Information Technology Feasibility Study
for the
Washington State Commercial Vehicle Information Systems and Networks(CVISN) Pilot Project

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1. EXECUTIVE SUMMARY

The Washington State Patrol (WSP), Department of Licensing (DOL) and Washington State Department of Transportation (WSDOT) have joined forces to propose the continuation of the implementation of the Commercial Vehicle Information Systems and Networks (CVISN) Pilot Project. This project, begun during the previous biennium, fits the national Intelligent Transportation System (ITS) program for Commercial Vehicle Operations (CVO); provides the next, evolutionary step toward the implementation of the *Washington State CVO Strategic* Plan and reduces operating costs and/or enhances the revenue-generating capabilities of existing Washington State operations.

The CVISN Pilot Project represents a major information technology component within the umbrella of the *Washington State CVO Strategic Plan.* Simply stated, the CVISN Pilot Project will prototype the use of a comprehensive interface to state and federal motor carrier data systems and will deliver real-time, decision-making information to weigh stations and commercial vehicle enforcement officers. In addition, motor carriers will more easily be able to apply and pay for required permits and credentials. Upon successful completion of this pilot/prototype, the transportation agencies plan to roll out the CVISN architecture across the State of Washington.

The following characteristics of the CVISN Pilot Project set it apart from many other mainstream information technology projects:

Federal Partnership

Federal sponsorship of, and partnership in, this project are key elements of success. As during the last fiscal period, the federal government will match state project funding. In addition, Johns Hopkins University Applied Physics Laboratory (JHUAPL) has been engaged by the Federal Highway Administration (FHWA) to provide national pilot project coordination and to deliver the prototype interface system (CVIEW) for implementation in pilot states. As part of the national CVISN project effort, Washington State has worked jointly with other states and the FHWA to develop the system requirements and general design.

Requirements Definition and General Design

The CVISN requirements have been developed with the assistance of JHUAPL and the other pilot states. These requirements, and the general system design, are summarized in the *Washington-Oregon CVISN Pilot Project Plan* document. Detailed system requirements and specifications have been developed by JHUAPL for the prototype CVIEW application, the core of the CVISN system.

Project Phase (Type 1/Type 2)

The designation of this phase of CVISN as a pilot, among selected participating states, places the effort between the definitions of a state of Washington Type 1 funded project (requirements, general design, and prototype) and a state of Washington Type 2 funded project (detailed design, construction, and implementation). While server and network infrastructure implementation activities are included in the pilot, the core of CVISN is the CVIEW application, which is being developed as a prototype by JHUAPL. This prototype is expected to be delivered in the Spring of 1998, for customization and testing in the Washington State environment. In addition, the pilot effort will first address the Ridgefield weigh station. Roll out to the rest of the state will only occur following a successful implementation of the prototype/pilot.

Corresponding Non-Information Technology Efforts

Hand in hand with this technology project, WSDOT and WSP plan to continue the implementation of weigh-in-motion (WIM) scales at commercial vehicle weigh stations, through separately approved and funded capital projects. These upgraded weigh stations will further enhance the ability of enforcement officers to quickly process commercial vehicles at weigh station facilities, taking advantage of the vehicle identification technologies in CVISN.

Among the benefits expected by this project are:

- More efficient use of personnel, including the capability of the WSP to provide additional safety-enforcement monitoring
- Enhanced licensing and credentialing capabilities
- Improved regulatory compliance with state weight regulations
- More efficient, safer motor-carrier operations

The CVISN Pilot Project is remarkable in that (1) each project component will deliver value on its own, and (2) the project plan offers an incremental implementation approach that limits the state's financial risk. Cost savings and/or other benefits are expected at each major milestone. In addition, the project has the support of the regulated industry, represented by the Washington Trucking Association.

2. BACKGROUND AND NEEDS ASSESSMENT

The CVISN Pilot Project will initiate the State of Washington's involvement with the Federal Highway Administration's (FHWA) CVO Plan as promulgated by the *National Program Plan for ITS* (1994). To implement the state's strategy, the WSP, DOL and WSDOT joined forces to create the *Washington State CVO Strategic Plan* (1997). This document has guided the state's foray into the FHWA's national CVISN Program, and serves as the resource document for-this feasibility study. Specific information regarding the reasons for this study are contained in the following sections.

2.1 BACKGROUND

As a major gateway for international trade and the North American Free Trade Agreement (NAFTA) commerce, Washington State's economy is inextricably tied to its transportation system. Nearly one of every five jobs in the state is linked to international trade. Trucking is the supply conduit that feeds economic activity of every size, type, and location throughout the state. Three hundred thousand tons of cargo move on Washington State highways every day to meet the needs of citizens, businesses and governmental entities. Efficient movement of goods and services is important to each and every business and citizen in the state. Businesses and consumers alike know that commercial-vehicle transportation efficiency directly affects end-user costs for goods of all kinds.

To coordinate and guide the state's Commercial Vehicle Operations (CVO) Program, the WSP, DOL, and WSDOT began advanced-planning activities in 1992. These activities were stimulated by the passage of the Inter-modal Surface Transportation and Efficiency Act (ISTEA) in 1991, which stipulated a broad program of Intelligent Transportation System (ITS) programs, including CVO projects. The planning that resulted from WSP, DOL and WSDOT cooperation stipulated that the CVO Strategic Program include research, business planning, mainstreaming (i.e., coordination with regional and local transportation personnel), a pilot-deployment program and a full-deployment program. In particular, this planning resulted in the publication of *the Washington State CVO Strategic Plan* earlier this year.

The *Washington State CVU Strategic Plan* (1997) provides a detailed overview of planned CVO deployment activities through the 2001-03 Biennium. The Commercial Vehicle Information Systems Network (CVISN) project is *an* integral part of the *CVO Strategic Plan.*

The state's CVISN Pilot Project is outlined in the *Washington-Oregon CVISN Pilot Project Plan* (1997). The plan focuses on CVO initiatives to improve safety performance, upgrade customer services, reduce impedance for safe and legal freight commerce, and elevate state efficiency and productivity. The plan is also consistent with the FHWA's national CVISN Program that was developed by the USDOT and the FHWA.

CVISN provides the underlying technology architecture for CVO information systems and provides standards and protocols for data exchange, communications with national CVO Clearinghouses, and system modules for certain CVO functions that are common for all states. Thus, it is important to understand that the state's CVISN Pilot Project is a critical component of the FHWA's national CVISN Program.

In 1997, the WSP, DOL, and WSDOT decided to initiate FHWA's national CVISN Program by implementing the CVISN Pilot Project. This prototype/pilot project provides a subset of the functionality described by the FHWA's comprehensive national CVISN Program because an incremental, evolutionary approach to CVO deployment was deemed to be the less risky alternative. The primary objectives for the CVISN Pilot Project are provided in Section 3.0 - Objectives.

2.2 NEEDS ASSESSMENT

The CVISN Pilot Project offers the first information technology step in the state's CVO Strategic Plan to meet the needs of various business concerns within the State of Washington. This section discusses the current business environment within the state, and highlights specific business needs and opportunities for improvement. This section also highlights the federal and state's business service goals.

2.2.1 Business Environment

State businesses depend on motor freight services for the dominant share of materials, supplies, other inbound shipments and outbound distribution of products. Governments also rely on roadway freight services and deliveries. Consumers expect fresh produce at their grocery stores, timely mail and parcel deliveries, and availability of a myriad of goods at a broad spectrum of distribution outlets most of which are delivered by motor carriers.

Maintaining efficient transportation facilities and services is becoming increasingly difficult. The robust economy of the 1990's has generated steady population and job growth as well as corresponding increases in traffic and commercial vehicle volumes on state highways. Yet, state revenues for transportation are projected to meet only about 40% of the funding needs of the state's highway system. These financial realities require prudent stewardship and management of limited funding resources. Strong pressures are imposed on all state agencies to improve the efficiency of the movement of goods and services. State agencies responsible for commercial vehicle administrative and regulatory functions are striving to meet these challenges.

Motor carriers who transport freight over the state's highways also find themselves under considerable cost pressure and demand for timely service. Deregulation of interstate and intrastate trucking has triggered an influx of new operators and sharply increased price competition among motor carriers. At the same time, shippers are demanding higher quality service. The global economy has lengthened supply and distribution chains for many enterprises, while concurrently squeezing time and inventory stocks to bare minimums.

Freight logistics and management are prominently spotlighted in this emerging model of national and international business operation.

2.2.2 Business Needs

Commercial motor carriers who transport freight over the state's highways interact with multiple state agencies that are responsible for commercial vehicle regulatory and enforcement functions. Examples of carrier-state interactions include registering commercial vehicle fleets to operate either exclusively in Washington State or in multi-state operation, obtaining special permits for oversize or overweight loads, and being checked at weigh stations for verification of legal weight limit compliance. Some of these interactions occur much more frequently than do others. A vehicle may be weighed many times at WSP weigh stations across the state (about 3 million vehicles are weighed by the WSP each year). Conversely, registering a vehicle or renewing registrations annually for a fleet may involve only one or a few transaction.

