstrate commercial vehicle intelligent transportation systems technology at international bridges.

1.0 INTRODUCTION

1.1 PURPOSE

The proposed strategic plan presents an integrated road map to the state's commercial vehicle operations program with a clear mission statement, goals and objectives, a listing of potential projects, milestones, responsibilities, and funding levels. This plan will serve as a guide for Texas to improve the efficiency, safety, and productivity of commercial vehicle operations on Texas highways.

1.2 BACKGROUND

Several national initiatives impacting commercial vehicle operations (CVO) throughout the United States are being deployed by various offices of the Federal Highway Administration Office of Motor Carriers (FHWA/OMC) and other entities within the U.S. Department of Transportation. These initiatives are evolving for the following reasons:

- Federal, state, and local governments are increasingly being required to do more with limited resources
- Technology is available to improve safety and efficiency of motor carrier operations
- The motor carrier industry is receptive to improvements that enhance safety and efficiency.

One of the items included in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 was the Intelligent Transportation Systems (ITS) program. This program was designed to improve mobility and transportation productivity, enhance safety, and decrease the environmental impact of travel through the application of advanced technologies. Currently, there are many states participating in the testing and deployment of initiatives applied to commercial vehicle operations under the ITS program (ITS-CVO). Programs such as the Commercial Vehicle Information Systems and Networks (CVISN), the North American Trade Automation Prototype (NATAP), and CVO Mainstreaming illustrate some of the most relevant components of the National ITS-CVO program.

Full deployment of ITS-CVO involves multiple jurisdictions, and institutional issues are a challenging problem currently facing commercial vehicle operations. In an effort to address this problem, the Federal Highway Administration funded state and regional studies of institutional barriers to ITS-CVO implementation. One of the institutional issues studies was the COVE (Commercial Vehicle) study *(1)*, conducted to investigate institutional barriers for seven states in the southwestern region of the country (Arizona, Arkansas, Colorado, Louisiana, New Mexico, Oklahoma, and Texas).

The COVE study recommended the following for Texas: (1) guidance of CVO programs and policies; (2) simplification of CVO rules and regulations; (3) provision of electronic services; and (4) evaluation and implementation of appropriate technology for CVO.

With the completion of the COVE study and the testing and deployment of initiatives under the National ITS-CVO program, the development of a statewide strategic plan was viewed as critical in optimizing the use of ITS-CVO initiatives. For the development of this strategic plan, it was important to consider that several characteristics set Texas apart from other states that are also in the process of developing strategic plans:

- The size of the state and the distribution of trucking–dispersed over vast areas of land–are factors to consider to effectively use limited enforcement resources.

- The volume of trucks at the 22 border crossings in Texas represents approximately one-half of all trucks crossing the entire U.S.-Mexico border on a daily basis. In addition, Texas has the highest truck volume crossing point along the entire U.S.-Mexico border at Laredo.

- Texas does not utilize ports of entry (POEs) at its state borders, choosing rather to conduct enforcement primarily with roving patrols, supplemented with a few fixed sites. This mode of operation is intended to utilize scarce resources to minimize non-compliance. This also results in relatively few locations suitable for Commercial Vehicle Safety Alliance (CVSA) Level I inspections.

- Other agencies in addition to DPS are also trained and authorized to conduct commercial vehicle enforcement of size and weight laws.

Using the COVE study and current practices as starting points, this Texas CVO plan recognizes and leverages national mandates and opportunities in addition to international activities bearing on freight movement on Texas highways. It also considers advances in information and transportation technology; streamlining of motor carrier regulatory and administrative procedures and improved safety; and productivity of motor carrier activities in the state.

1.3 OBJECTIVES

The objectives of this project for the development of a state CVO strategic plan are:

- to identify advances in information and transportation technology which may be applied to commercial vehicle operations in Texas,

- to seek involvement and input from key CVO stakeholders in the state of Texas regarding current issues and concerns about commercial vehicle operations in the state, and

- to identify ways to streamline motor carrier regulatory and administrative activities. This is done either by making use of advanced technologies or by modifying current practices of the participating agencies.

1.4 FOUNDATION FOR THE PLAN

To provide the foundation for this plan, it was jointly decided between the Texas Transportation Institute (TTI) and the Texas Department of Transportation (TxDOT) that the following questions be examined regarding commercial vehicle operations:

- What types and quantity of trucking operate in the state, and how do they relate to regulatory activities? Considerations of interest are truck volumes, fleet mixes, truck usage, and vehicle characteristics.

