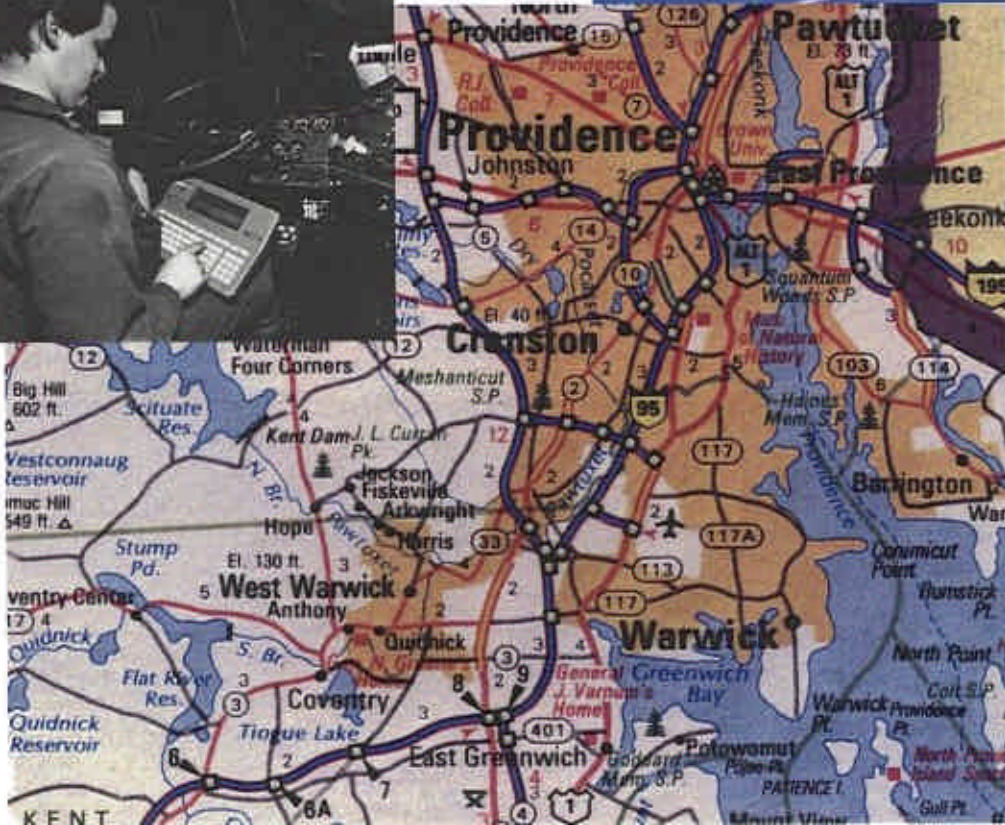
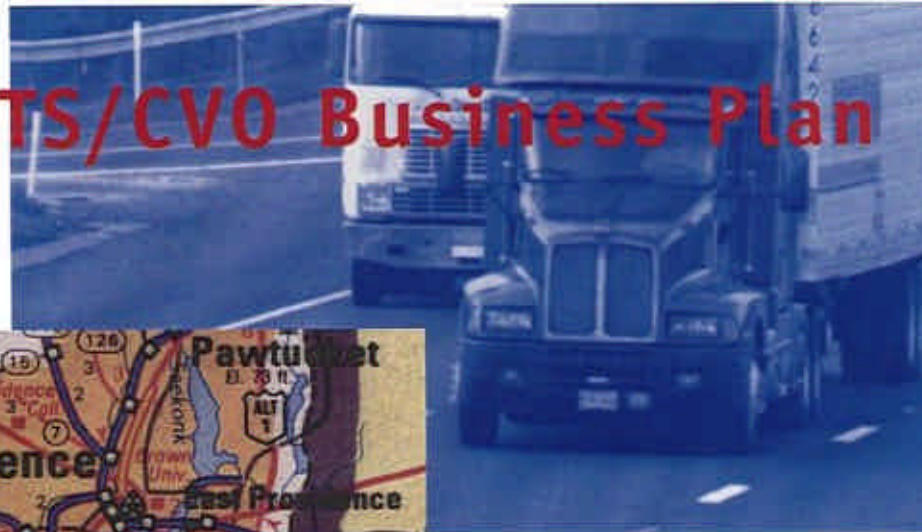


Rhode Island ITS/CVO Business Plan

Final Report



Prepared for
State of
Rhode Island



Prepared by the
ATA Foundation



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1.0 Introduction and Overview of Business Planning Process

The Rhode Island Intelligent Transportation Systems/Commercial Vehicle Operations (ITS/CVO) Institutional Issues Study completed July 1996, substantiated the need for enhanced efficiency and safety in commercial transportation systems and regulation. The study examined the opportunities and potential barriers to using evolving information technologies to implement a seamless flow of data which could provide timely and accurate information across the spectrum of users.

The Rhode Island ITS/CVO business planning process builds upon the previous effort through education and consensus development among Rhode Island motor carriers and the agencies responsible for highway operations and the regulation of commercial motor vehicles in the state. This effort identified the desired goals and objectives for ITS/CVO in Rhode Island; examined the current state of motor carrier enforcement and regulatory interactions; and, reviewed ongoing and planned ITS efforts in the state. These were used to highlight where there are potential shortfalls between the desired goals and objectives and the ITS programs in the state and to identify the necessary steps to realize the potential benefits of ITS/CVO.

The functional vision for ITS/CVO deployment in Rhode Island is an environment in which:

- Motor carriers can apply for and receive credentials and pay taxes and fees electronically from their places of business not constrained by agency business hours.
- Motor carriers can electronically access information regarding regulations, the safety performance of their fleets, and roadway conditions.
- Agencies can readily accept, process, and exchange information reducing administrative costs and enabling roadside enforcement to focus inspections on high-risk carriers.

The information architecture to support this functional vision is being developed through the Federal Highway Administration (FHWA)-sponsored Commercial Vehicle Information Systems and Networks (CVISN) model deployment program and numerous field operational tests of CVISN elements. Neighboring Connecticut is among nine CVISN pilot and model deployment initiatives being conducted across the nation. The Connecticut CVISN initiative is built upon effective electronic information exchange. It features electronic fee exchange, credential transmittals and recaps, on-line registration and validation, automated information exchange between agencies, and a variety of clearance, credentialing, and safety information.

Additionally, many initiatives supported through the I-95 Corridor Coalition are further refining deployment strategies for many ITS elements. The close working relationship between Rhode Island CVO agencies and their counterparts throughout the I-95 Corridor Coalition states creates opportunities for regional coordination of effort and technology transfer support. The Rhode Island Transportation Operations Center (TOC) is one example of one of many state ITS initiatives which can benefit from and compliment ongoing regional programs—regional Advanced Travel Information System for CVO (ATIS-CVO) capabilities currently under development.

The Business Planning process was culminated with the execution of a Memorandum of Agreement between the principal Rhode Island CVO agencies to support the CVISN concept and advance ITS/CVO in the state.

This Business Plan describes:

- The Rhode Island ITS/CVO Mission Statement and Guiding Principals (Sections 2 and 3).
- The goals and objectives for Rhode Island ITS/CVO deployment (Section 4).
- Current regulatory structure and activities (Section 5).
- Envisioned process changes enabled by ITS/CVO technologies (Section 6).
- Importance of Commercial Vehicle Operations in Rhode Island and how motor carriers perceive the value of ITS/CVO services (Section 7).
- Potential benefits and costs of ITS/CVO to motor carriers and agencies (Section 8).
- Current ITS projects in Rhode Island (Section 9).
- Next steps towards realizing the functional ITS/CVO vision (Section 10).