Carrier Delays and Capacity Deficiencies at Vehicle Weigh Stations

Much of the state commercial vehicle infrastructure is aging. Virtually all commercial vehicle weigh stations in Washington State were constructed over 20 years ago. The capacity of Interstate Highway weigh stations is frequently inadequate to handle present-day vehicle volumes and they lack the information or technologies to enable efficient screening of legal commercial vehicles. As a result:

- Legal and safe motor carriers incur delays and higher operating costs of $3 million to $7.5 million per year at out-dated weigh stations, and
- WSP officers at vehicle weigh stations on interstate highways must suspend weighing operations as often as 20 or more times per day because vehicle waiting to be processed extend back to the main freeway lanes, posing severe safety hazard risks.

The over-capacity problem at weighing facilities is increasing as vehicle volumes grow steadily. ITS for commercial vehicle operations offer advanced technologies to address this problem. Many states have deployed Weigh-in-Motion (WIM) scales, sorter systems to clear compliant vehicles, and, in some cases, Automatic Vehicle Identification (AVI) systems to enable electronic screening and clearance. Washington State has one WIM system in place at the Ridgefield weigh station, and this site is proposed to be the prototype for the CVISN Pilot Project. If this deployment is successful, at least a dozen additional installations may be deployed per the CVU Strategic Plan.

Highway Safety

Reducing the number of highway crashes is a high priority objective. Accident records over a five-year period (1990 to 1995) disclose that commercial vehicle crashes on I-5 and I-90 cost society approximately $85 million each year. The WSP enforces state and federal motor

carrier safety regulations by conducting roadside safety inspections, motor carrier terminal inspections, and safety management audits. However, information about the historic safety performance of motor carriers and drivers has not been available to roadside officers responsible for safety enforcement. Consequently, it has been difficult to focus inspections and enforcement where they is most needed. The WSP has begun to use laptop computers with limited safety performance databases to make informed safety enforcement decisions and to automate safety inspection data capture. However, broader deployment of information technology tools and access to more comprehensive safety history are important steps to more effectively focus scarce resources on motor carriers and drivers with demonstrated higher safety risk.

Commercial Vehicle Administrative Services

Pressures for greater efficiency and customer service quality are not restricted to the roadside. State agencies responsible for commercial vehicle registration, licensing, special permits, and tax administration services are equally under pressure to improve efficiency, service response cycles, and customer service quality. Regulatory requirements for commercial vehicles are complex and costly. Trucking industry studies estimate annual carrier compliance costs for registration, licensing, and permits average over $540 per unit per motor carrier per year. Current administrative processes are based on manually prepared paper application forms and personnel intensive procedures, which drive up the cost for both industry and government. As many as 20% of the applications filed require special handling and/or are returned to the applicant because of incomplete data, erroneous information, internal inconsistencies, transcription errors or other causes, including illegibility. The resultant delays lead to carrier dissatisfaction and sometimes to the operation of commercial vehicles without proper credentials.

Temporary Permits

Two separate audits have been made of the current system for managing and issuing special oversize and overweight permits. Both audit reviews concluded that system changes must be implemented to assure financial integrity, strengthen safeguards against fraud, institute better administrative control and security, maintain software configuration and version management, and properly account for revenues received. Current practices also enable permit abuses to avoid vehicle registration fees. Information technology enhancements could significantly improve the productivity of permit clerks as well as customer service quality and responsiveness.

Data Sharing and Exchange

CVO information systems seldom share data among the respective applications. As a result, state agencies perform redundant data entry into autonomous database systems and motor carriers are forced to repeat many data items on different forms and applications for fleet registration, tax licenses, tax report filings and permits. The prevalence of stand-alone and independent systems also impedes logical consistency checks and verification of information

across systems. In addition, although data may be entered into state computer systems, the data transmittals and funds transfers to other jurisdictions are exchanged in paper form rather than electronic form.

2.2.3 Business Opportunities

ITS systems similar to the CVISN Pilot Project are being deployed throughout the country to improve the level of performance of transportation facilities and systems. Dramatic advances in information technology, telecommunications, and the evolution of the Internet, for example, are having profound effects upon corporate business practices, communications infrastructures, and government transactions. Electronic business transactions among organizations, their suppliers, customers, and regulatory agencies are growing rapidly. Thus, systems such as those proposed in the CVISN Pilot Project, that utilize information, communications, sensor and control technologies to achieve higher performance and more efficient delivery of goods and services, are in great demand.

The USDOT has developed a *National Program Plan for ITS* (1994) for the surface transportation system in America. Commercial vehicle operations (CVO) is one of the seven major ITS elements. A national ITS architecture has been prepared as a technical framework to show how ITS elements fit together into an overall system. CVISN encompasses open standards and protocols for data exchange, systems for selected CVO functions, and a group of CVO information systems (termed CVISN "core infrastucture") for exchange of safety information, registration, fuel tax, hazardous material, and commercial driver-license information among states.

Ten states have been selected for pilot deployment of CVISN elements. Washington is one of these states, and the Washington State CVISN Pilot Project has been earmarked to receive $1 million from the federal government.

2.2.4 Business Service Goals

In answer to the challenges described above, the WSP, DOL, and WSDOT have jointly sponsored the CVISN Pilot Project for the State of Washington. This project begins to focus technology initiatives on the goals to *improve safetyperformance, upgrade customer service* and *elevate state efficiency and productivity* in commercial-vehicle functions.

The complementary federal and state CVO Plans establish a framework for the architecture and design of CVO systems, standards and protocols to facilitate data exchange among stakeholders. In addition, the FHWA's national CVISN Program creates national Clearinghouses or CVO information utilities, and establishes communication networks and systems for exchanging data. Washington State seeks to leverage the FHWA's national CVISN Program in order to integrate its CVO processes and improve services and state effectiveness. Information technology is essential to both the federal and the state program initiatives to streamline CVO processes and to information sharing among agencies.

In summary, current CVO processes have evolved over a long period of time, with changes being incrementally layered onto pre-existing systems and practices. The CVISN Pilot Project will be layered and interfaced with existing state and National CVO systems. The risk will also be reduced by using "interfaces between existing legacy systems" rather than making modifications to legacy systems to accommodate CVISN goals. The resulting system will reduce the risk associated with the implementation of new system by avoiding the downtimes usually associated with system upgrades.

3. OBJECTIVES

The state's CVISN Pilot Project supports the *Washington State CVO Strategic Plan 's* (1997) primary goals and objectives. The major thrust of the CVISN Pilot Project is to implement a prototype which provides decision support for motor-carrier safety screening and enforcement at the roadside while offering more efficient commercial-vehicle licensing, credentialing, permitting, and tax management via electronic business transactions and electronic funds-payment methods. The specific objectives of the CVISN Pilot Project are listed below:

- **Improve motor carrier throughput at Ridgefield weigh station:** provide electronic clearance of compliant vehicles.
- **Improve highway safety:** reduce accidents associated with weigh-station delays, improve safety screening of commercial vehicles, and provide more opportunities for safety-regulation enforcement by WSP personnel.
- **Enable timely safety inspection decisions at the roadside:** distribute safety and credential information to inspection personnel through information technology
- **Collect inspection information at the roadside:** increase the capability of law-enforcement officers to screen high-risk drivers and vehicles in real-time.
- **Allow motor carriers to apply for credentials and tax payments electronically:** provide on-line applications to improve data collection and timely processing.
- **Interface State systems with national Clearinghouses:** provide vehicle licensing and registration data to WSP and DOL personnel to enforce safety regulations and/or licensing requirements among out-of-state drivers and vehicles.
- **Make available electronic application of permits:** enable DOL personnel to more efficiently and effectively perform regulatory functions.
- **Demonstrate the functionality and benefits of CVISN:** prototype the roadside system components at the Ridgefield weigh station and the demonstrate the permitting and credentialing components within the appropriate organizations.

Ultimately, the transportation agency sponsors of the CVISN Pilot Project hope to implement the systems statewide. The pilot/prototype proposed here will allow the agencies to demonstrate the benefits of CVISN prior to statewide roll out.

The CVISN Pilot Project objectives are in line with the core infrastructure of the CVO Strategic Plan, composed of six "application bundles" or primary modules. The CVO Strategic Plan's "application bundles" are listed below:

- *Safety Assurance* to automate motor carrier safety inspections and to eliminate unsafe motor carriers and drivers by focusing enforcement resources and safety attention on high risk operators.

