

**2.0 Program Goals  
and Strategies**

# Guiding Principles

**This chapter discusses the guiding principles behind the ITS/CVO program: its broad goals and objectives, as well as the strategies for addressing its markets, organization, and resources,**

This chapter discusses the guiding principles behind the ITS/CVO program. It defines the following:

- The program's mission and vision;
- Broad goals and objectives;
- Guiding principles for the development of ITS/CVO projects and services; and
- Strategies for addressing the program's markets, organization, and resources.

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# ***Vision and Mission***

## ***ITS/CVO Vision Statement***

Assisted by technology, trucks and buses will move safely and freely throughout North America.

## ***ITS/CVO Mission Statement***

To achieve the vision by using cost-effective methods and technologies to streamline state regulatory, enforcement, and motor carrier practices, while increasing levels of safety and productivity for both states and carriers, thus improving highway safety for all.

# Vision and Mission

**The vision for the ITS/CVO program is to enable safe and legal trucks and buses to travel as freely as cars.**

A vision statement briefly defines how an activity will be carried out in the future. The vision for the national ITS/CVO program is to use technology to enable safe and legal trucks and buses to travel as freely as cars throughout North America. In other words, trucks and buses can move without restrictions among states and across North American international borders. Trucks and buses typically will not be stopped or slowed down for credential, weight, and size checks. They will not be burdened with excessive paperwork related to credentials, taxes, and safety.

A mission statement briefly explains why an activity exists. Broadly defined, the national ITS/CVO program seeks to ensure that this vision is realized by using cost-effective technical and non-technical approaches to streamline state regulatory, enforcement, and motor carrier practices, and to increase safety and productivity for both states and carriers.

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# ***ITS/CVO Goals and Objectives***

- **Improve highway safety**
- **Streamline credentials and tax administration**
- **Reduce congestion costs for motor carriers**
- **Ensure regulatory compliance and equitable treatment**

# Goals and Objectives

The objectives of the ITS/CVO program are to improve highway safety and credentials administration, while reducing congestion costs for motor carriers and ensuring regulatory compliance and equitable treatment.

The objectives of the national ITS/CVO program are to:

- **Improve highway safety.** ITS/CVO services will enable safety inspectors to target their resources on the highest risk carriers, drivers, and vehicles. These changes are expected to reduce the frequency and severity of accidents involving commercial vehicles.
- **Streamline credentials and tax administration.** ITS/CVO services will enable government agencies and motor carriers to conduct business transactions electronically. These changes are expected to reduce administrative costs, paperwork, and time.
- **Reduce congestion costs for motor carriers.** Traveler information systems will increase the flow of information about carrier operations and roadway conditions among carriers, state agencies, and emergency responders. Automated vehicle screening systems will reduce congestion and delays at weigh stations and international border crossings. These changes are expected to improve freight mobility and reduce delivery costs.
- **Ensure regulatory compliance and equitable treatment.** Motor carrier compliance with credentials and tax regulations is expected to increase as the process becomes less burdensome. In addition, automated screening systems and mobile enforcement capabilities are expected to catch potential evaders. As all carriers are brought into regulatory compliance, the playing field industry-wide will become more level.

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# ***Guiding Principles***

- **Provide services tailored to markets, among states and within the motor carrier industry**
- **Encourage the rethinking of motor carrier regulatory procedures**
- **Seek participation from a broad range of stakeholders**
- **Allow participation by individual agencies and carriers in ITS/CVO projects to be voluntary**
- **Develop the resources and organizational structure required to move services from concept to deployment**

# Guiding Principles

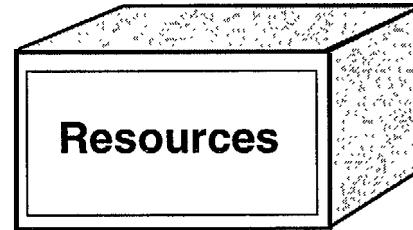
The guiding principles for the ITS/CVO program are to differentiate among its markets, develop opportunities for voluntary participation from a broad range of stakeholders, and develop the organization and resources to move ITS/CVO services from concept to deployment.

Broad guiding principles will help the ITS/CVO program address these goals and objectives.

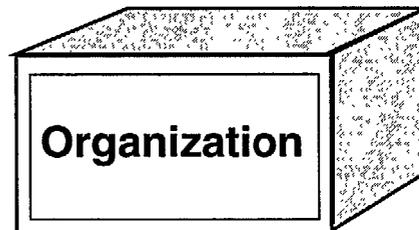
- **The ITS/CVO program should provide services tailored to its markets.** Major differences are evident among the states and regions with respect to enforcement strategies, technological resources, and organizational structures. Similarly, motor carrier needs for new technologies are influenced by characteristics such as fleet size and geographic operating range. A “one size fits all” approach to ITS/CVO will fail.
- **The ITS/CVO program should encourage a broad rethinking of motor carrier regulatory practices.** The program should focus less on “ITS” - the specific deployment of technologies - and more on “CVO” - the general administration and enforcement of motor carrier regulations. The public sector should examine the effectiveness of, and justification for, current regulations and practices. The program should encourage agencies and carriers to explore new ways of doing business.
- **The ITS/CVO program should seek participation from a broad range of stakeholders.** These include state agencies, individual motor carriers, third-party service providers, the Federal government, toll authorities, motor carrier industry associations, affiliated organizations, metropolitan planning organizations, shippers and receivers, and insurers.
- **Participation by states and carriers in ITS/CVO projects should remain voluntary.** The lack of a formal mandate provides flexibility for states to tailor programs to their specific needs, and alleviates some carrier concerns that ITS/CVO systems will be used to implement a national weight-distance tax or to compromise the confidentiality of business data. Over time, more motor carriers and agencies will participate as the benefits are more evident.
- **The ITS/CVO program should develop the resources and organizational structure required to move services from concept to deployment.** The eventual goal of the ITS/CVO program is nationwide deployment. In the short term, the program should move user services out of the conceptual stage to deployment. This process will require developing enabling technologies, enhancing staff expertise, identifying funding sources, and establishing a supporting organizational structure.