Development of the ITS/CVO Business Plan was guided by the expertise of the CVO Steering Committee, comprised of representatives from regulatory and enforcement agencies, motor carriers, and other organizations who helped define and advanced the strategic planning for ITS/CVO deployment in the state. The CVO Steering Committee met twice to provide input to the plan—on April 2, 1998 and August 25, 1998. The members of the CVO Steering Committee are listed in Appendix A. The business planning process was also enhanced through participation by Steering Committee members and other agency representatives in the FHWA-sponsored ITS/CVO training course “Introduction to ITS/CVO” held on October 22-23, 1998.

This public/private effort was lead by the ATA Foundation, Rhode Island Trucking Association, Federal Highway Administration, and Rhode Island Department of Transportation. The effort was also supported by the following Rhode Island agencies:

- Public Utilities Commission, Division of Public Utilities and Carriers;
- Department of Administration, Division of Motor Vehicles;
- Department of Administration, Division of Taxation;
- Division of State Police; and,
- Department of Environmental Management.

This effort was funded by a grant from the Federal Highway Administration ITS/CVO mainstreaming funds and a match provided by the State of Rhode Island. It is recommended that this ITS/CVO Business Plan is reviewed and periodically updated through the Rhode Island ITS/CVO Steering Committee.

2.0 Mission Statement

The ITS/CVO initiatives described in this Business Plan reflect the following mission statement:

Improve roadway safety and enhance motor carrier and agency operational efficiency through regulatory reengineering and deployment of advanced technology systems.

3.0 Guiding Principles

The Rhode Island ITS/CVO Business Plan reflects the following guiding principles:

- four guiding principles for ITS/CVO promulgated by the American Trucking Associations—cost-effectiveness; open architecture and standards (compatibility); durability; and, voluntary participation;
- the 39 guiding principles established by the ITS America CVO Programs Subcommittee with representation from the National Private Truck Council, ATA, trucking companies, owner/operators, motor coach operators, UPS, and several state administrative and regulatory agencies (Appendix B); and,
- the I-95 Corridor Coalition ITS Interoperability Resolution ratified on August 6, 1997 at the CVO Working Group meeting in Boston, MA (Appendix B).

These guiding principles ensure maximum stakeholder participation and compatibility with regional and national ITS/CVO initiatives.

4.0 Rhode Island ITS/CVO Goals and Objectives

The overriding goals of ITS/CVO in Rhode Island are to enhance the safety and operational efficiency of the State's roadways and to improve agency and motor carrier administrative efficiency. The following goals and objectives provide a framework for ITS/CVO deployments in Rhode Island:

Goal: Reduce the number and severity of accidents involving commercial vehicles and promote efficiencies in CVO enforcement and motor carrier safety compliance

Objectives:

1. Deploy roadside technologies and information to identify and focus enforcement on high-risk carriers.
2. Develop coordinated multi-state enforcement strategies.
3. Enable motor carriers' real-time access to fleet safety inspection information.
4. Automate the demonstration and verification of safety compliance.

Goal: Promote efficiencies in CVO administrative functions

Objectives:

1. Reengineer agency administrative procedures and data requirements.
2. Automate credentialing activities—acquisition, reporting, and payments.

Goal: Improve highway operations and motor carrier mobility

Objectives:

1. Support development of Advanced Traveler Information Systems (ATIS/CVO) to reduce traffic congestion impacts on motor carrier operations
2. Support public/private coordination efforts for the management of roadway incidents

5.0 Rhode Island Motor Carrier Regulatory and Enforcement Agencies— Structures, Roles, Responsibilities, and Procedures

This section provides an overview of the Rhode Island agencies responsible for highway operations and commercial vehicle operations regulation and enforcement. This review includes an assessment of agency levels of activity, procedures, and data processing capabilities.

Highway operations and the regulation of commercial motor vehicles operating in Rhode Island is conducted primarily by six agencies:

- 1) Rhode Island Public Utilities Commission, Division of Public Utilities and Carriers;
- 2) Rhode Island Department of Transportation;
- 3) Rhode Island Department of Administration, Division of Motor Vehicles;
- 4) Rhode Island Department of Administration, Division of Taxation;
- 5) Rhode Island Division of State Police; and,
- 6) Rhode Island Department of Environmental Management.

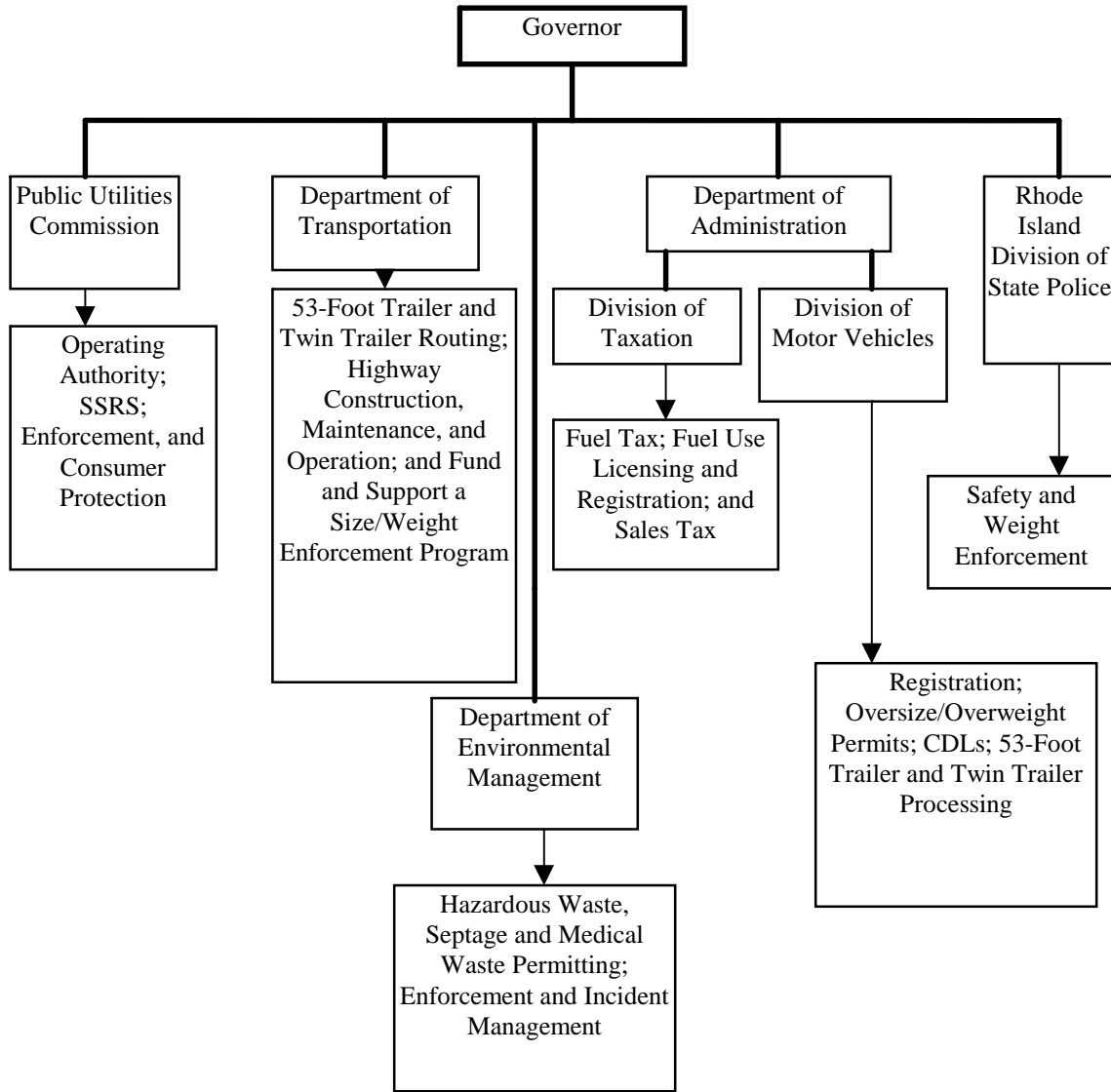
Figures 1 and 2 provide an overview of the agencies' functions and responsibilities, and described in the following text.