2. ***Electronic Roadside Screening and Clearance*** to eliminate delays and unnecessary stops by safe and fully compliant motor carriers, while enhancing enforcement effectiveness.
3. ***Electronic Carrier Credentials Transactions*** for credentials applications by motor carriers, involving registration of vehicles, permits, tax license and tax report filing. This application accommodates issuing of state credentials issue and administrative requirements, and enables electronic payments between motor carriers and the state.
4. ***Electronic Payments and Funds Transfers*** for state accommodation of electronic payments by motor carriers as well as funds and data exchange between the state and other jurisdictions.
5. ***Electronic Commercial Vehicle Data Exchange*** for information exchange with national clearinghouses as well as among agency legacy information systems to streamline timely access, and information availability to support roadside enforcement.
6. ***National Clearinghouse Data Exchange and Interfaces*** for information exchange among the state and national clearinghouses to support efficient administrative and enforcement operations.

The goal of the FHWA's national CVISN Program is to implement a broad class of CVO user services through an FHWA, state, and trucking industry partnership. Other states have already shown the cost savings and other benefits that were projected by deployment of the CVISN Pilot Project. In particular, the CVISN Pilot Project is intended to "demonstrate the synergistic effects of a coordinated deployment of multiple CVO services."

4. IMPACTS OF PROPOSED SOLUTION

Deployment of the CVISN Pilot Project will have direct and indirect impacts on numerous CVO stakeholders. Successful execution of the Washington State CVISN Pilot Project and the Washington State CVO Strategic Plan requires coordination and collaboration with the FHWA's national CVO Plan, with neighboring jurisdictions in the Pacific Northwest, and with the sponsoring agencies and stakeholders in Washington State. The projects included in the CVO Strategic Plan and CVISN Pilot Project cannot be pursued in isolation.

Although the sub-projects in the CVISN Pilot Project being proposed by WSP, DOL, and WSDOT directly affect their primary goals and objectives, each sub-project also supports the overall goals and objectives of the CVISN Pilot Project and of the CVO Strategic Plan. Each sub-project proposed contributes to the overall success of the CVO Strategic Plan and the CVISN Pilot Project. All three agencies will directly benefit from participating in the CVISN Pilot Project, and by working together, WSP, DOL, and WSDOT are serving the best interests of the state, and are in compliance *with the* guidelines in the *State of Washington's Strategic Information Technology Plan.*

The impacts of the projects being proposed in the CVISN Pilot Project on WSP, DOL, and WSDOT, as well as on national, regional, and state programs are discussed in this section. The impacts on other CVO stakeholders such as motor carriers, highway users, manufactures, distributors, shippers, consumers, and transportation workers are also addressed.

4.1 INTRA-AGENCY IMPACTS

The three primary Washington State commercial vehicle regulatory agencies will be the major public-sector beneficiaries of the CVISN Pilot Project. These agencies are responsible for day-to-day administration and delivery of state CVO services and for implementing the CVISN Pilot Project. This will enable the state CVO agencies to realize efficiencies, improve service quality, and increase effectiveness. The benefits to each agency are detailed in the following sections.

4.1.1 Washington State Patrol

The WSP will gain capacity and throughput for commercial vehicles at the Ridgefield weigh station via electronic identification and screening/clearance processes. The current frequent suspension of weighing operations because of weigh station queue backups will no longer be common: Additionally, both efficiency and enforcement effectiveness are expected to improve. Access to timely information will improve the Patrol's effectiveness by enabling Commercial Vehicle Enforcement Officers (CVEOs) to focus attention and resources on higher risk commercial operators and drivers. Levied fines and citation revenues should rise due to better information with which to target enforcement actions. Automation will enhance productivity so that continued growth in commercial vehicle traffic may be absorbed without commensurate increases in Patrol CVEO staff positions.

4.1.2 Department of Licensing

The DOL will offer electronic credentialing services to motor carriers and conduct electronic data and fund exchanges with other jurisdictions. The electronic transaction option will improve carrier (customer) service and responsiveness with shorter service time cycles. Efficiency gains will accrue via related automation of CVO processes. Electronic payments should increase interest revenues by quicker collections of fee and tax payments. DOL service options are expected to be more flexible because personnel will have the opportunity to use either the paper or electronic forms, depending upon immediate business needs. Access to national Clearinghouse databases will support department decision processes and help identify and address compliance problems more effectively.

4.1.3 Washington State Department of Transportation

WSDOT will experience improved productivity due to automation of its oversize and overweight permitting services. Permit customer services quality will improve markedly accompanied by increased permit revenues. Additionally, increased motor carrier size and weight compliance (due to better, more timely services coupled with improved enforcement deterrence capabilities because of data sharing) will preserve the life of the state pavement and bridges infrastructure.

WSDOT will gain additional transportation data-collection assets from the Ridgefield weigh station's mainline weigh-in-motion weigh station. Data from this installation will provide better knowledge of the classes of heavy vehicles using state highways and the loads they impose on the highway pavement and bridge infrastructure. WSDOT's biennium investments allocated to new weigh station design, construction, reconstruction, and pavement rehabilitation may be reduced because the CVISN electronic processes will substitute for physical pavement capacity while the number of heavy vehicles and load burdens on weigh station ramps should decline markedly. WSDOT Highway Fund revenues from commercial vehicles should increase due to several reinforcing factors, including higher voluntary credential and tax compliance, improved enforcement, violation deterrence capabilities, easier credential information access and processes, and improved information to deter and defeat purposeful compliance violations.

4.2 INTER-AGENCY IMPACTS

Expected interagency impacts of the CVISN Pilot Project are listed in the following sections.

4.2.1 Washington State Patrol

The WSP will receive new and/or quicker access to DOL and WSDOT commercial-vehicle licensing, permitting, and safety information through CVISN. This will improve the effectiveness of Commercial Vehicle Enforcement Officers (CVEO) enforcement activities and serve to increase revenues. There will be an increase in IT personnel (e.g., equipment installation, project coordination, system and network support) to support the CVISN Pilot

Project since the infrastructure will be supported through WSP network services and the CVIEW server will reside at the WSP data center.

4.2.2 Department of Licensing

DOL will offer electronic credentialing, tax return, and payment services to motor carriers as well as electronic information and payment exchanges among states.

Receipt and disbursement of electronic payments may require new or modified reporting requirements and information exchange protocols among state financial offices such as the Office of the State Treasurer (OST), DOL's fiscal office, other jurisdictions, and financial institutions to ensure for proper accounting and disbursement of funds.

Electronic credentialing services will require identification, assessment, and resolution of system security issues surrounding the electronic exchange of information among private sector and public sector information systems such as those maintained by DOL, OST, Department of Information Services @IS), and Lockheed Martin.

4.2.3 Washington State Department of Transportation

WSDOT expects that the CVISN Pilot Project will simplify the process of providing licensing and permitting information to WSP. In particular, on-line access of this information will enhance WSP enforcement activities. WSDOT reports that an increase in its IT infrastructure personnel will be needed to assist with initiating the CVISN Pilot Project networks.

4.3 Programs Impacted by the CVISN Pilot Project

The Washington State CVISN Pilot Project represents the first phase in fulfilling the long term goals and objectives of the federal and state's CVO Strategic and CVISN Plans. National, Regional and state programs that are impacted by the CVISN Pilot Project are also discussed in this section.

4.3.1 Programs - National

The FHWA's national CVO Plan is a crucial building block for Washington State's CVO Strategic Plan. Important enabling capabilities, essential information systems infrastructure, and data exchange standards will be derived from the FHWA's national CVISN Program. These capabilities will underpin the state CVO Strategic Plan and similar endeavors in other jurisdictions. For example, the CVISN national Clearinghouses will serve as information utilities to provide safety and credentialing information about motor carriers, vehicles, and drivers. Most of these core national infrastructure capabilities will be in place in the next two years. FHWA's national CVISN Program in most states is targeted for deployment by Year 2005.

Washington State is already an active participant in the national CVISN Pilot Deployment Program, one of only ten pilot states jointly engaged in that initiative. Participation in the FHWA's national CVISN Program has several favorable benefits for the state. The first is federal financial and technical assistance to the state in planning, designing, pilot testing, and validating the major elements of the CVO Strategic Plan architecture and system design. Involvement at the forefront of the FHWA's national CVISN Program activity positions the state with respect to ITS CVO deployment funding in the pending national transportation reauthorization legislation (NEXTEA). Additionally, the state's CVO Strategic Plan and the pro-active early involvement with the FHWA's national CVISN Program reinforces the target goal for full-deployment.

4.3.2 Programs - Regional

The CVO Strategic Plan deployment is coordinated with parallel commercial vehicle initiatives of neighboring jurisdictions in the Pacific Northwest. Collaboration among neighboring jurisdictions is important because most vehicles operate across state lines. The combined regional actions collectively yield broader benefits and more attractive services over a larger geographic network. Therefore, the regional actions increase prospects for greater trucking industry participation.