- What are the truck size and weight (TS&W) and safety regulations that govern trucking in Texas, and what are the current enforcement practices?

- What are the current administrative procedures in Texas? Considerations of interest are domestic registrations, International Registration Plan (IRP), International Fuel Tax Agreement (IFTA), and oversize/overweight (OS/OW) permitting.

- What are the current efforts in the U.S. regarding strategic planning for commercial vehicle operations, particularly the national CVO initiatives involving advances in information and transportation technology?

Because commercial vehicle operations is a broad topic and due to time constraints applied to this project, the research for the development of this plan focuses primarily on the vehicle component of commercial vehicle operations and not on issues related to the driver and the roadway.

2.0 BACKGROUND AND METHODOLOGY

2.1 BACKGROUND

The U.S. Department of Transportation is deploying several nationwide Intelligent Transportation Systems (ITS) initiatives that may impact commercial vehicle operations (CVO) in the U.S. These initiatives are evolving primarily because: (1) federal, state, and local governments are increasingly being required to do more with limited resources; (2) technology is available to improve safety and efficiency of motor carrier operations; and (3) the motor carrier industry is receptive to improvements that do not compromise safety or efficiency.

This report presents a strategic plan for commercial vehicle operations in Texas, which was developed by the Texas Transportation Institute (TTI) for the Texas Department of Transportation (TxDOT). To develop this plan, it was necessary for the research team to understand: the trucking activity; commodity movements; truck size, weight, and safety regulations; and administrative processes in the state. It was also important to investigate current advances in information and transportation technology, and their potential applications in Texas. Several tasks were involved with the development of this plan: a comprehensive literature review; an extensive analysis of commodity movements and trucking activity in the state; a CVO stakeholder survey; development of goals, objectives, and projects for the CVO plan; and a cursory evaluation of the safety and economic implications of the proposed ways to streamline motor carrier activities and administrative procedures in Texas. The following sections discuss highlights from each of these areas as they pertained to the development of the plan.

2.2 THE TYPES AND QUANTITY OF TRUCKING IN TEXAS

This research investigated the current trucking activity in Texas in terms of the truck fleet; truck weights; truck flows; and area of operation of the Texas fleet. Texas has the third highest truck population after California and Illinois. The Texas truck fleet represents just over 5 percent of the national fleet (California represents 10 percent and Illinois represents 7 percent). Nearly 60 percent of Texas-registered trucks are single unit trucks, approximately 33 percent are tractor-semitrailers, 7 percent are truck and trailer combinations, and less than 1 percent are tractor-double trailers.

Locations where TxDOT traffic classification count data indicate the (estimated) Average Annual Daily Truck Traffic (AADTT) is relatively high (1997) are as follows:

(1) IH-35 between Dallas and Austin (south of Waco) –10,165 trucks per day;
(2) IH-45 between Dallas and Houston (south of SH 21) – 6,933 trucks per day;
(3) IH-10 between San Antonio and Houston (East of SH 71) – 8,107 trucks per day;
(4) IH-10 east of Houston (east of SH 146) – 9,900 trucks per day;
(5) IH-20 between El Paso and Dallas (east of US 84) – 5,612 trucks per day;

(6) IH-20 east of Dallas (west of SH 19) – 7,120 trucks per day; and
(7) IH-30 east of Dallas (west of SH 19) – 6,253 trucks per day.

Most trucking activity generated by the state stays within Texas. More than three-quarters of the trucks registered in the state drive less than 25 percent of their mileage outside of Texas. One of every 40 trucks drives from 75 to 100 percent of its mileage outside the state. More than 80 percent of all truck trips are within 321 km (200 mi) of their base location or off the road. Only one of 14 trucks operates in the 321 to 805 km (200 to 500 mi) range, and one of 17 trucks makes trips that are greater than 805 km (500 mi). This indicates that the vast majority of Texas-based trucking is intrastate in nature, and the total trucking activity is mainly local.

2.3 COMMODITY MOVEMENTS BY TRUCK IN TEXAS

Of all the tonnage that originates in Texas, trucking handles just over one-half, and almost 30 percent of all ton-miles of freight movement take place by truck. Of the total reported tonnage that originates in Texas and is moved by truck, private trucking accounts for almost 60 percent and for-hire trucking accounts for the remaining 40 percent. Six commodities account for 80 percent of the reported truck-transported tonnage originating in Texas: nonmetallic minerals, petroleum and coal products, food or kindred products, chemicals or allied products, farm products, and lumber or wood products, excluding furniture. Local shipping distances —less than 80 km (50 mi)—account for 70 percent of all tons moved by truck, and short-haul shipping distances —less than 402 km (250 mi)—account for nearly 90 percent. Two types of analyses were conducted to investigate commodity movements: (1) an analysis for intrastate activity; and (2) an analysis for interstate activity.