5.1 Rhode Island Public Utilities Commission, Division of Public Utilities and Carriers—Motor Carrier Section

Interstate carriers, operating under the jurisdiction of the U.S. Department of Transportation, must register their operations and vehicles with the Division of Public Utilities and Carriers through the Single State Registration System (SSRS). A Rhode Island-based interstate carrier files a single application for vehicle registration with the State of Rhode Island. The vehicle registration fees for each state of anticipated travel are paid annually to Rhode Island. A credential is issued which must be kept in the vehicle while operating. Total State revenues from SSRS equal \$2.4 million.

Tariff rates for common carriers of household goods and towing operations performed without prior consent of the owner or operator of the vehicle, must be approved by the Division. To receive a certificate to transport household goods, applicants must prove fitness, willingness, and ability to provide the proposed service and that a public convenience and necessity exists for the proposed service. For towing operations, the applicant needs to substantiate its fitness and ability to provide a public towing service. Public hearings are conducted on new applicants to insure fitness, willingness, and ability to provide public transportation services.

**Figure 1
Principal Rhode Island Motor Carrier Regulatory Agencies
Organizational Chart and Regulatory Functions**



Rhode Island Motor Carrier Regulatory/Enforcement Agencies and Their Responsibilities

Administrative Agencies > Functions	Public Utilities Commission	Department of Transportation	Division of Motor Vehicles	Division of Taxation	Division of State Police	Department of Environmental Management
Operating Authority	* HHG					
Single State Registration	*				* Enforcement	
Oversize/Overweight and 53-Foot/Twin Trailer		Routing 53- Foot/Twin	Processes All Permits		* Enforcement	
Registration			*		* Enforcement	
CDL			*		* Enforcement	
Fuel Tax (Sales)				*		
Fuel Use Licensing				*	* Enforcement	
Inspections	*				*	* Environmental
Size/Weight Enforcement					*	
Toll Collection						
Hazardous Waste, Septage and Medical Waste Permits					* Enforcement	*
Alcohol Beverage Permits					* Enforcement	

The Motor Carrier Section also engages in extensive enforcement and consumer protection activity. Consumer are investigated and hearings are conducted if necessary. The Division investigates consumer complaints, trucking companies operating without proper authority, and also conducts road checks in conjunction with the Rhode Island State Police. These road checks focus on fuel permits/stickers, SSRS, and intrastate trucking requirements.

5.2 Rhode Island Department of Transportation

The mission of the Rhode Island Department of Transportation (RIDOT) is to maintain and provide a safe, efficient, environmentally, aesthetically and culturally sensitive intermodal transportation network that offers a variety of convenient, cost-effective mobility opportunities for people and the movement of goods supporting economic development and improved quality of life.

RIDOT maintains 1,300 miles of state highways and over 775 bridges and is responsible for winter snow removal, safety and civil defense, maintenance of the motor aid communications system, and bridge inspections. To enhance the safety and operation of the State's roads, RIDOT is advancing incident response activities through interagency coordination and deployment of Advanced Traffic Management/Traveler Information Systems through the Rhode Island Traffic Operations Center.

In addition to constructing, maintaining and operating Rhode Island's highways, the Department of Transportation conducts route reviews for 53-Foot and twin trailers to operate on designated state roads. Individual cities and towns in the state issue their own permission for city and town roads. Once a carrier receives permission to travel over certain routes, all carriers automatically have permission to travel those routes.

5.3 Rhode Island Department of Administration, Division of Motor Vehicles

The Division is responsible for the administration of commercial motor vehicle registrations including International Registration Plan. Currently, the Division maintains approximately 1,600 IRP accounts and registrations for approximately 2,000 non-IRP fleets.

The Division also issues oversize/overweight permits. Reducible load permits are issued annually and expire at the same time as the registration. Non reducible load permits are issued by trip or on a blanket basis. In total, approximately 11,000 permits are issued annually.

Route requests for 53-Foot and twin trailer routes are received by the Division and reviewed by Rhode Island Department of Transportation. Notice of route approval or rejection is issued to the carrier by the Division. Once a route is approved for one company it is approved for all companies.

5.4 Rhode Island Department of Administration, Division of Taxation

The Division maintains approximately 1,400 International Fuel Tax Agreement (IFTA) accounts (seven of which are motor coach firms). Initial application for IFTA license is usually conducted in person, but can be done via mail. Renewal applications are mailed to carriers and returned via mail or over-the-counter. Fee payments are by cash or check.

The State uses the New York Regional Processing Center (NYRPC) to process IFTA tax filings. IFTA motor carriers are required to file quarterly fuel tax returns. Currently motor carriers mail the returns to the NYRPC lock-box bank where the information is manually entered into the tax processing system. The NYRPC generates exception reports (erroneous information, miscalculated fees, etc.) which the Division edits on-line with the NYRPC.

5.5 Rhode Island Division of State Police

The Rhode Island State Police are responsible for enforcement of rules and regulation and size and weight inspection of commercial motor vehicles. State Police are authorized to stop any

commercial motor vehicle and conduct an inspection involving transportation documents, cargo, vehicle, and drivers.

Commercial vehicle enforcement in Rhode Island is almost entirely mobile. Based on observed volumes of truck and motor coach traffic, troopers will patrol the areas and pull over commercial vehicles for random inspections. The State Police safety inspect approximately 5,000 vehicles annually. These inspections result in issuance of approximately 12,000 citations, 922 vehicles and 551 drivers placed out-of-service. The State Police also weigh approximately 9,000 vehicles per year—less than 2 percent are found to be in violation.

5.6 Rhode Island Department of Environmental Management

The Rhode Island Department of Environment Management is responsible for the issuance of annual permits for the transportation of hazardous waste, septage and regulated medical waste. Currently the Department permits 107 hazardous waste, 65 septage, and 12 medical waste transporters.

The Department mandates company certified vehicle inspection documentation for transporters of hazardous waste or septage. Before permits and decals are issued, inspection documentation must be submitted along with the application and application fee. All septic transporters are required to submit an emergency contingency plan in accordance with Rule 6.10 of the regulations and a copy must remain in the vehicle at all times.

Transporters of medical waste must obtain a permit from DEM. The permit application must be completed and returned with the following documentation: proof of ownership for each vehicle to be permitted; proof of current registration of each vehicle; a spill management plan; documentation of liability insurance; permit application fee; and, an annual inspection fee. Vehicles are inspected prior to the issuance of the permit and annually thereafter. Vehicle permits and inspection tags are issued for each vehicle.

The Department of Environmental Management performs random and unannounced inspections at company facilities and may, in conjunction with State Police, perform inspections at roadside.

6.0 Rhode Island ITS/CVO Program— Potential Process Changes

The deployment of ITS/CVO technologies can have a profound impact on the ways in which motor carriers and agencies conduct business. Many regulatory and enforcement processes could be affected through ITS/CVO deployment. The key areas of change would include:

- eliminating much manual data entry or re-transcription of information through the consolidation of data requirements and electronic transmission of carrier data;
 - improving the capacity to verify inter-agency carrier data prior to issuance of credentials;
 - improving turn-around time and reducing costs for the receipt of credentials;
 - focusing enforcement resources on high-risk carriers through roadside real-time access to safety and credentials information;
 - providing flexibility in how motor carriers demonstrate compliance with rules and regulations; and,
 - making specialized safety and travel information available to fleet managers.
- Figure 3 illustrates many of these potential changes in CVO processes resulting from ITS/CVO deployments in Rhode Island. These envisioned process changes can only be realized through many incremental procedural and regulatory changes, legacy system modifications, systems networking, and educational efforts.