Relevant CVO programs by other jurisdictions include:

1. Oregon's Green Light CVO Project;
2. Idaho, Oregon and Utah's Multi-Jurisdiction Automated Pre-Clearance System (MAPS) project to provide electronic CVO screening and clearance corridors in those states;
3. British Columbia and federal international border regulatory agencies with respect to facilitating freight and trade movements across the international border at Blaine Washington; and
4. State CVO business planning underway in five states together with regional coordination elements

These related activities mutually reinforce each other, strengthening and expanding each enterprise. Together, the Pacific Northwest states are creating electronic verification and clearance corridors from Canada to California on I-5, and from the Ports of Seattle and Tacoma in the Puget Sound Region stretching east across the state into the Inter-Mountain region states. These high volume interstate freight corridors interconnect the primary freight generators in the state, as well as the major North American Free Trade Agreement (NAFTA) and Pacific Rim trade gateways throughout the Pacific Northwest region.

4.3.3 Programs - Washington State Agencies

The CVISN Pilot Project will have both direct and indirect impacts on WSP, DOL, and WSDOT and numerous other CVO stakeholders. The positive impacts of participating in the CVISN Pilot Project were discussed in Section 4.1. No adverse impacts on other programs

have been identified by the Washington State agencies participating in the CVISN Pilot Project.

4.4 CUSTOMER IMPACTS

The two broad classes of customers affected by the CVISN Pilot Project discussed in this section are motor carriers and highway users.

4.4.1 Motor Carriers

Motor carriers will be the major private sector beneficiaries of the CVISN Pilot Project. Motor carriers will invest voluntarily in technologies that are appropriate to their specific operating needs. Safe and legal motor carriers currently incur substantial delays at weigh stations and ports of entry. The CVISN Pilot Project will enable safe and fully compliant motor carriers to be screened at mainline speeds and cleared to continue without stopping at weighing and inspection facilities. Similarly, fleets with good safety management performance will be identified and not subjected to repetitive safety inspection delays. Also, motor carriers will have the option of applying for permits and licenses via electronic means. This will lessen the need for paper processing and mailing, and is expected to reduce credentialing delays.

4.4.2 Highway Users

All highway users will benefit from reduced congestion delays due to fewer commercial vehicle roadway incidents and weigh station backups. Improved safety performance of commercial vehicles in Washington State may also have a significant impact to highway users. The societal costs of CVO-involved accidents on I-5 and I-90 were calculated to exceed $85 million per year between 1990 and 1995. In the Puget Sound Region, commercial vehicle traffic incidents cause travelers thousands of hours of delay. Combined initiatives by commercial vehicle operators and public sector enforcement agencies to improve safety performance may yield sizable public benefits and reduced societal dislocation and trauma related to commercial vehicle accidents and roadway incidents.

4.5 OTHER IMPACTS

The three other primary groups affected by the CVISN Pilot Project are also discussed in this section: (1) manufacturers, distributors, and shippers; (2) consumers; and (3) transportation workers.

4.5.1 Manufacturers, Distributors and Shippers

Many manufacturers, distributors, and shippers rely on 'just-in-time' or quick response delivery processes to manage inventory and operations. Safe, timely, and reliable delivery

and pickup of freight is important to these firms. They should see improvements in freight services reliability and timeliness, and will be able to query and evaluate the safety performance of the motor carriers they select to handle their freight services.

4.5.2 Consumers

Global production and distribution of goods and services is made possible by efficient transportation services. Improvements in transportation efficiency and safety ultimately impact the cost of transportation and the prices that end users must pay for goods and services. Consumers will gain indirectly from more efficient commercial vehicle freight operations and availability of goods and services.

4.5.3 Transportation Workers

A significant impact of the CVISN Pilot Project may be job-market related. Efficient transportation systems and services in Washington State should strengthen the ability of state business enterprises to compete more effectively for trade and associated jobs.

5. ORGANIZATIONAL EFFECTS

The implementation of the proposed CVISN Pilot Project's components, i.e., each agency's sub-project(s), and the organizational effects these "components" have on each agency is discussed in this section. The effects are assessed from the perspective of the impact on work processes, training needs, job content, and impact on the CVISN Pilot Project's organizational structure.

It is anticipated that the CVISN Pilot Project will build upon and integrate with each entity's legacy system, if possible, to minimize the level of encountered risk. With regulation and safety being the primary objectives of the CVISN Pilot Project, each agency's work process in its commercial vehicle functional areas will need to focus on how these functions may be efficiently and effectively integrated into the organization. It is anticipated that the automation of these functions will increase the sharing of information, improve cooperation, and increase work-place productivity.

5.1 WSP EFFECTS

CVISN, and the associated WIM project, introduce a paradigm shift in the Commercial Vehicle Division of the WSP. In the past, every vehicle was expected to be weighed and inspected. With the new technologies, only those vehicles who fail to meet the weight, credential and safety bypass criteria will be processed by CVEO and staff.

With full implementation of CVISN, the WSP will be able to enjoy some level of efficiency. Of particular note are the annual commercial vehicle traffic volumes which are increasing at a rate of five percent per year. The limited personnel and capital resources of the WSP currently do not allow for the increased staffing and facility construction that would be required in order to keep up with the annual growth in commercial vehicle traffic. For example, other states have had to expand their facilities to accommodate eight lanes of vehicle traffic. CVISN will bring a much needed cost *avoidance* to the WSP by reducing the need for additional staff and facilities.

In large part, the impact on work processes will be in the operational areas for CVEOs and in the maintenance areas for the agency's electronic and maintenance technicians. As the CVISN Pilot Project stabilizes, the opportunity to re-deploy enforcement resources to electronic and capital maintenance activities increases.

Use of laptop computers for safety inspection recording will supplant office key entry of inspections. Training will be required for CVEOs in the operation and care of this new equipment and software. Safety information databases should enable the focus of enforcement resources more effectively on higher risk drivers and motor carriers. As a result, the number of citations and the fine revenues are expected to increase as a result of ready access to credential, permit and safety databases.

Overall, the WSP commercial vehicle division will require more computer systems and communications network support services. The commercial vehicle information exchange system, laptop computers for safety enforcement, and distributed computers and databases at automated weigh stations will need ongoing information systems technical support to sustain operations.

5.2 DOL EFFECTS

The Prorate and Fuel Tax Services Office (PF/FT) of the vehicle services division is responsible for the administration of the International Registration Plan (IRP) and International Fuel Tax Agreement (IFTA) programs. Impacts from implementation of the CVISN pilot project are anticipated within the IRP, IFTA, Motor Carrier Financial, and Audit and Compliance work units. These impacts are discussed in the following sections.

5.2.1 IRP and IFTA Work Units

Implementation of electronic credentialing, tax return processing, and payment services within these units will result in a partial re-deployment of staffresponsibility: from accepting, reviewing and data entry of carrier applications, tax returns, and payments to a customer assistance and training service delivery mode. The extent of this shift in staff duties will largely be dependent upon the volume of electronic transactions received and the number of participating motor carriers.

Staff providing customer assistance and training will be responsible for providing accurate and timely assistance to motor carriers in the completion of applications and tax returns via training, information distribution, and other liaison services. This service would be provided to all motor carriers, regardless of the manner in which they conduct business with the department. The focus of responsibility will be to provide proactive outreach services which reduce initial errors by the carrier, prior to submission of applications, returns, and payments to the department.

Providing these services will result in a functional reorganization of IRP and IFTA work units to accommodate essentially two service delivery vehicles, i.e., the traditional paperbound processing of incoming work and payments, and the customer assistance and training services provided by re-deployment of staff Prior to and during, the re-deployment of staff, training must be provided in order develop the necessary knowledge and skills required to effectively conduct liaison oriented business tasks. Some level of specialized knowledge in the electronic data interchange and electronic payment areas of discipline will be required in order effectively work with motor carriers participating in electronic commerce opportunities.

5.2.2 Motor Carrier Financial Work Unit (MCFU)

The MCFU is responsible for the receipt and distribution of IRP and IFTA payments received from motor carriers. It is also responsible for the reconciliation of receipts and disbursements to ensure that the State of Washington and participating jurisdictions are receiving and disbursing the correct amount of revenues.

New business processes must be developed within this unit to accommodate both traditional, paperbound payments and the new electronic payments. Receipt of electronic payments requires new reporting requirements and information exchange protocols among the state financial offices such as the Office of the State Treasurer and MCFU and the department's fiscal offrce for proper accounting and disbursement.