Regarding intrastate activity, it was found that 75 to 85 percent of the intrastate tonnage moved in Texas moves intra-regionally (meaning that it stays within the region of origin). Of the tonnage that moves intrastate and moves inter-regionally (or between regions), two-thirds is attracted by the Dallas-Fort Worth-Abilene region, and the Houston-Beaumont region. The same two regions generate just over two-thirds of the intrastate tonnage. The analysis also found that at a regional level, private trucking dominates commodity movements in Texas, accounting for almost 70 percent of the activity. Private trucks transport mainly petroleum and coal products; nonmetallic minerals; clay, concrete, glass, or stone products; chemicals or allied products; farm products; food or kindred products; and lumber or wood products, excluding furniture. For-hire trucking transports the same commodities with the exception of petroleum and coal products.

There are two types of interstate commodity movements: commodity movements which originate in Texas and are destined for other states; and commodity movements which originate in other states and are destined for Texas. The major destinations for truck-transported tonnage that originates in Texas are Louisiana, Arkansas, New Mexico, Oklahoma, California, and Kansas. Together, these states attract just over one-half of all the truck-transported interstate

tonnage originating in Texas. The major origins for the tonnage destined for Texas are Oklahoma, Louisiana, Arkansas, Tennessee, California, Kansas, and Mississippi. Together, these states generate three-quarters of all the truck-transported interstate tonnage destined for Texas.

2.4 ENFORCEMENT PRACTICES OF TRUCK SIZE, WEIGHT, AND SAFETY REGULATIONS

The DPS is responsible for the enforcement of weight, dimension, and safety regulations of motor carriers in Texas. A total of 321 troopers patrol and enforce these regulations on the 329,298 km (204,660 mi) of rural highways in the state. The DPS conducts approximately 85,000 inspections—all levels combined—each year statewide. There are 245 designated weighing areas in Texas. This includes 40 permanent (in-ground) scale sites which are also suitable for Level I inspections, 98 other locations suitable for Level I inspections, and 107 additional weigh strips. DPS License and Weight troopers conduct Commercial Vehicle Safety Alliance (CVSA) inspections daily as a part of their routine patrol duties or at permanent scale facilities. Due to safety reasons, the DPS requires that two troopers be present when Level I inspections are conducted. Drivers and vehicles that are found to be in violation of the regulations in such a manner as to pose a serious safety condition to the general public are placed out-of-service using the North American uniform out-of-service (OOS) criteria developed by CVSA. The driver or the vehicle is prevented from operating further on the highways of Texas until the OOS condition is corrected.

2.5 ADMINISTRATIVE PROCEDURES

The research addressed four types of administrative procedures:

(1) Vehicle registration;
(2) Motor carrier registration;
(3) International Fuel Tax Agreement (IFTA); and
(4) Oversize/overweight (OS/OW) permitting.

All motor vehicle registration and titling activities in Texas are the responsibility of the Texas Department of Transportation Vehicle Titles and Registration Division (TxDOT/VTR). The central office is located in Austin, and there are 17 regional offices around the state. The regional offices support the state's 254 county Tax Assessor-Collectors, who serve as statutory agents of the Department. Most counties in Texas are now connected to a centralized system called Registration and Title System (RTS). This is a point-of-sale system linking county tax offices to the Department's mainframe. With RTS, the Department can:

(1) Update registration records within 48 hours;
(2) Provide current information to law enforcement officers about vehicle registration; and

(3) Provide information to contract users of motor vehicle data.

Motor carriers involved in intrastate operations are required to register their vehicles at the local County Tax Assessor-Collector's office. Motor carriers involved in interstate operations may either register their vehicles under the International Registration Plan (IRP); register in a base jurisdiction that has regular interstate reciprocity with Texas; or purchase a trip permit.

Regarding motor carrier registration, Transportation Code Chapter 643 provides that a motor carrier may not operate a commercial motor vehicle or a tow truck, or transport household goods on a for-hire basis, without first registering their operations with the TxDOT Motor Carrier Division. The Motor Carrier Division's offices are located in Austin, and all motor carrier registration is accomplished through these offices. Motor carriers operating on an exclusively *intrastate* basis, or operating interstate and not registered under the single state registration program, are required to register their operations and file proof of financial responsibility with TxDOT. Any *interstate* for-hire motor carrier authorized to transport passengers or property that has its principal place of business in Texas, or selects Texas as its registration state, must file with the Department an application to register for all states of travel before beginning operations in Texas.