# ***Program Strategies***

## *Building Blocks*



- Funding
- Technologies and Equipment
- Staff and Expertise



- Intraagency
- Interagency
- Interjurisdictional
- Public/Private



- Market Demand
- Public Support
- Legislation
- Executive Leadership

# Building Blocks of a Public Sector Program

The core strategies for the ITS/CVO program fall into three areas – markets/mandates, organization, and resources.

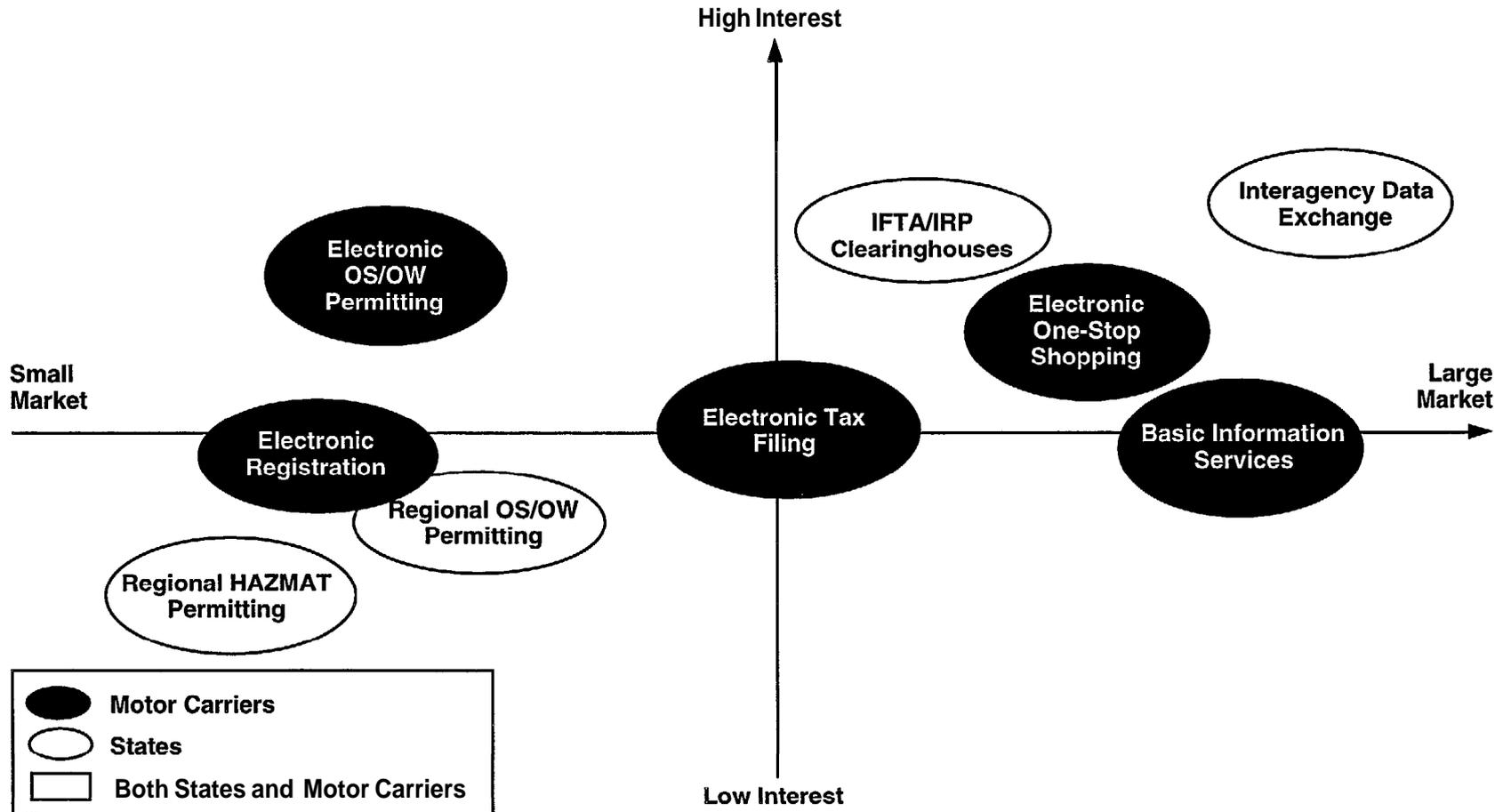
The core strategies of the ITS/CVO program fall into three areas – the “building blocks” of a public sector program:

- **Market/Mandate** – The existence of a commercial market or the legal and political justification for a program. Most efforts that significantly affect the conduct of business operations require a clearly defined market or mandate. In the private sector, the mandate for a product or service takes the form of market demand; in the public sector, the source of a mandate may be popular demand, legislation, or executive leadership.
- **Organization** – The establishment of systems through which public or private entities are structured and administered, and how they respond to or implement change. The organizational structure of a public sector program typically includes intra-agency, interagency, interjurisdictional, and public/private relationships.
- **Resources** – The availability of key inputs, including technology, funding, and staff expertise.