Additionally, there may be several areas of CVO regulatory activity that may not initially warrant the investment in systems upgrades due to a very limited number or infrequency of transactions. One such area may be the permitting of hazardous waste or biomedical waste haulers. Automation of such functions may not necessarily be accomplished under the auspices of ITS/CVO, but could be addressed as part of future agency or statewide agency system upgrades.

Figure 3
Rhode Island CVO Agency Processes and Potential ITS/CVO Process Changes

FUNCTION	ACTION	CURRENT PROCESS	POTENTIAL ITS/CVO PROCESS
IRP Registration Division of Motor Vehicles	Submission of Application	Paper application, received by mail or in person.	Required data entered into either carrier resident electronic forms or downloaded from State server. Application information transmitted to DMV via Electronic Data Interchange (EDI) or Internet.
	Processing of Application	Data manually entered into MV3500 mini-computer with CACI Registration System which calculates invoice. Invoice is mailed to carrier.	Electronic edit checking at carrier resident software or State server. Carrier credential, tax and safety status verified electronically through Rhode Island Administrative Systems Interface. CACI Registration System generates electronic invoice.
	Payment of Fees	Cash, check or money order.	Electronic Funds Transfer (EFT), debit accounts, or credit cards.
	Issuance of Credential	Paper based, sent by mail, or picked up in person.	Electronic issuance from CACI RS to carrier via EDI or Internet.
	Interface to IRP Clearinghouse	None	Electronic via EDI.
SSRS Public Utilities Commission, Division of Public Utilities and Carriers	Submission of Application	Paper application received by mail, fax, or in person.	Required data entered into either carrier resident electronic forms or downloaded from State server. Application information transmitted to PUC via Electronic Data Interchange (EDI) or Internet.
	Processing of Application	State personnel manually enter data into [LAN-connected] Pentium PC with legacy system which calculates fee. Invoice is mailed to carrier.	Electronic edit checking at carrier resident software or state server. Carrier credential, tax and safety status verified through Rhode Island Administrative Systems Interface. PUC system generates electronic invoice.
	Payment of Fee	Certified funds.	EFT, debit accounts, or credit cards.
	Issuance of Credential	Paper based, sent via mail, fax, or picked up in person	Electronic via EDI or Internet.

Figure 3 (Continued)
Rhode Island CVO Agency Processes and Potential ITS/CVO Process Changes

FUNCTION	ACTION	CURRENT PROCESS	POTENTIAL ITS/CVO PROCESS
Intrastate Registration Division of Motor Vehicles	Submission of Application	Paper application received by mail, fax, or in person.	Required data entered into either carrier resident electronic forms or downloaded from State server. Application information transmitted to DMV via EDI or Internet.
	Processing of Application	State personnel manually enter data into stand-alone PC [486] with legacy system which calculates fee. Invoice is mailed to carrier.	Carrier information imported to DMV system. Carrier credential, tax and safety status verified through Rhode Island Administrative Systems Interface. DMV system generates electronic invoice.
	Payment of Fee	Certified funds.	EFT, debit accounts, or credit cards
	Issuance of Credential	Paper based, sent by mail or picked up in person.	Electronic issuance from DMV system to carrier via EDI or Internet.
Hazardous Waste and Biomedical Waste Permitting Department of Environmental Management	Submission of Application	Paper based, sent via mail, or in person	Electronic submission of permit application via EDI or Internet.
	Processing of Application	Data reviewed by DEM personnel and entered into PC database system.	Integration of permit system to CI for direct entry of application information.
	Payment of Fee	By check or money order.	EFT, debit accounts, or credit cards.
	Issuance of Credential	By mail.	Via Fax, EDI, or Internet.

Figure 3 (Continued)
Rhode Island CVO Agency Processes and Potential ITS/CVO Process Changes

FUNCTION	ACTION	CURRENT PROCESS	POTENTIAL ITS/CVO PROCESS
IFTA Credentials Division of Taxation	Submission of Application	Paper application, received by mail, fax or in person.	Required data entered into either carrier resident electronic forms or downloaded from State server. Application information electronically transmitted to Division via EDI or internet. EDI interface to NYRPC.
	Processing of Application	State personnel manually enter data into state computer to establish RI account. Information is sent to NYRPC to establish account. Invoice is mailed to carrier.	Carrier information imported from CVO server to Division system. Carrier credential, tax and safety status verified through Rhode Island Administrative Systems Interface. DMV system transmits information to NYRPC. Electronic invoice is generated.
	Payment of Fee	Cash, check, or money order.	EFT, debit accounts, or credit cards
	Issuance of Credential	Paper based, sent by mail, or picked up in person.	Electronic issuance of trip permits, cab cards, vehicle resident electronic "IFTA sticker". Via mail for physical IFTA Stickers.
	Interface to IFTA Clearinghouse	None	Electronic via EDI.
IFTA Quarterly Tax Returns Division of Taxation	Submission of Return	Carrier calculates fleet average MPG., miles per jurisdiction and gallons per jurisdiction. Carrier uses rate tables to compute tax due. Carrier submits tax return by mail or fax.	Carrier tax information submitted to NYRPC via internet or EDI from carrier legacy system.
	Processing of Returns	Paper returns forwarded to NYRPC bank lockbox. Bank personnel perform data entry and processing of returns. Bank forwards data files to NYRPC which forwards data to RI Division of Taxation using EDI.	Electronic returns to NYRPC which verifies carrier tax liabilities and payments, and issues state net settlements. Carrier data forwarded to Division via EDI. Edits performed by Division online to NYRPC.
	Remittance of Tax	Certified funds. For amounts over \$25,000, EFT required by RI Division of Taxation.	EFT, debit accounts, or credit cards
	Auditing	Via mail or visitation of carrier site.	Electronic audit inquiries and carrier response.

Figure 3 (Continued)
Rhode Island CVO Agency Processes and Potential ITS/CVO Process Changes

FUNCTION	ACTION	CURRENT PROCESS	POTENTIAL ITS/CVO PROCESS
OS/OW Permitting Division of Motor Vehicles	Submission of Application	Paper application, received by mail, fax or in person.	Electronic submission of permit application via internet or EDI by carriers.
	Processing of Application	State personnel process application and calculate fee manually. Routes are checked manually and cross-checked with DOT, which confirms route with local authorities as required. Information entered into state computer database.	Information electronically received via CATS/CI. Alternatively, fax applications digitized via Optical Recognition technology. Agency data entry eliminated. System improvements to allow more vehicle configuration options to be processed. Electronic transfer of information from OS/OW Permitting to/from DOT. GIS for route verification/approval. OS/OW permit information available to roadside on a 24 hour basis.
	Payment of Fee	Certified funds. (Cash, check, M. O.)	EFT, debit accounts, or credit cards.
	Issuance of Credential	Paper based, sent via mail, fax, or picked up in person.	Via Fax, EDI, or internet to carrier or vehicle.
TRAVELER INFORMATION FOR CVO Department of Transportation	Method of Collecting Information	Motorist cellular phone calls, police radio, DOT issued highway construction advisories, loop detection (45 continuous count, 14 of these provide speed info, 2 CCTV cameras.	Motorist cellular phone calls, police radio, DOT issued highway construction advisories, 30 CCTV cameras, loop detection
	Method of Distributing Information to Highway Operations Groups, emergency responders	Radio communications only between responders, land-line communications.	I-95 Corridor Coalition Information Exchange Network (IEN) to access RIDOT main office and Lincoln barracks.
	Method of Disseminating Traveler Information to CVO	Highway Advisory Radio [1610 AM], Road Weather Information System (RWIS) RIDOT website and toll-free phone for not-real-time traffic reports.	Variable Message Signs, <i>FleetForward</i> FOT 6 program, Highway Advisory Radio, internet.