Participation in the IRP and IFTA national Clearinghouses, as well as receiving disbursements from the New York Regional Processing Center, will require additional training to access and retrieve pertinent financial information which will reside at those sites. Access to transmittal and fee information via the national Clearinghouses will reduce the time spent handling, reviewing, and filing paper-based transmittals. Additional MCFU staff time can be shifted towards a more in-depth review of transmittals for accuracy of fees and information. MCFU staff time can be also be reallocated towards assisting motor carriers and jurisdictions in understanding invoices and transmittals being sent to them.

Upgrades in communications and hardware may be required in order to transmit and receive the extraordinary amounts of data that are currently distributed to and received from jurisdictions using traditional paper transmittals.

5.2.3 Audit and Compliance Unit

PR/PT is required to conduct a minimum number of carrier audits annually in order to comply with the IRP and IFTA audit standards. As electronic commerce market penetration by motor carriers increases, the likelihood that a carrier conducts all or part of their IRP/IFTA business by electronic means becomes more likely, and must be taken into consideration when developing audit guidelines. In particular, new business practices must be developed in the areas of pre-audit preparation, retrieval, and possible conversion of carrier records from electronic format to a medium better suited for conducting an audit, and for inclusion in the completed audit file.

Additional training will be required of audit staff, including the area of electronic records authentication and interpretation, particularly if an audit which is appealed includes transactions conducted by electronic means.

5.2.4 Other Organizational Effects

The following considerations will have administrative impacts on the organization and will require some staff resources to be assigned, either temporarily or permanently:

- New records retention and retrieval processes must be developed to account for the archiving and retrieval of records/data submitted via electronic data interchange and electronic payment mediums.
- Process for the initiation, completion, execution and maintenance of trading partner agreements must be established.
- Motor carriers may be authorized to maintain inventories of IRP plates and credentials, which will require some level of on-site audit to ensure adequate inventory security and issuance controls are in place at the carrier location.
- Change control processes must be established, with staffresources assigned to ensure changes to carrier electronic filing procedures, whether due to new technology, statutory requirements, or institutional changes, are communicated to motor carriers, along with the necessary software/hardware modifications and training.

5.3 WSDOT EFFECTS

The Motor Carrier Services (MCS) office will gain significant productivity through implementation of CVISN's automated oversize/overweight permit system. Computer-based training and built-in software training features will increase consistency and quality of service to customers. Nonetheless, WSP use of the department's WIM data collection sites as 'RoadNet" control stations to measure CVO volumes and weight compliance will require increased attention to WSDOT calibration and maintenance of the equipment.

WSDOT's primary objective for the CVISN pilot project is to provide a reliable, cost effective replacement for the Transportation Automated Permitting System (TAPS) that meets all the business needs in a timely, easy-to-use manner. Another important objective is make the permitting process Year-2000 compliant. Included as part of the new System Network for Oversize and Overweight Permit Information (SNOOPI) will be documentation and training of personnel.

CVISN's SNOOP1 will provide the following improvements to the processes supported by WSDOT employees.

- Interface with the WSP (to be used for permit validations and confiscation)
- Implementation of Internet usage of the system by external permit issuing agents
- Implementation of an automated bank card credit verification method
- Interface with WSDOT's TRAINS accounting system
- Addition of a Size and Weight Advisory module ('Road Conditions')
- Addition of a Bridge Conditions module

- Verification of MAPS compatibility
- Ability to interface with DOL Registration and Fuel tax

In 'addition to the above, CVISN includes conversion and importing of data from the existing TARS system. Users will be able to access the system from either the WSDOT LAN (for WSDOT operators) or over the Internet (for external operators). Internet use will be fully secure for the customer and the department using a mix of security technology techniques.

6. PROPOSED SOLUTION

The state's overall CVO strategy is contained in the CY0 *Strategic Plan (1997). The* fist information technology component of this strategy is the CVISN Pilot Project. In conjunction with The Johns Hopkins University Applied Physics Laboratory (JHUAPL), the FHWA's national CVISN project coordinator, Washington State personnel associated with the CVISN Pilot Project have developed the *Washington-Oregon CVISN Pilot Project Work Plan* (1997). This document lists all the CVISN sub-projects, outlines system requirements and a general design, and provides a Work Breakdown Structure (WBS) for the tasks associated with project implementation. Included in this implementation are five (5) sub-projects in the credentialing, roadside assistance, and infrastructure improvement areas that are discussed in the following sections.

Simply stated, the CVISN Pilot Project will prototype the use of a comprehensive interface to state and federal motor carrier data systems and will deliver real-time, decision-making information to weigh stations and commercial vehicle enforcement officers. In addition, motor carriers will more easily be able to apply and pay for required permits and credentials. Upon successful completion of this pilot/prototype project, the transportation agencies plan to roll out the CVISN architecture across the State of Washington.

6.1 MAJOR FUNCTIONS TO BE PROVIDED

The CVISN Pilot Project demonstrates information technology as a basic enabling platform. Providing timely information to the people and the systems needing that information is a basic principle of the project. Discussion of the major functions being implemented as components of the CVISN Pilot Project is provided in the following sections.

6.1.1 Overview

The CVISN Pilot Project is designed to improve commercial vehicle operations and the associated governmental regulation through the implementation of an improved computing infrastructure and the enhancement of two major functions: credentialing and roadside assistance. The new system will allow motor carriers to apply for, pay for, and receive appropriate credentials through electronic means. In addition, immediate access to moving vehicle identification information and to motor carrier records will provide new tools for enforcement officers working at roadside weigh stations.

The proposed CVISN Pilot Project will be implemented at the Ridgefield weigh station, a port of entry (POE) in Washington for carriers traveling from Oregon. The WSP enforcement system at Ridgefield is dependent upon information supplied from DOL and WSDOT, in addition to information gained through the WSP ACCESS system. DOL performs basic credentialing services, fuel-tax processing, and payment services, while WSDOT provides special weight permits (e.g., oversize/ overweight). Since most of this

information is currently not easily available to WSP CVEO personnel, the CVISN Pilot Project will develop interfaces to make this information available. This should result in improved, and more efficient, enforcement of licensing and weight/size regulations. Finally, the Ridgefield weigh station will be tied into Oregon's systems in order to provide a seamless border crossing system. The Ridgefield weigh station will serve as the port of entry for both Washington and Oregon and will provide safety assurance and credential-review capabilities to both states.

Each of the major functional components is addressed in greater detail below.

6.1.2 Credentialing

Systems for electronic application and issuance of credentials are proposed to enable motor carriers to obtain credentials electronically. These electronic business transactions include applying for apportioned vehicle supplements, applying for apportioned fuel tax licensing, filing fuel tax reports and applying for temporary trip permits and oversize/overweight load permits. Systems to allow electronic invoicing, payments and associated acknowledgment messages will be implemented to complement electronic credentiahng services. Electronic payment processing will be applicable to motor-carrier transactions.

National CVISN and CVO Clearinghouses will serve as information utilities for CVO functions. Information Clearinghouses are included for commercial vehicle safety; apportioned vehicle registration; apportioned fuel tax licensing and tax filings; hazardous material licensing; and commercial vehicle drivers licensing. Data exchange interfaces with the CVISN Clearinghouses will provide information to the State of Washington regarding motor carriers operating in Washington State, including those with IRP and IFTA apportioned credentials issued by other jurisdictions.

The IRP Clearinghouse will automate and consolidate monthly transmittals to/from fifty-seven (57) member jurisdictions to a single point of distribution. This will transform current paper-intensive data exchanges into electronic format. Similarly, interface with the IFTA Clearinghouse will deliver and receive fuel license census data for other IFTA members. The national commercial vehicle safety database (termed MCMIS/SAFER) will report interstate carrier, vehicle, and driver safety performance data from inspections, accidents, safety audits, and compliance reviews performed in all jurisdictions.

6.1.3 Roadside Assistance

Roadside assistance will be enhanced through two major technology improvements: (1) the immediate availability of motor carrier and driver information and (2) the high speed screening of vehicles through improved electronic identification and enforcement selection.

The FHWA's national commercial safety information Clearinghouse maintains safety information on motor carriers, drivers, and vehicles that operate in multiple jurisdictions.

CVISN's Safety and Fitness Electronic Records (SAFER) data-exchange system provides safety performance information pertaining to motor carriers, vehicles, and drivers. SAFER will make the safety performance information available to state enforcement agencies by frequent updates to the state safety databases or direct query of the SAFER database through interfaces developed during this project.

CVISN Pilot Project safety information will enable safety officers to focus inspections and enforcement on high-risk motor carriers and drivers. In addition, inspections will be electronically forwarded to the state commercial vehicle safety data repository (SafetyNet) and to SAFER. WSP safety officers may also query SAFER from roadside or office sites to obtain safety history and recent safety events for motor carriers, vehicles, and drivers. Analysis of carrier safety performance information will help target safety reviews and terminal audits.