The Texas Comptroller of Public Accounts is responsible for International Fuel Tax Agreement (IFTA) permits. IFTA is a reciprocity agreement that allows motor carriers licensed in one member jurisdiction to satisfy their fuel tax obligations to all other member jurisdictions through that jurisdiction. Any carrier based in a member jurisdiction, which operates qualified motor vehicles in two or more member jurisdictions, is required to license under IFTA.

Oversize/Overweight (OS/OW) permits and temporary trip permits are issued by the TxDOT Motor Carrier Division (MCD) for movements of indivisible loads. These permits must be obtained prior to moving those loads in the state. OS/OW permits issued in the state of Texas include:

(1) permits for loads exceeding 36,248 kg (80,000 lbs) gross vehicle weight (GVW), 9,062 kg (20,000 lbs) per single axle, 15,405 kg (34,000 lbs) per tandem axle, or 295 kg per 25.4 mm (650 lbs per in) of tire width; and
(2) permits issued for combination vehicles exceeding 19.8 m (65 ft) in length, 2.6 m (8.5 ft) in width, or 4.3 m (14 ft) in height.

An applicant may request an OS/OW permit either over the telephone, by facsimile, or through an Internet application. The routing method is manual, using a District Permit Map. In the case of requests made by fax or through the Internet, approved permits are sent by fax to the applicant.

2.6 ADVANCES IN INFORMATION AND TRANSPORTATION TECHNOLOGY

The National ITS-CVO program is an amalgamation of various initiatives representing the efforts of individual states, groups of states, the Federal Government, the trucking industry, and other associations. The primary goals of the ITS-CVO program are:

(1) to enhance safety;
(2) to enhance productivity through the use of better fleet management tools;
(3) to reduce costs for the motor carrier industry;
(4) to reduce environmental and energy impacts;
(5) to improve tax administration and credentials; and
(6) to improve regulatory compliance.

The National ITS-CVO program is organized to develop and deploy capabilities in six user service areas: electronic clearance (domestic and international); automated roadside safety inspections; onboard safety monitoring; administrative processes; fleet and freight administration; and hazardous materials incident response. Electronic clearance allows commercial vehicles to travel with minimum or no stopping through ports of entry or weigh stations. Automated roadside safety inspections provide automated information to inspectors to assist them with the inspection process. Onboard safety monitoring provides the capability for sensing the safety status of the vehicle, driver, or cargo while traveling at mainline speeds. Administrative processes consists of: (1) electronic purchase of credentials, which allows carriers to automatically apply for permits or for registration, and (2) automated mileage, fuel reporting, and auditing, which allows carriers to automatically record total trip miles and fuel purchases for purposes of mileage and fuel tax reports. Fleet and freight administration provides drivers and dispatchers with real-time information about the location and routing of a vehicle. Hazardous materials incident response provides a description of any hazardous materials involved in incidents and defines appropriate countermeasures. Examples of ongoing and completed operational tests in each of these areas are included in the report.

2.7 PROPOSED TEXAS CVO STATEWIDE PLAN

The final component of this research project was to develop a Texas CVO statewide plan that provides a clear and concise mission statement, long- and short-term goals and objectives, and an action plan with specific project milestones and funding levels. The plan was derived from previous and currently ongoing programs, national initiatives, and information gathered during the conduct of the research. The strategic plan is intended to be proactive, recognizing national mandates and funding opportunities by focusing on ITS technologies that will improve the safety, efficiency, and productivity of commercial vehicle operations in Texas. The proposed plan contains four goals and 10 objectives, as well as a list of 12 projects that will help achieve those goals and objectives.

3.0 PROPOSED TEXAS CVO STATEWIDE PLAN

The purpose of this project was to develop a strategic plan that will serve as a guide for Texas and TxDOT for improving the efficiency, safety, and productivity of commercial vehicle operations on Texas highways. This chapter presents the proposed Texas CVO statewide plan which includes the mission and vision statements, goals and objectives, and a list of specific project milestones, responsibilities, and funding levels for Texas.