Figure 3 (Continued)
Rhode Island CVO Agency Processes and Potential ITS/CVO Process Changes

FUNCTION	ACTION	CURRENT PROCESS	POTENTIAL ITS/CVO PROCESS
ROADSIDE SCREENING and SAFETY ENFORCEMENT Division of State Police, Public Utilities Commission, Division of Public Utilities and Carriers	Method for Identifying Carrier ID, Vehicle, and Weight of Vehicle	Paper copy of credentials requested during roadside inspections. Note: DOT maintains four WIMS and provides Division of State Police with printout of vehicle totals/weights monthly.	No plan for electronic identification of carrier, vehicle or weight in RI. Possible technologies—DSRC; LPR;WIM. Evaluating possibility of partnering with CT to operate an inspection site in CT near the RI border. (Three year planning horizon)
	Screening Method	Pen-based laptop with ASPEN inspection software, CDPD—US DOT or ICC numbers used to query ASPEN using ISS (3 month old data) to determine whether or not to inspect the vehicle. Visual observation of vehicle	US DOT or ICC numbers used for ASPEN interface to RILETS using ISS to query IRP, IFTA, SSRS, OS/OW, CDLIS, Intrastate, Criminal databases, and SAFER Data Mailbox. (by IIIQ 1998)
	Method for Recording Inspection Results	Pen-based laptop PC [Panasonic CF 25].with ASPEN inspection software, CDPD upload.	Additional PC-ASPEN units.
	Method for Recording and Issuing Citations	Paper. Handwritten by issuing officer. State Police Trooper types information onto forms sent to Administrative Adjudication Court for key-entry into AAC database.	Electronically recorded on mobile data units, paper citation issued, CDPD transmittal of information to safety databases.
	Distribution of Inspection Results to Other Inspection Sites Within the State	Radio communications only between officers.	Pen-based laptop PC [Panasonic CF 25], interfaced to SAFER Data Mailbox using CDPD via ASPEN.
	Distribution of Inspection Results to other States	Radio communications only between officers.	Pen-based laptop PC [Panasonic CF 25], interfaced to SAFER Data Mailbox using CDPD via ASPEN.
	Electronic Interface to Send Credential Data to Roadside	None.	Pen-based laptop [Panasonic CF 25] computer with ASPEN CDPD interface to RILETS database of registration, license, criminal, CDLIS, Safetynet and SAFER Data Mailbox.

7.0 Commercial Vehicle Operations in Rhode Island

The motor carrier industry supports the economic well being of the State by providing the crucial intermodal link to rail, sea, and air transport facilities which make Rhode Island a gateway to world trade. Recognizing the importance of freight and passenger motor carriers to the State, Rhode Island has worked closely with the industry to improve the ways in which the industry is regulated and taxed. This close working relationship is a strong enabling force for future ITS/CVO technology deployment efforts in the State.

7.1 Economic Importance of Commercial Vehicle Operations in Rhode Island

Rhode Island is often heralded as the cradle of the industrial revolution with the establishment of the Slater Mill in 1793. Since that time, the state has built a stable, diversified economy. In recent years, the state has experienced the same economic changes seen in other states: increases in service sector employment; higher manufacturing productivity, and global competition. Rhode Island provides an important business and transportation platform for companies based in the Ocean State and those in surrounding states. Within 300 miles of Providence, more than 50 million people reside, representing a combined income of more than one trillion dollars. In this same vicinity, thousands of businesses are engaged in commerce, moving millions of tons of freight to ports all over the world.

With a sizable, well-educated workforce and a strong multimodal distribution system, Rhode Island is well positioned in the global economy. Rhode Island's trucking industry plays an essential role in all of this economic activity. Trucks transport over three-quarters, or 22.3 million tons, of all manufactured freight to and from Rhode Island. Trucking freight movement into and from Rhode Island is forecast to increase nearly 1.4 million tons by the year 2000, a six percent increase. Trucks stock 100 percent of Rhode Island's 17,183 retail stores and service enterprises and exclusively serves 86 percent of all Rhode Island communities.

Rhode Island is home to over 3,600 for-hire and private interstate trucking businesses. In 1996, the trucking industry employed 30,779 people in Rhode Island, or one out of every 12 workers. The industry created 2,930 new jobs between 1990 and 1996, a 10.5 percent sector increase. Trucking industry wages continue to outdistance average wages for many other industries. Rhode Island's trucking industry paid its workers an average of \$32,947 in 1996. The benefits to the state's economy from the trucking industry's payroll is substantial—over \$831 million in trucking-related salaries. Through personal expenditures, trucking industry workers circulated many more millions of dollars through the state's economy.

Trucks provide the integral link for the state's hundreds of miles of rail track, its international airport, and the deep-sea ports of Providence and Quonset/Point Davisville, part of a ten mile commercial waterfront. This concentrated intermodal transportation system allows shippers to send goods and commodities around the world with faster delivery times than most other east-coast sea ports.

Rhode Island's highways are a key attribute for economic development by providing access to lucrative East Coast markets. The Rhode Island trucking industry transports myriad goods to these markets and beyond. Interstates 95, 195, and 295 are the major elements of the state's highway system, in addition to a number of secondary routes.

These highways are maintained and constructed with state and Federal funds collected from all highway users. Trucks pay the lion's share of these highway user fees. In 1996, the trucking industry paid over \$57.3 million in state and Federal highway user taxes, representing 22.3 percent of total highway user taxes collected in Rhode Island. Of this, over \$38.1 million was paid to the state.

Moving into the next century, it is clear trucking will increasingly play a crucial role in the economic vitality of the state through job creation, infrastructure financing, and providing the freight link to the global economy.

7.2 Rhode Island Motor Carrier Preferences ITS/CVO Services

The success of ITS/CVO programs in Rhode Island will depend upon the voluntary participation by a significant proportion of motor carriers. The carriers will participate only if they view the value of the programs to their operations as significant and exceeding any financial or other risks. Additionally, strong motor carrier participation requires government-sponsored electronic services to interface seamlessly with existing motor carrier systems and technologies.

To estimate the potential motor carrier participation in several envisioned Rhode Island ITS/CVO services, approximately 500 small, medium, and large Rhode Island motor carriers were mailed a survey questionnaire (Appendix C). The survey asked the motor carriers to:

- list the technologies they currently use;
- rank the potential value of ITS/CVO services to their operations; and,
- indicate preferred payment methods for electronic regulatory transactions.

72 companies (including three motor coach firms), representing the broad diversity of commercial vehicle operations in Rhode Island completed the questionnaire. The motor carriers responding to the questionnaire indicated the value of envisioned ITS/CVO services to their businesses using a scale of one to five—one equals “no value”, five equal “very valuable.” Based on these responses, an average value was calculated for each the ITS/CVO services.

The average value calculated for Electronic Application/Reception for Oversize/Overweight Permits was based on the responses from only motor carriers who require the permits. The services were then ranked according to the calculated average value to motor carriers. Figure 4 presents these rankings.

The ITS/CVO services estimated to have the highest initial and potential participation are those that are informational—access to information about travel conditions, fleet safety performance, and motor carrier rules and regulations. Realizing potential motor carrier participation could be

rapid due to the relatively low cost of enabling technologies, low business risks, and medium to high benefits in terms of enhanced fleet operations and safety management.

Figure 4
Rhode Island Motor Carrier Ranking of ITS/CVO Services

Average Value Ranking	ITS/CVO Service	Average Value 1=no value; 5=very valuable	Total Respondents Who Ranked ITS/CVO Services
1	Real-Time Access to Traffic and Road Conditions	3.3	64
2*	Electronic Application/Reception for Oversize/Overweight Permits	3.2	21
2	Electronic Access to Motor Carrier Regulations	3.2	63
3	Electronic Application/Reception of Registration Credentials	3.0	66
4	Real-Time Access to Fleet's Safety Information	2.9	64
5	Electronic Fuel Tax Filings	2.8	64
6	Roadside Clearance for Safe and Legal Carriers	2.7	57
7	Electronic Fuel Tax Credentials Applications	2.5	51

* Responses from only motor carriers who require oversize/overweight permits.