The WSP will deploy information systems and ITS technologies to automate enforcement screening and inspection selection decisions by WSP CVEO's. The CVISN Pilot Project will integrate these technologies first at the Ridgefield weigh station, since Interstate ports and weigh stations account for ninety percent of all vehicles weighed by the WSP. These high volume sites require high-capacity, automated systems to process large numbers of vehicles.

Correspondingly, the Ridgefield station will be instrumented for automated mainline electronic enforcement screening and clearance of safe and legal commercial vehicles. Specifically, the Ridgefield weigh station will be instrumented with roadway weigh-in-motion sensors (through a separate capital project), and automatic vehicle identification readers. Local computer systems will be used for operations control, and these systems will be provided access to credentials-verification databases. The installed systems will electronically identify commercial vehicles, verify weight, credentials, and safety compliance, and clear legal and safe units to proceed uninterrupted. The Ridgefield weigh station will utilize a local area network to exercise process control, exchange information, integrate functions, and interface to external information resources and systems (see Infrastructure Improvement, below).

6.1.4 Infrastructure Improvement

A central state CVO information exchange server (CVIEW) will assimilate and maintain data base(s) to support WSP roadside enforcement needs. The server will periodically refresh site data bases and enable access of CVO safety, registration, fuel tax status, and permit updates from state CVO legacy systems. It will furnish information to the CVISN's SAFER data base about Washington-based motor carriers, vehicles, and drivers. The CVIEW server will obtain corresponding data from SAFER pertaining to motor carriers, vehicles, and drivers operating in Washington State but "home-based" in other jurisdictions. Data exchanges will utilize standardized data snapshots to distribute and receive information.

The Ridgefield station will be outfitted with a local server, and will support both wired and wireless local areas networks. The server will house the local, up to date information about carrier traffic and will log the ongoing enforcement activity. In addition, network equipment will be installed and/or upgraded in WSP offices to provide required wide area network telecommunications to state data bases and other, interfaced systems.

A key component of the project is the implementation of a single, common scheme for identifying motor carriers. To date, only Interstate carriers were required to apply for and display USDOT vehicle numbers. As part of the CVISN Pilot Project, Intrastate carriers will also begin to use this numbering system. This will provide a common thread of identification through credentialing and enforcement activities, for all carriers.

Finally, motor carriers will voluntarily install identification transponders on their fleet units. The transponders will transmit identification information to roadside readers and receive clearance or pull-in instructions from the readers via wireless radio frequency signals. Washington State motor carriers will be recruited by the Washington Trucking Association (WTA) to participate in the CVISN Pilot Project so that they can receive the full benefit of the functionality to be implemented at the Ridgefield weigh station as the port of entry for Washington and Oregon.

6.2 SPECIFIC CVISN WORK PRODUCTS

Table 6-l provides a summary of the components of the CVISN Pilot Project as proposed by WSP, DOL, and WSDOT. Five major system groupings, or sub-projects, are to be developed by the three agencies. Contained within these categories are twenty-three (23) individual modules. Each module is annotated to indicate to which of the three major functional improvement groups it belongs: credentialing, roadside assistance, or in&structure improvement. The planned timeframe for CVISN Pilot Project deployment is the eighteen (18) months from January 1998 to June 1999. Responsibility for implementation of these systems rests with the assigned organization.

A description of the functions and features of each sub-project in the CVISN Pilot Project is contained in the following sections. Information presented in each section includes a description of the background and need for the sub-project, modules, approach, capabilities to be provided and dependencies.

6.2.1 $ub-Project #l: CVIEW Pilot/Prototype

The purpose of the Commercial Vehicle Information Exchange Window (CVIEW) Sub-project is to establish a system and network to share timely, accurate electronic motor-carrier driver and vehicle-safety information among state agencies and with other authorized users. The prototype CVIEW application is being developed by JHUAPL in Baltimore, Maryland.

Background And Need

Currently, information describing Washington State motor carriers, vehicles, and drivers is not readily accessible for administrative or enforcement purposes. Information pertaining to inter-state motor carriers and intra-state motor carriers is currently shared by exchanging paper documents or via phone inquiries.

The most descriptive motor carrier information is stored in file cabinets, or in "stand alone" automated computer systems. Within DOL, interstate motor carrier and intra-state motor carrier information resides in different computer system databases. Periodically, DOL provides the WSP Commercial Vehicle Division (CVD) with 'pink sheet" lists of Washington State motor carriers that owe state taxes or fees. This information is provided to WSP troopers operating from patrol cars, but is difficult to access.

At WSDOT, information concerning oversize/overweight trip permits issued is not captured into a single, common database, nor is trip permit information routinely shared with other agencies. The WSP also has a stand-alone, computerized commercial vehicle safety information system (SafetyNet), but the system is not capable of communicating information to the field.

January 8, 1998

TabIe 6-l. CVISN Pilot Project Functional Components.

Sub-Project	Module/Feature	Description	Type	Resp. Agency
1.CVIEW Pilot	WA CVIEW	Communications hub; provides interfaces to multiple state and federal systems	C	WSP
	VISTA TS & RS Interfaces	Access to interstate licensing databases	C	
	SafetyNet/Avalanche Interface	Access to current safety information	R	
	ASPEN Interface	Access to safety inspection information	R	
	DSRC/LPR	Automatic identification of vehicles in motion	R	
	CVIEW Reporting	Standard and ad hoc reporting of activity and statistics	R	
2. ODOT Interfaces	DSCR/LPR at Ridgefield	Access to ODOT database for vehicle identification	R	WSP
	MCIS Interface	Access to ODOT MCIS for vehicle screening	R	
3. Infrastructure Improvements	Ridgefield Modifications	Server; wire and wireless LAN: communicaticons links to WSP Data Center	I	WSP
	WSP Data Center	CVIEW server; upgraded datacomm capacity	I	
	Carrier Transponders	Identification of vehicles in motion	I	
	USDOT ID Assignment	Standardized carrier identification numbers		
4. Electronic Credentialing	Credentialing Interface	Electronic transaction receipt and edit	C	DOL
	IRP Submission for Pilot	Electronic submission of state IRP supplements by carrier	C	
	IFTA Submission for Pilot	Electronic submission of state IFTA supplements by carrier	C	
	IRP Electronic Processing	Electronic receipt of IRP supplements and dissemination of state credentials and invoices	C	
	IFTA Electronic Processing	Electronic receipt of IFTA supplements and dissemination of state credentials and invoices	C	
	IRP EFT Payment	Electronic receipt (EFT) of IRP payments	C	
	IFTA EFT Payment	Electronic receipt (EFT) of IFTA payments	C	
5. SNOOP1	Basic Permitting Application	Capture and record permit information in database	C	WSDOT
	Interfaces	Provide access to WSP, DOL, and industry for permitting information	C	
	Routing	Provide bridge and highway restriction information and preferred routing	C	
	Interface with ODOT	Access to oversize/overweight information and trip permits	C	

C = Credentialing   R = Roadside Assistance   I = Infrastructure Improvement

Accurate and current state information describing motor carriers is needed to support to WSP enforcement activities, as well as to provide information to other authorized parties. Access to other states' information systems is required for inter-state motor carriers.

Modules

The CVIEW Sub-project contains six (6) modules:

- WA CVIEW - to serve as a hub for separate information systems.
- VISTA TS and RS interfaces - to link CVIEW to interstate licensing databases.
- SafetyNet/Avalanche interface - to provide current safety information to CVIEW.
- ASPEN interface - to provide real-time access to safety inspection information.
- DSRC/LPR at the Ridgefield weigh station with DOL database via the CVIEW Project - to provide current automated screening information.
- CVIEW Reporting - to provide access to information collected through the CVIEW Project.

Approach

The WA CVIEW module will provide an application communication hub to connect state and federal automated information systems and create data link connections to other authorized users. CVIEW will establish a standard architecture platform to create an interface for exchanging information among legacy state and external systems and provide access to information describing intrastate and motor carriers, vehicles and drivers. In addition, CVIEW will provide information to WSP fixed and mobile inspection sites.

This application architecture will be built upon a standard using transaction sets developed for the CVISN project. The transaction sets or "snapshots" provide the basis for CVIEW operation by providing summary information requested by the state in several different "views" including the motor carrier, vehicle, and driver.

The "snapshots" are used to transfer data as a basis for actions such as mainline screening and vehicle or driver safety review. The data contained in the snapshot is an overview of the data contained by the authoritative source from which it originated. Processes that use snapshot data must be automatic for quick access by the computer system and to support timely decision-making by enforcement officers.

For example, a Transaction Set may be downloaded from the SAFER system to the state system automatically based on predetermined criteria, perhaps "all vehicles with more than three citations in six months." This data will then be used at a Port of Entry (POE) to screen commercial vehicles based upon the summary information for each vehicle.