Five inputs were used to develop the plan: a comprehensive literature review concerning ITS-CVO, truck enforcement, truck activity in Texas, motor carrier administrative procedures, and strategic planning for CVO; an extensive analysis of trucking activity in Texas; a survey of major motor carriers with extensive and diverse transport activities in the state; a survey of experts involved in motor carrier policy and program activities in different government agencies in Texas; and a series of meetings of the TTI research team and the project advisory committee.

3.1 MISSION AND VISION STATEMENTS

The mission and vision statements were proposed by the research team during a meeting with members of the advisory committee. The statements were then evaluated, examined, and analyzed by the advisory committee members for clarity, conciseness, and content, and proposed changes were made. The following are the resulting mission and vision statements.

Texas CVO Mission Statement

To ensure a safe, legal, efficient, and technologically advanced movement of goods by streamlining motor carrier administrative and enforcement activities in the state.

Texas CVO Vision Statement

The safe, legal, and efficient operation of commercial vehicles within the state.

3.2 GOALS AND OBJECTIVES

Using the same approach as for the mission and vision statements, the research team proposed the goals and objectives of the strategic plan. The advisory committee then evaluated, examined, and analyzed these goals and objectives for clarity, conciseness, and content. Table 3-1 shows these goals and objectives, and the tasks that will help to achieve them. This table was also developed in consultation with the advisory committee.

Table 3-1. Goals and Objectives of the Proposed CVO Strategic Plan

GOAL	OBJECTIVES	TASKS TO ACHIEVE THE OBJECTIVES
1. ENHANCE HIGHWAY SAFETY IN THE STATE		
1	*Increase motor carrier compliance with size, weight, and safety regulations.*	• Develop and implement a system for DPS to identify all motor carriers operating in the state. • Develop and implement a system to target motor carriers with unsatisfactory safety ratings as well as motor carriers with no safety rating. • Utilize the current network of WIM and AVC devices for improved enforcement of weight and safety regulations. • Provide incentives to motor carriers for improved performance.
2	*Reduce the frequency and severity of crashes involving commercial vehicles on Texas highways.*	• Promote a uniform and coordinated statewide incident management system for the transportation of hazardous materials. • Educate the driving population to share the road with commercial vehicles. This also includes truck drivers. • Use multi-media methods to provide timely information about traffic conditions, incidents, weather, and road conditions. • Develop and make available a system in which motor carriers involved in crashes are automatically linked to emergency response.

Table 3-1. Goals and Objectives of the Proposed CVO Strategic Plan (Continued)

GOAL	OBJECTIVES	TASKS TO ACHIEVE THE OBJECTIVES
2. ENHANCE CVO ADMINISTRATIVE AND REGULATORY EFFICIENCY		
1	*Conduct paperless CVO with current, accurate, timely, and verifiable electronic information.*	• Increase the use of portable computers in the field to assist with the conduct of roadside safety inspections. • Use enhanced technologies and information systems to exchange data electronically with regulatory agencies and industry. • Continuously update and enhance the database containing the safety records of the motor carriers. • Implement a system to ensure compliance with the state's fuel tax reporting, credential requirements, and oversize/overweight operations.
2	*Implement a one-stop shop for registration, operating authority, fuel taxation, and permitting.*	• Use enhanced technologies and information systems to exchange data electronically with customers. • Continuously update and enhance the database containing commercial vehicle registration information. • Implement a geographical information system (GIS) for route optimization during permitting. • Develop and implement a system to electronically transmit IRP and IFTA data to and from other jurisdictions.
3	*Enhance information sharing of non-proprietary data.*	• Use enhanced technologies and information systems to exchange data electronically with regulatory agencies and industry. • Promote increased communication among the partners involved in commercial vehicle operations. • Use data exchange methods among systems that will maximize data integrity and minimize unauthorized access.

Table 3-1. Goals and Objectives of the Proposed CVO Strategic Plan (Continued)

GOAL	OBJECTIVES	TASKS TO ACHIEVE THE OBJECTIVES
3. IMPROVE MOTOR CARRIER PRODUCTIVITY		
1	*Reduce delays during size, weight, and safety inspections.*	• Automate roadside safety inspections. • Maintain a well-trained inspection force. • Upgrade designated weighing areas to ensure safe Level 1 inspections.
2	*Reduce the impact of traffic congestion on CVO.*	• Use multimedia methods to provide timely information about traffic conditions, incidents, weather, and road conditions. • Deploy electronic clearance of commercial vehicles at the Texas-Mexico border.