The ITS/CVO program cannot be created and sustained without some form of market and political support; an organization to implement and maintain the activities; and supporting human, technological, and financial resources. In its broadest sense, the mandate is the “demand” for the program; the resources are the “supply” of inputs to produce the program; and the organization comprises the relationships and agreements among all stakeholders involved in producing or consuming ITS/CVO products and services.

# Market Assessment

## Credentials Administration



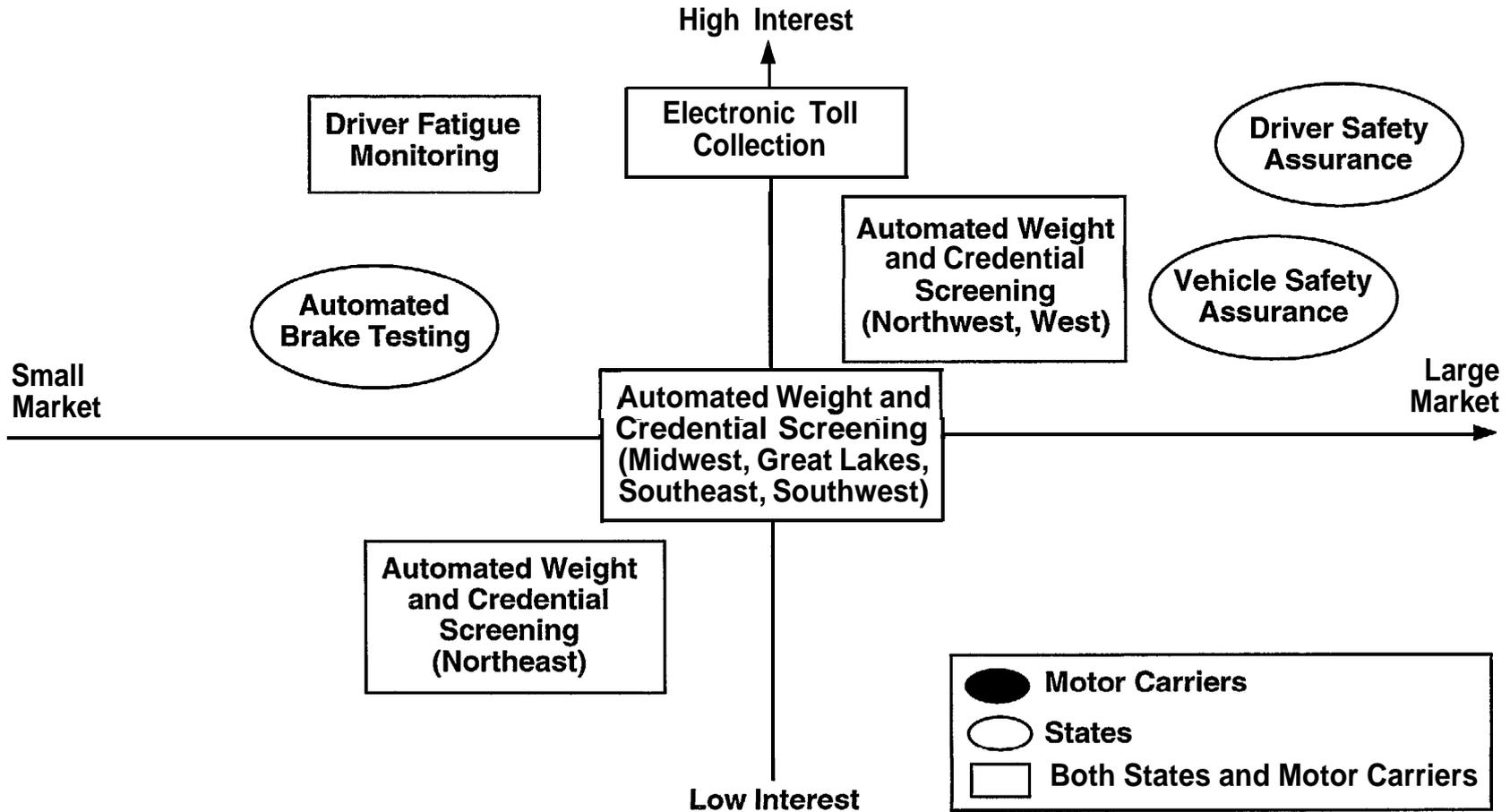
# Market Strategies: Credentials Administration

The market for ITS/CVO administrative services includes three types of transactions: those between states; those between agencies within a single state; and those between motor carriers and regulatory agencies.