If a commercial vehicle is instructed to pull into the Ridgefield POE based on information contained in the snapshot, the enforcement personnel can then query the source of the surmary data for further information. This request would be processed by the CVIEW system and routed to the authoritative source. The reply to the request for information would be contained in a detailed Transaction Set.

WashingtonCVIE W Pilot Management

The personnel for management of the entire development and deployment project are included in this sub-project. For the development and deployment, one project manager hired by personal services contract; one system architect from the agency; one project assistant; one system administrator; and one system support person are included.

The project manager, system architect, and project assistant will develop and deploy the application in the pilot and then throughout the state. The costs for further deployment have not been included. The project manager is projected to be in place for two years.

The system administrator would start by the end of the first year and permanently be responsible for CVIEW system administration and coordination. The system support position depends upon the number of sites deployed. It too would start by the end of the first year and would support five to eight scale and office sites. This is reflected in the ongoing costs as one-fifth of an FTE per site. All positions would report to the WSP Information Services Division.

The data line costs presume that public carriers would be used for the Tl line(s) between the port of entry and the nearest WSP office where the WSP backbone data network is joined.

The CVIEW project manager, system architect, and project assistant would be engaged in the project for its duration.

Capabilities To Be Provided

The CVIEW Project will provide the following capabilities:

- Exchange information describing intrastate and motor carriers.
- Provide safety and credentials information in a "snapshot" form.
- Supply data via public and private data communications networks.
- Exchange information with SAFER.
- Use ED1 standards to exchange information among agency legacy systems.
- Operate in a secure, access-controlled environment.
- Use appropriate data-security safeguards for communication exchanges.

Dependencies

A common CVIEW application is under development and prototype testing by JHUAPL and FHWA for the deployment to pilot states in FHWA's national CVISN Program, such as Washington. This module is planned to be available in Spring 1998, and will be implemented as the hub of Washington's CVO network. The value of the CVISN Project is directly linked to roadside automation steps for electronic clearance and safety screening, features which are provided as information is obtained through the CVIEW interfaces. The CVISN Pilot Project is dependent on the successful and timely completion of the JHUAPL prototype CVIEW application.

6.2.2 Sub-Project #2: ODOT Interfaces

Washington and Oregon are the only two states in the nation partnering in the CVISN Pilot Program. Through this partnering Washington and Oregon have the opportunity to create a seamless border by enabling the Ridgefield weigh station site to access ODOT's credential database and MCIS system for motor carriers crossing into Washington from Oregon.

Background and Need

The desired outcome is for the Ridgefield weigh-station to serve as a POE facility for the State of Oregon. Currently, Washington State enforcement officers can not access the credential and other screening information from Oregon.

Modules

The ODOT Interfaces Sub-project:

- DSRC/LPR at the Ridgefield weigh station will use ODOT's database - to allow the Ridgefield weigh station to act as an port of entry for Washington and Oregon.
- Interface with ODOT's MCIS system at the Ridgefield weigh station - to provide seamless border crossing.

Approach

The DSRC/LPR at the Ridgefield weigh station will use components of ODOT's Interfaces Project. In particular, LPRs will be used to identify vehicles and submit IDs to legacy systems. Before automated screening criteria can utilize both Oregon and Washington data, CVIEW and ODOT's MCIS system must interface with SAFER.

To create a port of entry that will be compatible with both states existing business needs and allow Washington to act as a CVISN Port of Entry, Washington and Oregon will need to provide specific equipment and services.

Oregon must provide, install, and maintain a workstation and server with a local area network at Ridgefield allowing it to act as an additional Oregon MCIS site. Using this provided technology, Ridgefield will serve as an Oregon Port of Entry for commercial vehicles leaving Oregon.

Washington must provide a communication line between the Ridgefield Port of Entry and Salem, Oregon to allow data access to Oregon's system. This data will help identify commercial vehicles requiring additional enforcement efforts specific to Washington. To be compatible with Oregon, Washington must install Automated Vehicle Identification (AVI) receiver and transmission equipment.

This project provides for Ridgefield to be brought on-line as an Oregon Port of Entry and will provide for the integration of Oregon and Washington data within the screening database. This will allow Ridgefield to automatically screen vehicles based upon criteria determined by both states. This ODOT Interface system will be separate from all WSP, WSDOT, and all other Washington systems and will need to be integrated with the weigh-in-motion scales being implemented in a separate project.

Capabilities To Be Provided

Capabilities to be provided by the ODOT Interfaces Project include:

- Commercial vehicles will cross a seamless border between Washington and Oregon.
- Washington and Oregon will have access to enforcement actions occurring at the Ridgefield weigh station.
- The Ridgefield weigh station will serve as a port of entry for both states.
- Washington will receive the benefit of Oregon's experience with DSRC/LPRs

Dependencies

Implementation of Ridgefield as an Oregon port of entry requires that AVI reader equipment and an ODOT MCIS workstation be installed at Ridgefield.

Integration of the CVIEW Sub-project's database server with ODOT databases will depend upon successful deployment of the CVIEW Project.

6.2.3 Sub-Project #3: Infrastructure Improvements

The purpose of this Sub-project is to provide the necessary computing and network technology to support the CVISN Pilot Project.

Background and Need

The CVISN Pilot Program requires the electronic exchange of information. This capability at the Ridgefield weigh station does not currently exist. Communication between the Ridgefield weigh station and Oregon MCIS is the base infrastructure necessary to support the CVISN Pilot Program.

The WSP Computer Center is the central data processing center for the State Patrol. This center does not have the server computing capacity to support the CVISN Pilot Project. The WSP Computer Center is staffed 24 hours per day, seven days per week with emergency power backup. This location will be the home for the Washington central CVIEW Sub-project's database server. However, the existing data communication system does not exist to support the CVISN Pilot Project and its data communication requirements to the Ridgefield weigh station as a port of entry.

Transponders will be used for automated screening at the Ridgefield weigh station and is a technology that has been previously unavailable to Washington's commercial vehicles. Carrier involvement in this pilot project is fundamental to its success. A major portion of this project's success will be based on the number of vehicles automatically identified and allowed to pass the Ridgefield weigh station without stopping. This cannot occur without the participation of the commercial vehicle industry and their willingness to put transponders on their vehicles.

USDOT numbers will allow the information systems comprising the CVISN Pilot Project a simple way of identifying motor carriers for screening purposes. Currently, USDOT numbers are not assigned to intrastate commercial vehicles. To enable these motor carriers to realize the benefits of the CVISN Pilot Project at the Ridgefield weigh station, intrastate motor carriers need to be provided USDOT numbers.

Modules

The Infrastructure Improvement Project consists of four (4) modules:

- Infrastructure at the Ridgefield weigh station - to provide a base structure to support the CVISN Pilot Program.
- Infrastructure at WSP Data Center - to provide the WSP Computer Center server capacity and the wide area network to support the CVISN Pilot Project.
- Carrier Transponders- to ensure CVISN Pilot Project success through customer support
- Intrastate registration by USDOT numbers - to allow intrastate commercial vehicle operators the opportunity to see the benefits of the CVISN Pilot Project.

Approach

The infrastructure of the Ridgefield Modification module will be implemented to enable the Ridgefield weigh station to act as a Washington port of entry in support of the CVISN Pilot Project. In particular, a wire-based LAN will be provided inside the Ridgefield weigh station to serve as a communication backbone. A wireless LAN will be provided at the inspection area to allow inspectors to process inspections in real-time. A server will be installed to serve as the platform for the Ridgefield weigh station's local CVIEW Sub-project. The CVISN Pilot Project will also provide workstations to access the information provided by the CVISN Project.

The Infrastructure Improvements Project at the WSP Data Center module will add a server platform to support the development and operation of Washington's CVIEW application. In addition, the WSP Computer Center's data communication system will increase in capacity through the addition of a router, allowing communication with the Ridgefield weigh station.

The Carrier Transponders module will attempt to gain customer support for the CVISN Pilot Project, and encourage the use of identifying transponders on carrier vehicles. The Washington Trucking Association (WTA) has agreed to assist recruitment efforts for the CVISN Pilot Project, and will serve as the liaison between program management staff and the industry.

USDOT numbers are currently issued to Interstate motor carriers. This module addresses the issuance of USDOT numbers to all motor carriers in Washington. USDOT numbers will be used to reduce the complexity of identifying motor carriers, easing the confirmation of safety records for the CVSIN Pilot Project. By issuing the USDOT numbers to Intrastate motor carriers, these motor carriers will also be able to participate in the CVISN Pilot Project. The number of motor carriers participating will directly affect the success of the project.

Washington CVIE W Pilot Infrastructure-Described

Following is a more detailed description of the infrastructure to be implemented in this sub-project.