Table 3-1. Goals and Objectives of the Proposed CVO Strategic Plan (Continued)

GOAL	OBJECTIVES	TASKS TO ACHIEVE THE OBJECTIVES
4. MINIMIZE INSTITUTIONAL AND TECHNOLOGICAL BARRIERS TO ENHANCE ECONOMIC GROWTH		
1	*Simplify CVO rules and regulations.*	• Coordinate with other states to standardize some of the basic motor carrier regulations. • Institute a continuous review process to update and streamline rules and regulations. • Ensure consistency and reduce redundancy of roadside inspections.
2	*Evaluate and implement technology to streamline motor carrier operations.*	• Use technologies which are fully developed, considering technologies currently being used by the industry and other jurisdictions. • Promote advanced technologies for fleet management and improved operations. • Conduct objective evaluations of the impact of advanced technologies on CVO. • Train users for operation of new technology.
3	*Promote increased communication among the partners involved in commercial vehicle operations.*	• Educate all stakeholders on ITS-CVO initiatives and expected impacts on the state's economy.

3.3 LIST OF PROJECTS FOR IMPLEMENTATION OF THE PROPOSED PLAN

This section presents a list of projects for implementation, which address the four goals and 10 objectives of the proposed CVO strategic plan for Texas. In order for Texas to maximize the amount of federal funds received, particularly for the projects presented in this section, it is recommended that the state become part of the U.S. National Mainstreaming Program. This first requires the submission of a Business Plan, which will place Texas in a position to receive federal funding for CVO. Federal funding is contingent upon meeting federal requirements and will be made available in a multi-year program for the various states and within the phasing planned by U.S. DOT.

Table 3-2 presents general information about the projects in the proposed CVO strategic plan for Texas. It is important to understand that because this is a plan for approximately a 10-year period, the estimated costs, funding sources, and time frames are subject to change.

Table 3-2. List of Projects for the Proposed CVO Strategic Plan

Project	Estimated Start Date	Estimated Total Cost ($Million)	Participating Agencies
1. Statewide Information Database System (SIDS) deployment	FY 1999	1.3	DPS, FHWA
2. Motor carrier identification system	FY 2000	0.2	DPS, TxDOT
3. Automation of roadside safety inspections	FY 2000	25.0	DPS, FHWA, TxDOT
4. Upgrading of designated weighing areas	FY 1999	2.0 per site	DPS, TxDOT
5. Use of WIM and AVC devices for enforcement	FY 1999	0.5 per 10 years	DPS, TxDOT
6. Statewide incident management system	FY 2001	8.0	DPS, TxDOT
7. Implementation of a one-stop shop	FY 1999	2.0	Comptroller, DPS, TxDOT
8. Technology user training program	FY 2000	0.1 per year	DPS, TxDOT
9. Implementation of information systems	FY 2001	5.8	DPS, TxDOT
10. Share-the-road campaign	FY 1999	0.5	Motor carriers, TxDOT
11. Creation of a special task force	FY 1999	0.008 per year	DPS, TxDOT
12. Electronic clearance at the Texas-Mexico border	FY 2002	1.0	DPS, TxDOT, U.S. Customs, U.S. Immigration

PROJECT 1: Statewide Information Database System (SIDS) Deployment. This project involves purchasing additional laptop computers and installing SIDS software for enforcement in all regions (other types of software and databases will be installed in these computers as part of other projects). At the present time, only troopers in the Corpus Christi region are equipped with laptop computers as an aid for enforcement. Troopers in the Midland and Waco regions will be next in acquiring the same type of equipment with the remainder of the regions within one year.

This is the first step toward automation of the inspection process in the state. Immediately following inspection of a commercial vehicle, troopers will enter the information about that particular vehicle directly into the laptop computer, rather than on a conventional paper report form. Currently, a supervisor must check trooper forms as submitted; this can be expedited with computers and communication links throughout the state. These computers will also be used for electronic data exchange between troopers and other agencies involved in commercial vehicle operations. In the future, these laptops will also be used by enforcement officers in the field to electronically access safety records of individual motor carriers, as well as credentials and permits.

PROJECT 2: Motor Carrier Identification System. This project involves developing and implementing a system for DPS to identify all Texas-based motor carriers that operate in the state. Currently there are many unknown motor carriers operating in the state. This results in an undesirable advantage for motor carriers that are not known by DPS since they are not subject to facility audits, carrier ratings, and compliance reviews. Once such a system is in place, and the vast majority of motor carriers operating in the state are identified, it is recommended that a system be implemented to identify motor carriers with unsatisfactory safety ratings, as well as motor carriers with no safety rating at all.