- **Interstate Data and Funds Exchange** - The initiatives to provide interstate information exchange are the most advanced in the area of ITS/CVO administration. The Commercial Vehicle Information Systems and Networks (CVISN) will serve as a high-level infrastructure for data exchange among the states. Multistate clearinghouses for the electronic interchange of registration and fuel tax data and fees among states are under development.
- **Interagency Data Exchange** - The market for interagency transactions within a single state is new, but potentially is quite large. These applications would close existing loopholes in the effective administration and enforcement of motor carrier regulations by improving the flow of safety and credentials information. The market is of high interest due to budget constraints that are forcing states to explore every possible source of revenue; staff shortages that are prompting states to eliminate redundant data entry procedures; and public pressure for more stringent enforcement of truck safety regulations. However, the ability of agencies to form the required institutional relationships and reengineer their business practices to accommodate this information is still unclear.
- **Motor Carrier/Agency Transactions** - The largest market for motor carrier/agency transactions is for basic information services that provide guidance through the thicket of motor carrier regulations and agencies: a single point of contact, a single telephone number for compliance information, or an on-line regulatory bulletin board. These services could apply to a wide range of carriers, regardless of fleet size or financial resources. The markets for electronic tax filing, oversize/overweight permitting, and registration are smaller but still sizable. Large fleets with established capabilities for electronic recordkeeping will benefit from automated credentialing, but the potential savings that would accrue to the vast majority of small fleets are uncertain. Penetration of these markets is likely to be slow unless the applications are offered as part of a package of services, as in the “one-stop shopping” operational tests.

# Market Assessment

## Enforcement and Safety



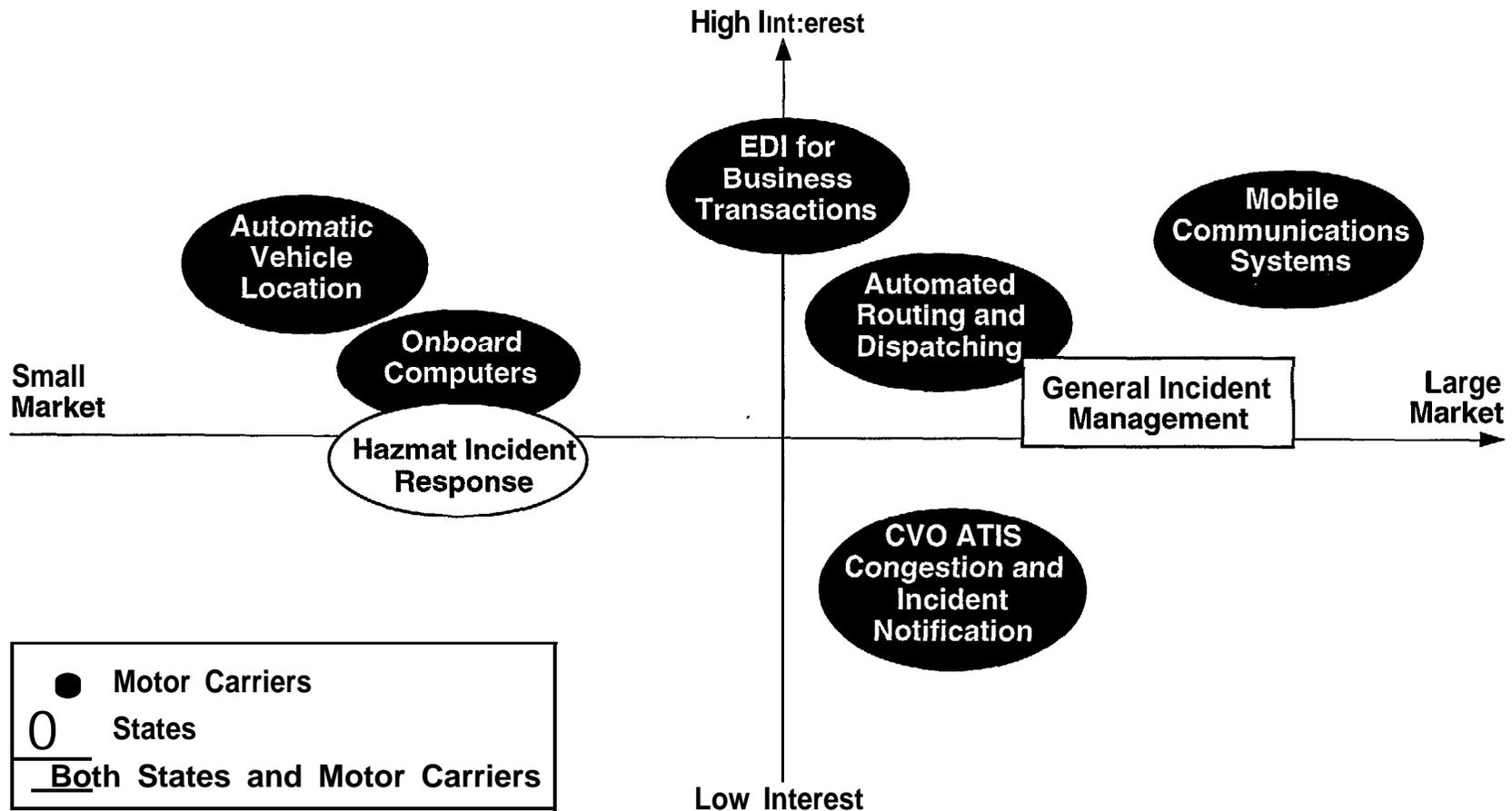
# Market Strategies: Enforcement and Safety

The most promising markets for ITS/CVO services today are in the enforcement area. These include driver and vehicle safety assurance, automated weight and credential screening, and electronic toll collection.