Participation in the electronic credentialing services for registrations, fuel tax administration, and oversize/overweight permitting can be expected to be modest at first, then developing slowly towards full potential. Similar to the informational ITS/CVO services, technology costs and business risks are low, but low to medium benefits in terms of reduced administrative costs can be expected.

Roadside screening enabled by DSRC (RF Tags) is not practicable in the foreseeable future as very few motor carriers traveling the state use a tag for electronic toll payments or equipment tracking. In the far-term, use of remote identification technologies like DSRC for commercial vehicles may increase due to container/vehicle tracking as the Quonsett Point/Davisville port is developed.

A choice of payment options for fees and taxes will also make the electronic credentialing/tax administration service more attractive to motor carriers. The survey respondents were asked to check off the payment options they would prefer to use. The following choices were indicated by the 72 respondents:

- 47 percent are not interested in electronic payments;
- 27 percent would use a credit card;
- 11 percent would use debit accounts;
- 20 percent would use electronic funds transfer; and,
- five percent indicated they would be interested in other options.

Important factors in realizing full market potential and maximizing the rate of market penetration

will include:

- the early demonstration and promotion of service functionality and value to motor carriers;
- synergies created through bundling of services (i.e., one-stop electronic credentialing);
- synergies created through regional and national deployment of ITS/CVO;
- cost effectiveness;
- multiple modes for technical access (i.e., EDI or Internet for electronic credentialing, or EDI, Internet, or cellular phone for travel information); and,
- assurances of security and limits of use for motor carrier data.

8.0 Benefits and Costs of ITS/CVO

Several studies have been conducted in which the potential benefits and costs of ITS/CVO programs have been described. Two studies have systematically assessed benefits and costs to motor carriers and state agencies. These are:

- **Motor Carrier Assessment**—*Assessment of Intelligent Transportation Systems/Commercial Vehicle Operations User Services: ITS/CVO Qualitative Benefit/Cost Analysis*—ATA Foundation, June 1996; and,
- **State Agency Assessment**—*Budgetary Implications of ITS/CVO for State Agencies, State Processes for Commercial Vehicle Operations*—Apogee Research, Castle Rock Consultants, and Center for Transportation Research and Education—National Governors’ Association—November 1997.

The executive summaries for these two studies are contained in Appendix D.

The ATA Foundation-led research developed ranges of benefit/cost ratios based on the potential for ITS/CVO services to reduce the costs of regulatory compliance for motor carriers. Potential operational and safety benefits were qualified in the study and are being quantified in current ATA Foundation research. Based on a survey of 700 motor carriers and supported by a 36-member Technical Working Group (comprised of motor carriers, technologists, and government regulatory specialists) the effort calculated the costs of regulatory compliance for motor carriers. Performance improvements in non-regulatory motor carrier activities made through technology, allowed estimation of the potential benefits of applying said technology to the regulatory process.

The study showed the greatest benefits to motor carriers could come from the simplification of regulatory requirements; the ability to conduct transactions with government agencies electronically; access to real-time information to improve fleet management. The targeting of high-risk operators for roadside safety inspections rather than inspecting the general motor carrier population also showed promise for several segments of the industry.

The study calculated the following range of ITS/CVO services benefit/cost ratios for motor carriers:

- Automated CVO Administrative Processes-(2.0:1 to 19.8:1);
- Roadside Screening of Carriers (Electronic Clearance)-(0.0:1 to 7.5:1);
- Automated Vehicle Inspection Procedures (positive benefits with no direct motor carrier costs);
- Automated Hours of Service Reporting and Verification-(1.1:1 to 1.6:1);and,
- Freight Mobility (enhanced fleet management)-(1.5:1 to 5.0:1)

The results of the study show that the ITS/CVO functions holding the greatest promise for motor carriers are automated credentialing, enhanced routing and dispatching through access to real-time travel information, and enforcement targeting of “high-risk” carriers. The study also framed

several motor carrier concerns about mandated participation, equity and fairness, and data privacy.

The National Governors' Association-sponsored study examined the potential benefits and costs of ITS/CVO to state agencies for eight case-study states. These include California, Colorado, Connecticut, Delaware, Florida, Kentucky, Minnesota, and New Jersey. These states were selected for study to create base-line representations for other states.

The study developed benefit/cost assessments for each state for electronic permitting services and roadside management services (safety/credential information systems and weigh-in-motion technologies). The ratios were developed for two deployment scenarios—aggressive and conservative deployment scenarios. A ten-year horizon was used for the calculations.

The Delaware case study is the most representative for potential Rhode Island ITS/CVO deployments. The estimated benefit/cost ratios for the Delaware case study were as follows:

- Electronic Permitting/Credentialing:
 - Conservative Deployment (1.0:1)
 - Aggressive Deployment (0.53:1)

- Automated Roadside Management:
 - Conservative Deployment (0.10:1)
 - Aggressive Deployment (0.07:1)

The calculated agency benefit/cost ratios for the Delaware case study suggest that electronic credentialing programs can be economically feasible for Rhode Island especially through leverage of transfer opportunities for software and technical support from lead-ITS/CVO deployment states.

This analysis also suggests that Automated Roadside Management services in Rhode Island may not be justified on state savings alone. It should be noted that the Delaware case study includes several high-cost fixed-site roadside enforcement functions which are not applicable to Rhode Island's mobile enforcement strategy and which significantly drive down potential benefit/cost ratios. A significant benefit not included in the analysis was value of accidents that may be avoided through coordinated safety enforcement efforts.

Leon M. Moses and Ian Savage in their analysis—*A Cost Benefit Analysis of United States Motor Carrier Safety Programs*, Journal of Transport Economics and Policy (Vol. 31, #1)—concluded that carrier review/educational contact programs could have benefit/cost ratios of 4:1, while roadside inspection programs show a 1:1 ratio.

These calculated benefit/cost ratios do imply that the possible synergies of the two types of programs or potential process improvements within the context of ITS/CVO (i.e., technology

enhanced inspection data collection/analysis and enforcement targeting of high-risk carriers directly supporting the development and delivery of specialized educational programs to address deficiencies in motor carriers' safety management) could realize significant benefits in terms of reducing incidents and improving enforcement and agency productivity.

9.0 ITS In Rhode Island

ITS deployments in Rhode Island are currently focused on congestion mitigation and safety enforcement. These efforts fall under the auspices of three ITS programs—Rhode Island Transportation Operations Center—Advanced Traffic Management and Information Systems (ATMS/ATIS); and two FHWA-funded I-95 Corridor Coalition ITS/CVO Field Operational Tests—FleetForward (FOT 6) and Roadside Safety Assurance (FOT 7). These initiatives are summarized in Figure 8 and described in the following text.

9.1 Rhode Island Transportation Operations Center Advanced Traffic Management and Information Systems (ATMS/ATIS)

Rhode Island's Department of Transportation (RIDOT) is working to enhance the safety and operations of state highways through Advanced Traffic Management Systems (ATMS)/Advanced Traffic Information Systems (ATIS). RIDOT is implementing a regional architecture to provide real-time transportation information to motorists and to facilitate inter-agency coordination of incident management efforts.

RIDOT is deploying a network of changeable message signs (CMS), a centrally controlled highway advisory radio (HAR) system, and a closed circuit video system. These systems will be controlled from the newly opened Rhode Island Transportation Operations Center (TOC) located at RIDOT headquarters.

RIDOT is currently testing eight changeable message signs. The signs can display several timed messages and are electronically managed. Their varied colors make them very visible. Pre-designed messages and graphics make it easy for an operator to change messages quickly. The boards automatically adjust to lighting conditions for greater visibility in the evening. At a later date, the variable message boards will be complemented by permanent overhead signs.