PROJECT 3: Automation of Roadside Safety Inspections. This project will automate roadside safety inspections by providing enforcement personnel with real-time access to vehicle, driver, and motor carrier facility records. This includes information about previous roadside safety inspections and out-of-service defects, motor carrier credentials, permits, and safety ratings. The system will function using wireless communication and will enhance or replace the current radio system being used by DPS. The biggest cost will be the communication upgrade.

PROJECT 4: Upgrading of Designated Weighing Areas. This project will upgrade designated weighing areas to ensure safe Level I inspections. Currently there are 245 designated weighing areas in the state including permanent (in-ground) scales, weigh strips, and other weighing areas. Almost one-half of these designated weighing areas (44 percent) are not suitable for Level I inspections. The upgrade will consist of infrastructure improvements at each weighing area and the installation of weigh-in-motion (WIM) devices in advance of the scale for both directions of traffic. In addition, the WIM sites should be designed to send real-time data, either by telephone or by wireless communication, to a central DPS location for truck weight monitoring purposes. This will help DPS determine which weighing areas to open for enforcement. For example, incoming data from two WIM systems may indicate that in one case

99 percent of the trucks are within the maximum allowable weight limits and in the other case only 85 percent are legal. This would suggest where enforcement personnel are needed the most.

PROJECT 5: Use of WIM and AVC Devices for Enforcement. This project will utilize the existing network of WIM and AVC systems for improved enforcement of weight and safety regulations by making use of telephone lines or wireless communication technology to link these data collection sites with a central DPS location (or dispatch office). The data collected by TxDOT will be shared with DPS to achieve this objective. This project would supplement another project to upgrade the designated weighing areas. Compatibility of equipment between the two projects is essential.

PROJECT 6: Statewide Incident Management System. This project will use global positioning systems (GPS) in a uniform and coordinated manner to provide real-time information about incidents involving hazardous materials. This project will also involve the development of a system in which motor carriers involved in crashes are automatically linked to emergency response. In cases where hazardous materials are involved in the crash, the incident management system enables emergency responders to have real-time access to hazardous material information on the scene.

PROJECT 7: Implementation of a One-stop Shop. This project will develop a plan to implement either a single physical location or point of contact where motor carriers will obtain all permits and credentials needed to operate in the state. Part of this project includes developing and implementing a centralized system to electronically exchange data with regulatory agencies and industry. The data contained in this system will be continuously updated and enhanced. The technology used in the development of the system will be compatible with that used by the industry and other jurisdictions. The data exchange methods used will be designed to maximize data integrity and minimize unauthorized access. Another component of this project involves implementing advanced technologies to electronically transmit International Registration Plan (IRP) and International Fuel Tax Agreement (IFTA) data to and from other jurisdictions.

PROJECT 8: Technology User Training Program. This project involves developing and implementing a training program for users of the new technology introduced by the different agencies involved in commercial vehicle operations. Because there will be a process of improvement by the implementation of new technology for streamlined motor carrier operation in the state, there is also a need for versatile staff (users) that can readily operate this new technology. The training program will involve training on how to use the following: (1) SIDS software during enforcement; (2) the motor carrier targeting system; (3) the databases and software developed for the automation of roadside safety inspections; (4) weigh-in-motion data received at the central DPS office for personnel dispatch; (5) the statewide incident management system; and (6) all data exchange practices and functions of a one-stop shop.

PROJECT 9: Implementation of Information Systems. This project investigates and develops a plan to use multi-media methods to provide timely information about traffic conditions, incidents, and other travel-related issues. These systems are already being used in

metropolitan areas in the state but have not been implemented in rural areas. Information systems could be implemented on the roadside in the form of variable message signs, or at truck stops and rest areas. Real-time information provided by these systems could include traffic conditions, roadway congestion, detours, locations of accidents, weather and road conditions, optimal routes, and lane restrictions.

PROJECT 10: Share-the-Road Campaign. This project would develop and launch a campaign to educate the automobile driving population about how to share the road with large commercial vehicles. Similarly, the campaign could also be addressed to truck drivers who share the road with other trucks and automobiles. This campaign will inform drivers about operating capabilities of trucks (for example, stopping distances, blind spots, and turning requirements) and other important issues that are present when heavy vehicles and automobiles share the road (for example, driving behavior of automobile drivers). The campaign may include television and radio broadcasts, printed brochures, and roadside billboards.