- **Driver and Vehicle Safety Assurance** - Interest in better driver and vehicle safety assurance is high and relatively uniform across the nation, particularly in congested urban areas. The use of automated roadside safety inspection systems could enable states to inspect more vehicles each year, and also could provide significant time savings. Safe and compliant carriers would benefit if high-risk carriers can be identified with minimal disruption to motor carrier operations.
- **Automated Weight and Credential Screening** - The market for automated vehicle screening is strongest in the West and weakest in the Northeast, reflecting the distribution of fixed weigh stations. The states conducted more than 162 million enforcement weighings in 1993, so the potential market for automated vehicle screening is huge. States could generate significant time savings for compliant vehicles and identify a larger number of noncompliant vehicles through the use of automated screening technologies. Carriers would benefit from reduced delays at weigh stations.
- **Electronic Toll Collection** - The market for electronic toll collection is strongest in the Northeast and Great Lakes regions, where the majority of toll roads are located. Other markets include bridges and tunnels in California, Florida, Louisiana, and other areas. Commercial vehicle revenue traffic along major toll roads totaled more than 176 million vehicle in 1993, so the potential market for electronic toll collection is substantial. Toll authorities would benefit from increased speed and efficiency at toll plazas, as well as reduced operating and maintenance costs. Carriers would benefit from the ability to pay tolls without stopping.
- **Onboard Safety Monitoring** - Because driver fatigue and brake problems are among the primary causes of truck accidents, interest also is high for onboard safety systems that monitor driver alertness and brake performance. However, the market for these applications is small because the high cost of the systems is likely to be prohibitive for many carriers. In addition, many drivers view these systems as an invasion of their privacy.

# Market Assessment

## Carrier Operations



# Market Strategies: Carrier Operations

For carrier operations, the strongest markets for ITS/CVO services are in the area of fleet management.

Highway traffic management, despite great potential, has been one of the least developed and defined ITS/CVO markets.

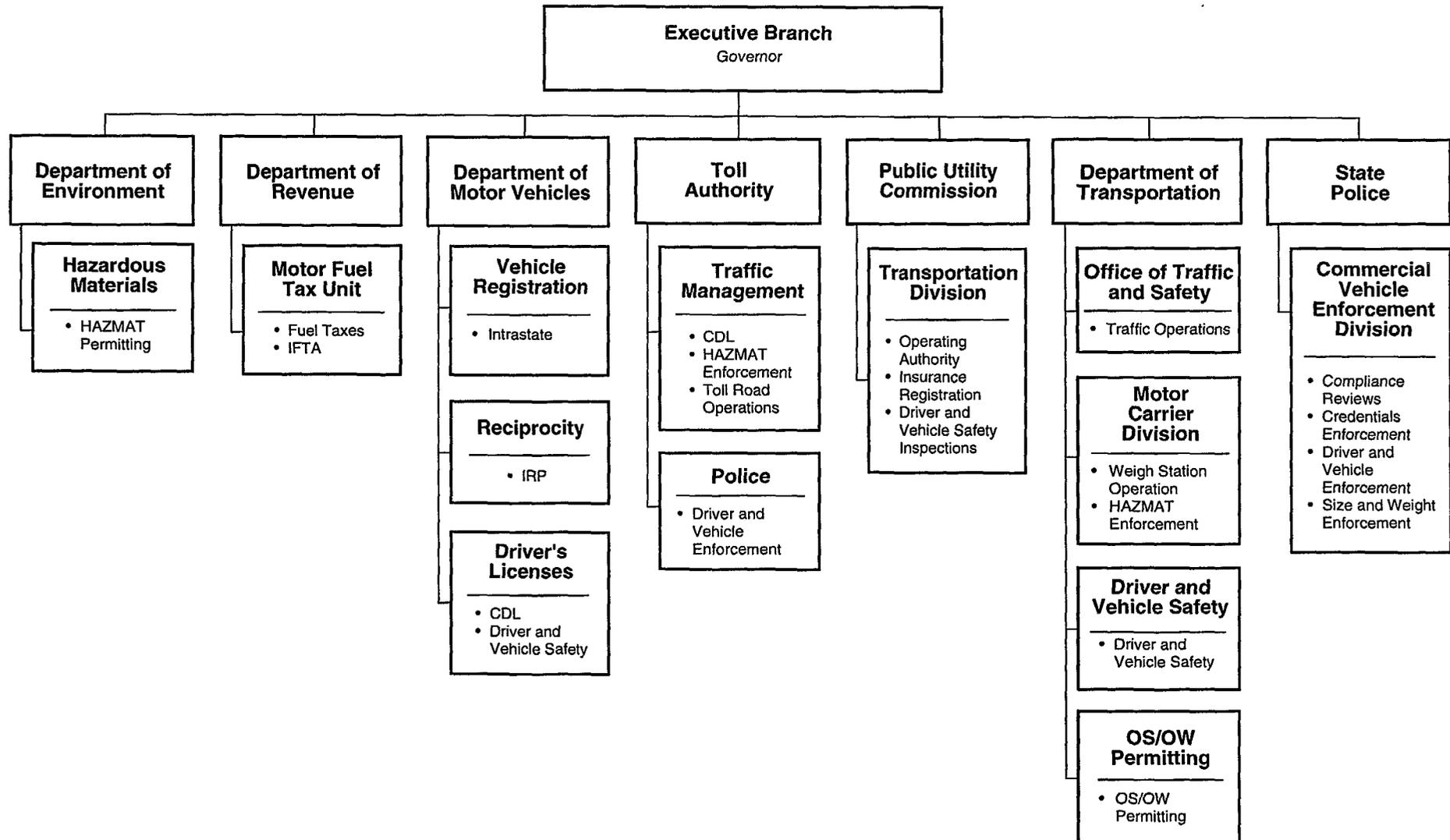
- **Fleet and Vehicle Management** - The market for fleet management systems is relatively new but has expanded rapidly in the past several years as a result of technological advancements, cost competition, and service competition within the motor carrier industry. This growth has occurred primarily through private sector investment, with little public sector involvement