The eight CMS sites were selected based on traffic congestion and utility. They are:

- Rte. 6EB at Dean Street
- Rte. 10NB at Union Street
- I-95 at I-295 Interchange (portable - solar powered with battery backup)
- I-95 at Rt 10 interchange
- I-95 at Thurbers Avenue
- I-195 at Washington Bridge
- I-95 at I-295 Interchange (in Massachusetts upon agreement)

RIDOT has also installed three highway advisory radio transmitters; one on I-95 at Rt. 117, one on I-95 at I-195, and one on I-295 at Rt. 146. The transmitters allow RIDOT to broadcast messages on frequency 1610AM within a 3 mile radius. The two permanent radios, located on I-95 and on I-295 at Rt. 146, were purchased by the I-95 Corridor Coalition as part of a regional test of Highway Advisory Radios effectiveness. The third was purchased as part of RIDOT's

**Figure 8
Rhode Island ITS/CVO Project Summary**

Project	Project Description	Objectives	Lead	Funding
RI Transportation Operations Center Begin: 1/97 End: 12/02	Enhance the safety and operations of State highways through Advanced Traffic Management Systems (ATMS)/Advanced Traffic Information Systems (ATIS)	<ol style="list-style-type: none"> 1. Develop infrastructure for the detection, verification, and enhanced response to roadway incidents. 2. Develop infrastructure for notification of motorists of roadway incidents. 3. Facilitate inter-agency coordination of incident management efforts. 	RIDOT	Est. \$5,000,000 Full- Deployment Source: CMAQ, NHS, and State Funding
FleetForward* FOT 6 Begin: 6/97 End: 12/99	Improve motor carrier operational efficiency; assist motor carriers in avoiding roadway congestion; and, enhance roadway safety in the I-95 Corridor Coalition States.	<ol style="list-style-type: none"> 1. Expand the current knowledge base of the information needs of motor carriers operating in the I-95 Corridor Coalition states. 2. Access existing information sources and sources being developed, to test the manipulation of data to formats most useful to the motor carriers. 3. Test the dissemination of information to motor carriers via several communications media. 4. Evaluate the effectiveness of the information and delivery modes for improving motor carrier routing and dispatching. 5. Assess overall potential motor carrier usage of real-time travel information for fully deployed ATIS-CVO. 6. Outreach to the motor carrier industry. 	ATA Foundation-Northeast Transportation Institute	\$750,000 FHWA- Sponsored grant via I-95 Corridor Coalition; \$250,000 private sector match.
FOT 7 Roadside Safety Assurance Begin: IIQ99 End: IVQ99	Purchase and deployment of additional mobile data terminals, software, communications services in support of roadside safety information exchange.	<ol style="list-style-type: none"> 1. Expand mobile real-time access to safety and enforcement databases (SAFER, SAFER Data Mail Box, NCIC, NLETS, RILETS, CDLIS; and ability to communicate with other mobile units. 	RI State Police	\$115,000 FHWA- sponsored grant via I-95 Corridor Coalition

* *FleetForward* is an I-95 Corridor Coalition-wide program, including, but not specific to Rhode Island.

initial ITS investment, and is dedicated to the current Washington Bridge and I-95 Providence reconstruction projects. On conclusion of these projects, this transmitter will be moved to strategic locations during major highway incidents. The transmitters can handle multiple messages, can be sequentially timed, and can be operated remotely.

Early incident detection and congestion/incident management will be greatly enhanced through closed circuit television (CCTV) installations providing real-time visual surveillance of roadways to TOC operators. Currently, two CCTV cameras are operational in the Providence area. Additional CCTV sites will be established throughout the state. Loop detectors will also be used by the TOC to monitor traffic flow. It is expected that development of these capabilities requires an estimated \$3-4,000,000 in funding.

As Rhode Island ATMS/ATIS capabilities are expanded, innovative opportunities will be explored for information gathering and dissemination. Such opportunities could include ATIS/CVO capabilities being developed under the Northeast Transportation Institute-led *FleetForward* program.

RIDOT recognizes that while ATMS/ATIS is not the total answer to nullifying highway congestion, significant performance improvements can be gained by providing motorists with real time highway information so that they may make informed travelling decisions and early detection and enhanced management of incidents. This initiative is being implemented with a regional focus to managing traffic that takes in the entire Northeast Corridor from Virginia to Maine.

9.2 I-95 Corridor Coalition Field Operational Test 6 Advance Traveler Information System for Commercial Vehicle Operations—*FleetForward*

FleetForward is a two-year, three phase operational test, coupling real-time traffic information with motor carriers' routing and dispatch decisions. The goals of the test are to:

- improve the operational efficiency of motor carriers in the I-95 Corridor Coalition states;
- assist motor carriers in avoiding areas of roadway congestion; and,
- enhance the safety of the region's roadways.

FleetForward will incorporate information from the I-95 Corridor Coalition Information Exchange Network (IEN) and metropolitan area traffic information sources into motor carrier routing and dispatching operations.

The intercity effort will include motor carriers operating in the northeast region of the corridor. Rhode Island motor carriers are expected to participate as the operational test is expanded. Fleet managers will have direct access to the Coalition's IEN and the potential impediments to their operations across the region. The metropolitan area test will assess the information provided by SmartRoutes for the metropolitan areas of Boston, Philadelphia, and Washington, DC.

Phase III of the project will incorporate additional information sources (including Rhode Island's Transportation Operations Center) and dissemination techniques will be explored; motor carrier participation will be expanded; more metropolitan areas will be considered for inclusion; and, the market potential for such a service will be researched.

9.3 CVO Roadside Safety—FOT 7

Rhode Island is enhancing roadside CVO enforcement by expanding information exchange from and to MCSAP inspectors in the field, allowing the inspectors to focus enforcement on high-risk carriers.

The Rhode Island State Police Commercial Enforcement Unit (CEU) is deploying pen-based laptop computers installed with ASPEN/ISS software and linked to Bell Atlantic's Cellular Digital Packet Data network. This configuration enables mobile real-time access to safety and enforcement databases (SAFER, SAFER Data Mail Box, NCIC, NLETS, CDLIS, RILETS; and provides the ability to communicate with other mobile units.

In November 1997, Rhode Island was approved to receive \$221,000 services from FHWA through the I-95 Corridor Coalition to acquire 29 laptop computers and associated hardware, software, and communications services. Deployment was completed in November 1998. Similarly, funding requests from neighboring Connecticut and Massachusetts were approved. CEU is working closely with The Connecticut Department of Motor Vehicles Commercial Vehicle Safety Division and Massachusetts State Police to assure maximize effectiveness of this program through a regional enforcement approach. This effort is guided by the I-95 Corridor Coalition CVO Safety Technical Review Committee.

In II 1999, CEU is expected to request an additional \$115,000 in FOT 7 funding from the I-95 Corridor Coalition to expand its current deployment of mobile data terminal.

10. Realizing the Vision

The projects described in section 9 of this business plan—development of ATIS/ATMS capabilities in Rhode Island, *FleetForward*, and Safety Assurance (FOT 7)—represent a solid beginning for ITS/CVO deployment in the State. These efforts are designed to improve information management to enhance roadway operations, focus safety enforcement efforts, and improve carriers’ ability to respond to roadway incidents. As summarized in Figure 9, the three projects begin to address the safety and freight mobility objectives presented in section 4, but fail to meet all of the desired objectives (i.e., those for administrative efficiency, and safety through motor carrier information access).