PROJECT 11: Creation of a Special Task Force. This project will create a special task force to address institutional issues that affect motor carriers and agencies involved with commercial vehicle operations. This task force will (1) coordinate with other states to standardize some of the basic motor carrier regulations such as maximum width, length, height, gross vehicle weight, and others; (2) institute a continuous review process to update and streamline rules and regulations, removing those which are obsolete to commercial vehicle operations; and (3) coordinate with researchers or other institutions to conduct objective evaluations of the impact of advanced technologies on commercial vehicle operations.

PROJECT 12: Electronic Clearance at the Texas-Mexico Border. This project will deploy electronic clearance at the Texas-Mexico border. Texas is currently participating in the Texas Regional International Border Electronic Crossing (TRIBEX) project. This project is a public-private partnership created for the purpose of demonstrating commercial vehicle intelligent transportation systems technology at international bridges using dedicated short-range communications and other onboard systems, electronic cargo seals, and weigh-in-motion. This project will also support the North American Trade Automation Prototype (NATAP).

3.4 OBSERVATIONS RELATED TO SAFETY AND ECONOMIC IMPACTS IN TEXAS

With the knowledge gained from this research regarding safety and economic implications of ways to streamline motor carrier operations, the research team developed a qualitative evaluation matrix. Table 3-3 contains each of the proposed projects in the strategic plan and the possible safety and economic impacts of those projects on commercial vehicle operations in Texas. There is a high level of variation among jurisdictions in costs and cost savings associated with the streamlining of motor carrier operations. A comprehensive quantitative analysis requires a large capital investment and is beyond the scope of this project. For that reason, Texas needs to evaluate investment decisions in the context of its own regulatory and enforcement framework before implementing any of the recommended projects in this plan.

Table 3-3. Qualitative Assessment of Each Proposed Project

Project	Safety Impact			Economic Impact		
	Positive	Negative	Not known	Positive	Negative	Not known
1. SIDS deployment	✓		☆	✓☆		
2. Motor carrier targeting system	✓ ☆			✓		☆
3. Automation of roadside safety inspections	☆		✓	✓ ☆		
4. Upgrading of designated weighing areas	✓		☆	✓		☆
5. Use of WIM and AVC devices for enforcement			✓ ☆	✓		☆
6. Statewide incident management system	✓☆			✓☆		
7. Implementation of one-stop shopping			✓ ☆	✓☆		
8. Technology user training program			✓☆	✓		☆
9. Implementation of information systems	☆		✓	✓☆		
10. Share-the-road campaign			✓ ☆			✓☆
11. Creation of special task force			✓☆			✓☆
12. Electronic clearance at the Texas-Mexico border			✓ ☆	✓☆		

✓ Public sector
☆ Private sector

From the analysis, four of the proposed projects in the strategic plan can be expected to have a positive safety impact on both the public and private sectors involved in commercial vehicle operations in the state. These projects could play a role in enhancing highway safety in the state by increasing motor carrier compliance with size, weight, and safety regulations, and by helping reduce the frequency and severity of crashes involving commercial vehicles. The safety impact is not known for the remaining eight proposed projects. Regarding the economic impact of the proposed projects, it can be expected that 10 of the projects will have a positive impact on the public sector and six on the private sector involved in commercial vehicle operations in Texas. This could result from enhanced CVO administrative and regulatory efficiency, improved motor carrier productivity, and reduced institutional and technological barriers that currently inhibit economic growth. The public sector economic impact of two of the proposed projects and private sector impact of six of the projects is not known.

A study by the National Governors Association provides several general comments about safety and economic benefits of using electronic methods to streamline motor carrier operations. The first is that the participation of the motor carrier industry is very important to maximize the benefits obtained from the application of advanced technologies. Second, when designing and deploying new systems, states should use that opportunity to change or modify their regulatory processes to increase economic benefits from the new system. The third consideration is that interstate cooperation on the deployment of advanced technologies for CVO maximizes motor carrier participation rates and reduces per-state investments. The fourth has to do with incentives, such as discounts on motor carrier fees for carriers that use electronic credentialing, which will encourage more rapid participation in the state programs by the motor carrier industry *(2)*.

4.0 REFERENCES

1. Booz-Allen & Hamilton Inc., et al., "COVE Study Final Report and Implementation Plan, Overcoming CVO Institutional Barriers: Recommended Action," Texas Report, July 1994.

2. Rubel, Thom, *State Fiscal Implications of Intelligent Transportation Systems/Commercial Vehicle Operations Deployment*, National Governors Association, Washington, D.C., 1998.