The largest market is for mobile communications systems such as conventional two-way radio, digital text communications, wide area pagers, and satellite communications links. Surveys indicate that the market penetration for these systems is significant and growing. In addition, demand appears to be relatively independent of fleet size or operating range.

The markets for other fleet management technologies are smaller, but interest in most applications is high. These include electronic data interchange for business transactions, automated routing and dispatching, and automatic vehicle location. These technologies are used most frequently by large and national fleets.

- **Highway Traffic Management** - Highway traffic management has been one of the least developed and defined markets for ITS/CVO. Most traffic management applications are oriented to passenger cars, although their benefits are available to commercial vehicles. The market for general incident management programs is large and of increasing interest to both states and motor carriers. The potential market for incident and congestion notification systems also is large, but interest in this service, particularly among motor carriers, has not yet reached critical mass. Hazardous materials incident notification and response systems represent a smaller market in which there is growing interest from states and cities.

# State Organization of Motor Carrier Regulatory Responsibilities (example)



# Organizational Strategies

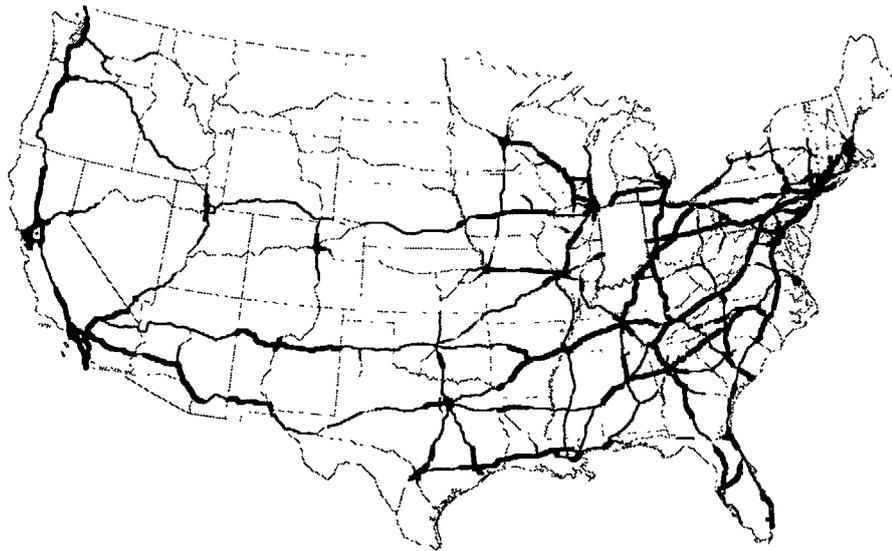
**Although Federal leadership is critical to the development of the ITS/CVO program, state agencies control the day-to-day delivery of most CVO services and are the foundation of the ITS/CVO program.**

Although Federal leadership is critical to the development of the ITS/CVO program, state agencies control the day-to-day delivery of most CVO services and are the foundation of the ITS/CVO program. The states are responsible for building and maintaining highways and for taxing and regulating the motor carriers that use them.