Figure 9
Linkage of Current and Proposed Rhode Island
Initiatives to ITS/CVO Objectives

ITS/CVO Objective	Current Rhode Island ITS Projects			CVISN
	RI TOC	<i>Fleet Forward</i> FOT 6	CVO Roadside Safety FOT 7	Level I Deployment
Safety- Deploy roadside technologies and information to identify and focus enforcement on high-risk carriers			X	X
Safety- Develop coordinated multi-state enforcement strategies			X	X
Safety- Enable motor carriers’ real-time access to fleet safety information to improve safety management (via SAFER/CVIEW)				X
Safety- Automate the demonstration and verification of safety compliance			X	X
Mobility- Support development of Advanced Traveler Information Systems (ATIS/CVO) to reduce traffic congestion impacts on motor carriers	X	X		X
Mobility- Support public/private coordination efforts for the management of roadway incidents	X	X		X
Administrative- Reengineer agency administrative procedures and data requirements				X
Administrative- Automate credentialing/reporting activities				X

The shortfalls between the ITS/CVO goals and objectives and the current or planned ITS projects in the state can be addressed through the information exchange capabilities being developed through the FHWA-sponsored CVISN program. The FHWA is committed to providing states

the architecture, technical standards, training, and technical support necessary to achieve CVISN Level I capabilities. These capabilities include:

- Safety information exchange through roadside deployment of safety screening and inspection software (ASPEN or equivalent); connectivity with the Safety and Fitness Electronic Records (SAFER) systems to enable exchange of interstate carrier, vehicle, and driver safety information; and, implementation of the Commercial Vehicle Information Exchange Window (CVIEW) allowing the exchange of intrastate carrier and vehicle safety information.
- End-to-end processing of IRP and IFTA credentialing activities (electronic application, application processing, credential issuance, and payments) for at least ten percent of transaction volumes, with readiness to extend to other credentialing activities (intrastate registrations, special permitting) and additional motor carriers.
- Electronic safety screening of motor carriers and at least on fixed or mobile site with readiness to extend to additional sites.

To qualify for participation in the CVISN program, several steps are required. These include:

- High-level commitment to support CVISN—this is demonstrated by the Memorandum of Agreement signed by the heads of Rhode Island’s principal CVO agencies at the front of this report.
- FHWA acceptance of the state’s ITS/CVO Business Plan.
- State participation in three ITS/CVO training courses—Introduction to ITS/CVO (held October 22-23, 1998); ITS/CVO Technical Project Management for Non-Technical Managers; and, Understanding ITS/CVO Technology Applications. The latter two courses are expected to be scheduled in the second and third quarter 1999.
- Participation in three CVISN workshops by persons representing the state’s CVISN deployment team. The deployment team must include persons designated as CVISN Project Manager, CVISN Systems Architect, a facilitator or administrator, line staff from the principal CVO agencies, state information technologists, a representative from Rhode Island Department of Transportation, and a representative from the FHWA Division Office. Motor carrier representatives are encouraged to participate.

The workshops will allow participating states to produce a preliminary CVISN top-level systems design, develop a CVISN deployment plan, and project schedule constrained by resource limitations. The workshops will be conducted at the Johns Hopkins Applied Physics Laboratory in Maryland and are expected to last four days each. Additional information on the workshops is provided in Appendix E.

Appendix A
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Appendix B

Guiding Principles

Appendix C

Rhode Island Motor Carrier Survey

March 16, 1998

Dear Member:

The Rhode Island Trucking Association and the ATA Foundation's Northeast Transportation Institute are working with Rhode Island transportation agencies in a statewide effort to improve highway safety, reduce the costs of complying with regulations and travel delays due to congestion and roadside inspections. The deployment of advanced computer and communications systems by Rhode Island agencies can help advance these goals. The envisioned systems may feature:

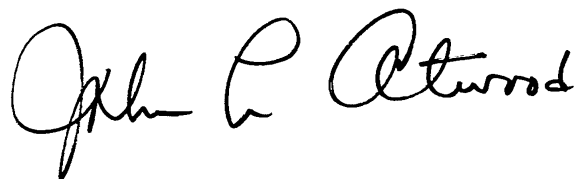
- on-line registration and permitting;
- credential transmittals and recaps;
- electronic payments for fees and taxes;
- roadside clearance for safe and legal motor carriers; and,
- motor carrier access to real-time safety and travel information.

Please complete and return the enclosed self-addressed, postage-paid survey at your earliest convenience to help this effort. The purpose of the survey is to provide better understanding of how Rhode Island motor carriers currently use technology and what electronic services they feel may be of most value to their business. Your response is very important. **All survey responses will be kept strictly confidential and used only in summary format.**

If you have any questions or would like additional information, please call me or Dan Stock of the Northeast Transportation Institute at (401) 722-7800.

Thank you for your help.

Sincerely,

A handwritten signature in black ink, appearing to read "John L. Atwood". The signature is fluid and cursive, with the first name "John" being the most prominent.

Rhode Island Motor Carrier Technology Survey

All responses will be kept strictly confidential

1. How many power units does your company operate?

1-5	6-19	20-50	51-100	101-249	250+
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2. Are you an: **Inter-state** **Intra-state** motor carrier? Which best describes your company's average length of haul?

1-49miles	50-100miles	101-200miles	201-499miles	500+miles
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3. What commodities does your company haul? **Please check all that apply.**

General Freight-Truckload	General Freight—LTL	Household Goods-Movers	Parcel
Automotive Parts/Vehicles	Heavy Machinery	Building Materials	Bulk—Dump Trucking
Petroleum Products	Farm Fresh Products	Processed Foods	Retail Store Delivery
Other: _____			

4. What percent of your dispatches require permit for oversize/overweight loads?

None	1-25%	26-50%	51-75%	76-100%
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5. What technologies does your company use?

Cellular Phone	On-board scales	Electronic Data Interchange
Two-way radio	Vehicle location tracking	Internet access
Pager	Collision avoidance system	On-board or hand-held computers
Satellite communications system	Electronic logbooks	Computer-aided routing and dispatching
RF Tags for equipment tracking or electronic toll payments—If yes, what manufacturer made the tag? _____		

6. What type of computer system(s) does your company use for tracking **fleet registrations and permits**?

<u>Computer:</u>	None	486 PC	Pentium PC	Other: _____
<u>Operating System:</u>	Windows 3.x	Windows 95	Windows NT	Other: _____
<u>Software:</u>	Specialized off-the-shelf, please vendor and product name: _____			
	Generic Application (i.e., Lotus, Excel, etc.) Proprietary Other: _____			

7. What type of computer system(s) does your company use for **fuel tax** calculations and administration?

<u>Computer:</u>	None	486 PC	Pentium PC	Other: _____
<u>Operating System:</u>	Windows 3.x	Windows 95	Windows NT	Other: _____
<u>Software:</u>	Specialized off-the-shelf, please vendor and product name: _____			
	Generic Application (i.e., Lotus, Excel, etc.) Proprietary Other: _____			

8. Please rank the potential value of the following envisioned automated services to your company:

	1	2	3	4	5	Don't know
<i>Electronic registrations—new/renewal/supplemental</i>						
<i>Electronic fuel tax credentials applications</i>						
<i>Electronic fuel tax filings</i>						
<i>Electronic application/reception for oversize/overweight permits</i>						
<i>Roadside clearance for safe and legal carriers</i>						
<i>Electronic access to motor carrier regulations</i>						
<i>Real-time access to your fleet's safety information</i>						
<i>Real-time access to traffic and road conditions</i>						

9. Electronic credentials and tax transactions may require immediate payments. Please indicate the payment options you may prefer to use:

Not Interested	Credit Card	Debit Account	Other: _____
	Electronic Funds Transfer		

10. Would you be willing to talk to us in more detail? If Yes, please provide your name and company information below.

Company Name: _____

ATA Foundation

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Rhode Island ITS/CVO Business Plan—Final Report

Phone: _____

Appendix D

ITS/CVO Benefit/Cost Studies

Appendix E

**Commercial Vehicle Information Systems
and Networks (CVISN) Workshops**