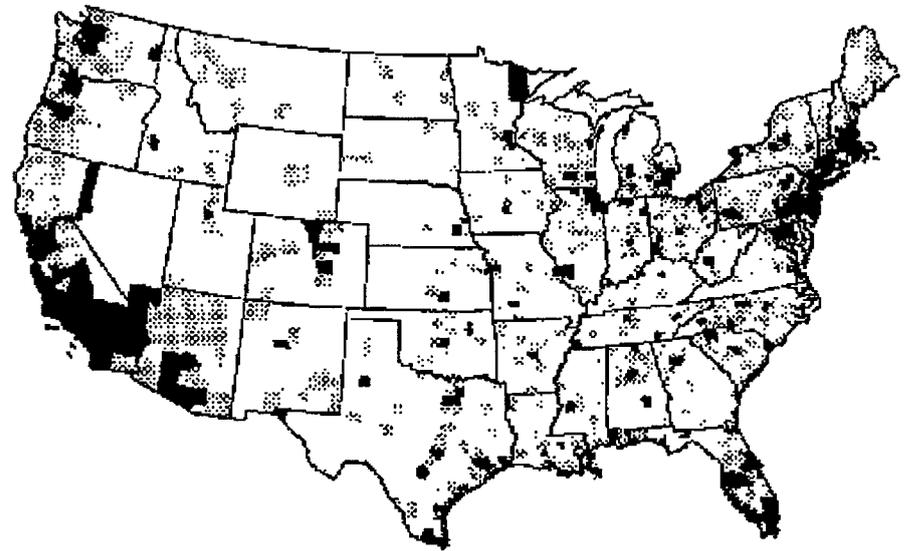
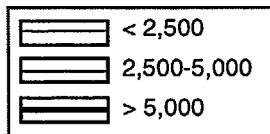
In a typical state, the responsibility for commercial vehicle regulation is distributed among up to six agencies and a dozen bureaus or offices. Nationally, over 300 state agencies are involved in the administration and enforcement of motor carrier regulations. These agencies include departments of transportation, revenue, motor vehicles, and environmental protection; public utility or commerce commissions; toll authorities; and the state police. The development of a national ITS/CVO program may not change this fundamental allocation of responsibility, but will improve communication and coordination between and among states.

In most states, the primary need is for the integration and coordination of the work of existing agencies to ensure smooth planning and deployment. To date, the model for state CVO planning has been the public/private working group, as required in the Federally funded institutional issues studies. However, the effectiveness of these groups has varied, reflecting the lack of a mandate to continue from the states themselves or from the national ITS/CVO program.

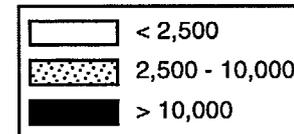
# Geographic Distribution of Trucking Activity



Truck AADT on Interstate highways, 1994



Freight-generating establishments per square mile, 1993



This map illustrates construction, manufacturing, wholesale and retail trade establishments.

Source: FHWA/Highway Performance Monitoring System;  
U.S. Bureau of the Census/County Business Patterns.

# Organizational Strategies (continued)

**Because many truck trips occur in more than one state, the ITS/CVO program needs a regional context. ITS/CVO services will be developed and deployed on the basis of the major trucking activity centers and freight lanes, which combine to define regional “trucksheds.”**

Regional ITS/CVO programs should coordinate the state ITS/CVO programs. The regional ITS/CVO programs should be organized according to the geographic distribution of trucking activity, focusing on the major trucking activity centers and traffic lanes. The centers are the major national population and distribution centers, such as the Boston-to-Washington corridor; metropolitan Chicago, Atlanta, and Dallas; and southern California. The traffic lanes are the Interstate highways that connect these centers. Combined, the activity centers and traffic lanes loosely define major “trucksheds” where the industry’s activity is located.

ITS/CVO markets vary across these regions. The regional ITS/CVO programs should reflect the reality that the needs and interests of state agencies and motor carriers differ more across regions than within them. For example, regions with heavy investment in weigh stations could deploy automated clearance system, while regions with heavy congestion could give priority to mobile safety screening and traffic management. When the states and carriers focus on services with an immediate payoff for their region, they are more likely to commit resources for deployment. The regional programs also will facilitate technology transfer among participating states.

Programs and policies should be developed at the national level as well, because of the need to ensure the uniformity of state services for carriers that operate in more than one region. The national ITS/CVO program should provide an opportunity to coordinate the overall direction of regional and state efforts, as well as to agree on standards and common policies in key areas.

# CVO Stakeholder Groups

	Highway Maintenance & Operations	Law Enforcement	Revenue Collection	Motor Carriers	ITS/CVO Policy Forums	ITS/CVO Deployment Groups
National	<ul style="list-style-type: none"> <li>. FHWA</li> <li>. AASHTO</li> </ul>	<ul style="list-style-type: none"> <li>. CVSA</li> </ul>	<ul style="list-style-type: none"> <li>. FTA</li> <li>. AAMVA</li> <li>. IFTA</li> <li>. IRP</li> </ul>	<ul style="list-style-type: none"> <li>. ATA</li> <li>. NPTC</li> <li>. OOIDA</li> </ul>	<ul style="list-style-type: none"> <li>. ITS-A CVO Committee</li> <li>. Base State Working Group</li> </ul>	<ul style="list-style-type: none"> <li>. Permit Services</li> <li>. IFTA, Inc.</li> <li>. IRP, Inc.</li> <li>. AAMVAnet, Inc.</li> </ul>
Regional	<ul style="list-style-type: none"> <li>. FHWA Regional Offices</li> <li>* WASHTO, SASHTO, etc.</li> </ul>				<ul style="list-style-type: none"> <li>. ITS/CVO Regional Consortia</li> </ul>	<ul style="list-style-type: none"> <li>. HELP, Inc.</li> <li>. Advantage CVO Partnership</li> <li>. I-95 Corridor Coalition</li> </ul>
State	<ul style="list-style-type: none"> <li>. DOTs</li> <li>. FHWA Division Offices</li> </ul>	<ul style="list-style-type: none"> <li>. Police</li> <li>. Patrols</li> </ul>	<ul style="list-style-type: none"> <li>. DORs</li> <li>. DMVs - PUCs</li> </ul>	<ul style="list-style-type: none"> <li>. MTAs</li> <li>. Carriers</li> </ul>	<ul style="list-style-type: none"> <li>. State ITS/CVO Working Groups</li> </ul>	

*Shaded boxes indicate forums that will be strengthened through the ITS/CVO mainstreaming program.*

# Organizational Strategies (continued)

**CVO policies and programs are developed today with strong vertical integration between the national and state levels, and moderate horizontal integration at the state level and at the national level. However, there is little integration at the regional level, and few permanent CVO policy forums or deployment groups.**

Despite its significance to motor carrier operations, the regional level represents the major gap in the existing CVO organizational infrastructure. Only the regional FHWA offices and the regional units of the American Association of State Highway and Transportation Officials (AASHTO) provide ongoing forums at this level. Few regional policy forums or deployment groups have been developed, with the notable exceptions of HELP, Inc., the Advantage CVO Partnership, and the I-95 Corridor Coalition.

At the national level, the major CVO functions are well integrated through the work of the FHWA and organizations such as AASHTO, the American Association of Motor Vehicle Administrators, the Commercial Vehicle Safety Alliance, and the major motor carrier industry associations. The ITS America CVO Committee is a national forum for the development of ITS/CVO policy. However, few national ITS/CVO deployment groups have emerged, except for permitting services and the organizations that administer the IRP, the IFTA, and the Commercial Driver's License Information System.

The organization of the ITS/CVO program must reflect the needs and interests of multiple stakeholders. The national ITS/CVO program must work within the parameters of these current organizational structures, with an early emphasis on filling two major gaps:

- Horizontal integration of planning and deployment support at the state and national levels; and
- Both horizontal and vertical integration at the regional level.

# ***Key Enabling Technologies***

	<b>Available Today</b>	<b>Under Development</b>
<b>Automatic Vehicle Location</b>	●	
<b>Brake Sensors</b>		●
<b>Dedicated Short-Range Communications</b>	●	
<b>Electronic Data Interchange</b>	●	
<b>Electronic Funds Transfer</b>	●	
<b>Engine Diagnostics</b>	●	
<b>Fatigue Sensors</b>		●
<b>Information Exchange Networks</b>		●
<b>Mobile Communications</b>	●	
<b>Navigation Systems</b>	●	
<b>Onboard Computers</b>	●	
<b>Routing and Dispatching Software</b>	●	
<b>Variable Message Signs</b>	●	
<b>Voice Activated/Heads-Up Displays</b>		●
<b>Weigh-in-Motion</b>	●	

# Resource Strategies

Many of the technologies needed to support ITS/CVO service have been deployed or are under development. The critical remaining needs are the abilities to link existing systems, to provide common standards for electronic communication, and to improve the technical expertise of existing agency staff.

The ITS/CVO program has achieved its initial technology goals. The states have developed and demonstrated the roadside technology for automated screening and safety assurance, through weigh-in-motion (WIM), automatic vehicle identification (AVI), and similar technologies. The motor carrier industry is moving automation from the office to the truck, via two-way data communication, onboard computers, and automatic vehicle location.

The remaining needs include the following:

- **Development of a systems architecture.** To accommodate its many users in both the public and private sectors, the information systems architecture for linking CVO information systems should be open, modular, and adaptable. Because many stakeholders operate separate systems today, the systems architecture would be most efficient if it built upon legacy systems. The CVISN project is developing a blueprint for a national CVO architecture. In many cases, it will provide the missing link among existing and planned administrative, enforcement, and safety assurance programs.
- **Development of national standards for electronic communication.** The development of standards and protocols for dedicated short-range communication (DSRC) and electronic data interchange (EDI) is the major technical issue facing the ITS/CVO program. The development of ED1 standards and translator software is critical for data to be shared efficiently among agencies and carriers. The program also must ensure the interoperability of DSRC transponders across states, corridors, and regions, and coordinate CVO transponder standards with those in the toll industry.
- **Enhancements to agency expertise and equipment.** In the past, agencies have attempted to plan ITS/CVO projects within the limits of the existing systems. Future technical developments may require parallel efforts to upgrade agency computers, software, and communications equipment, as well as to improve the technical expertise of existing staff.

# ***ITS/CVO Funding Sources***

	<b>Research Development</b>	<b>Capital Costs</b>	<b>Operations and Maintenance</b>
Federal ITS Program MCSAP OMC General Operating Expenditures Federal-Aid Highway Funds (NHS, STP, etc)	●  ● ●	● ● ●	●
State	●	●	●
Toll Authorities	●	●	●
Private Sector	●	●	●

## Resource Strategies (continued)

**The ITS/CVO program will use Federal funding for seed capital, but will promote the devolution of funding responsibility to the states and to the private sector.**

The ITS/CVO program will use Federal funding for seed capital, but will promote the devolution of funding responsibility to the states and to the private sector. The program will not rely exclusively on Federal money, but will use Federal investment as a catalyst to support research and development, operational tests, and startup costs. In the long term, funding responsibilities will shift to the states and to the private sector.

Funding needs include one-time capital costs for purchasing and installing equipment and for developing information systems, as well as ongoing costs for maintenance, operation, and personnel training. Cost concerns are real because of the funding constraints at most state agencies, as well as the relatively low priority given to CVO by most state governments. Although the costs of ITS/CVO systems may appear to be high, they are modest compared to the cost of a new highway or bridge.