The CVIEW pilot installation links the state with the national SAFER database at a central Washington CVIEW database (WaCVIEW) server. Information from WaCVIEW is transferred to a server in the port of entry. There are two databases operating on the port of entry server: the Roadside Operational Computer (ROC) database and the SAFEVue database. These work together to provide screening based upon snapshots and to record the vehicle activity at the port of entry.

Each lane at the POE has a computer workstation called a ROC GUI (graphical user interface) connected to the local-area network (LAN), which the knowledge worker/enforcement officer uses to make inquiries and to receive information about vehicles

entering the POE. Vehicles that pass the screening are recorded and verified, but not brought to the officer's attention.

The server will be connected to the automatic vehicle identification (AVI) radio system, which receives data from vehicle transponders and sends data to the same transponder to direct driver action, such as pass or stop. For the Ridgefield POE, the AVI system will be installed as part of the ODOT sub-project. The server will also be connected to the International Road Dynamics (IRD) weigh-in-motion (WIM) system as part of the initial screening process. The WIM systems are already being installed at the affected ports of entry and scalehouses, through a separate capital project.

POE data communication will consist of a router and a Tl telecommunication line to the nearest Patrol district office. The connection at the district office is made to the WSP data network, WSPNet, via a router, which will be expanded, from the current router installation.

The central CVIEW server would be placed at the WSP data center. Besides the connections to the district offices/scalehouses, a connection to the SAFER database will be made, probably through AAMVANET (American Association of Motor Vehicle Administrators Network). A security firewall will be installed for this connection.

Network Diagram

A one page, high-level graphic depiction of the network has been included on the following page to show the primary elements. It represents the scalehouse, the district office, and the data center connections. The data communication lines represented are provided by WSP digital microwave and public carrier, without distinction in the diagram.

Capabilities To Be Provided

The Infrastructure Improvements project will provide the following capabilities:

- A wire-based LAN to serve as a communication backbone.
- A wireless LAN to provide a communication media to vehicle inspectors.
- Local collection and reporting of enforcement information on the weigh station server.
- Installed wide area network communication to support CVISN.
- A data center server platform for CVIEW development and operation.
- USDOT numbers provided to motor carriers.
- Motor carrier participation in the development of the CVISN Pilot Project.

Dependencies

Carrier involvement is dependent on success of the project's ability to express the benefits and advantages of the CVISN Pilot Project, and efficient deployment of transponders is dependent upon the issuance of USDOT numbers.

Weigh Station Network Diagram - Ridgefield (Typical)

Port of Entry

IRD roadside computer

'*r-h_ --C_

ROC db/SAFEvue DB

ROC GUI station

ROC GUI station

Router

District

SAFEvue portable

Wireles LAN

router

SAFEvue portable
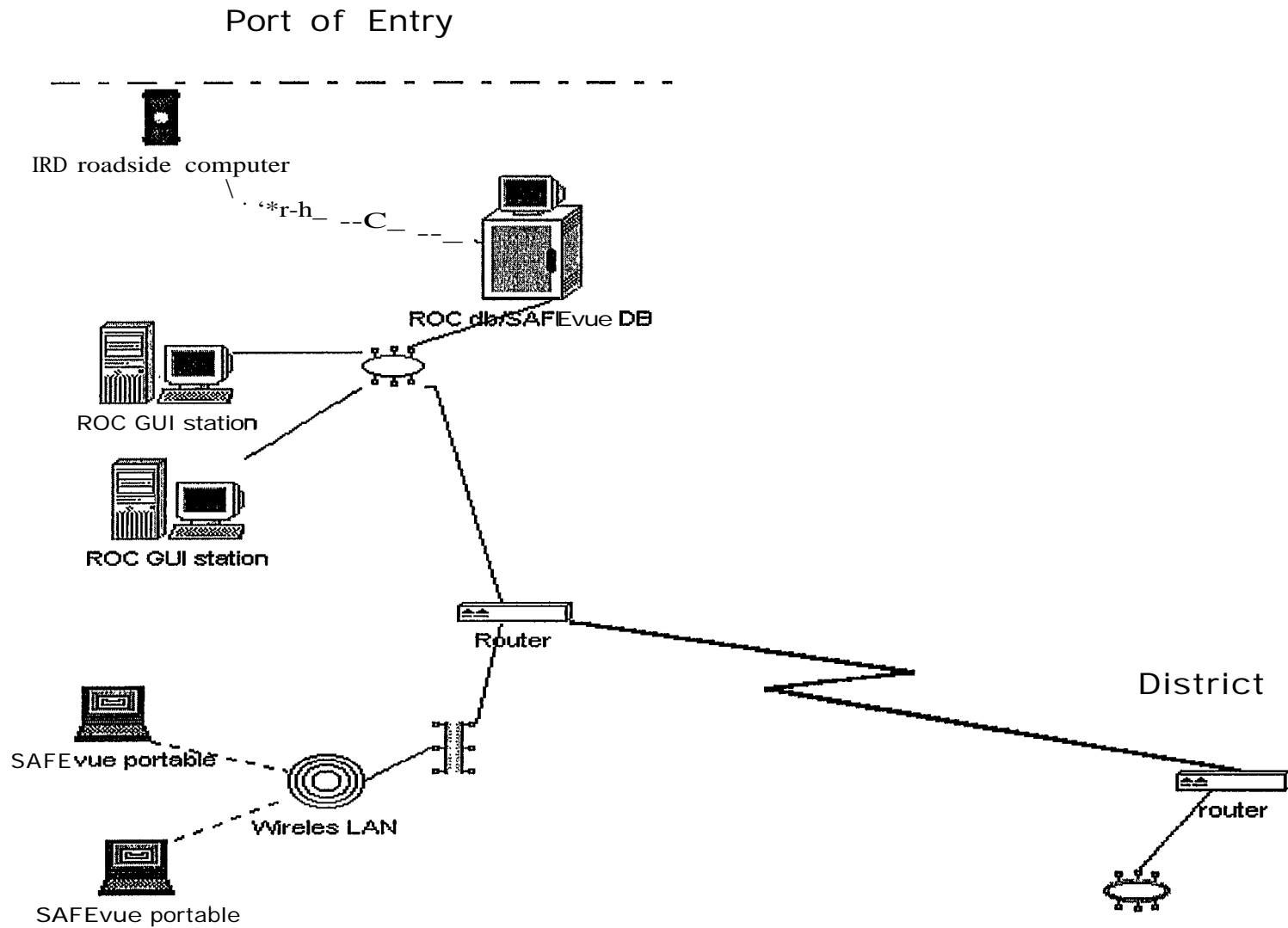
6.2.4 Sub-Project #4: Electronic Credentialing

The purpose of this Sub-project is to introduce electronic forms for commercial vehicle registrations, fuel-use tax licenses and fuel-use tax reports that support automated information exchange processes (Phase 1). In Phase 2, the scope of services will be expanded by providing for the receipt of a wider range of IRP and IFTA applications and for the electronic issuance of credentials and invoices directly to the motor carriers. Additional work will include provisions for electronic payment.

Background And Need

Phase 1

Currently, paper serves as the medium to exchange information between the taxpayer and the state, between various state agencies, and between the state and the federal government. Many taxpayers go to great lengths to convert electronic information onto paper forms, only to have the state re-key the same information back into electronic form. In most instances, information shared between various state and federal agencies is never re-entered into automated information systems, which further restricts access and use of the data. Worse, certain information is not shared at all.

Agencies use the mail to forward customer vehicle registration applications, fuel tax license forms and tax reports. Likewise, customers send documents to the state primarily through the mail, but can also send documents by fax or deliver documents in person.

Paper documents containing motor carrier information restrict the state's ability to efficiently manage the data. Paper based information processing adds costs for mailing and postage, keying data into automated information systems, editing and correcting customer information and filing, storing, and archiving paper documents. In addition, information contained on paper document cannot be readily exchanged unless the data is reformatted into an electronic media. As a result, information is not readily available to assist with roadside enforcement inspection decisions, or support administrative processes. In summary, the state needs a processing system that supports the timely receipt and electronic transmission of motor carrier information. The effort to automate has already begun, with DOL working closely with its contractor, Lockheed Martin.

Phase 2

The present method of collecting and exchanging IRP and IFTA data requires each jurisdiction to produce and distribute paper transmittal reports to a number of jurisdictions. In addition, IFTA requires jurisdictions to report motor carriers that cancel their IFTA fuel-use tax account, state revocations of IFTA fuel-use tax accounts for failure to pay fuel-use taxes, and state reinstatements of IFTA fuel-use tax accounts. These processes are

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cumbersome and can place a burden on DOL administrative and WSP CVEO enforcement processes.

IRP and IFTA regulations stipulate that jurisdictions need to remit commercial vehicle registration fees collected on behalf of other jurisdictions within 30-45 days of receipt of the fees. Paper processing of these fees often impedes the remittance process. A more efficient means of collecting IRP and IFTA payments is needed in order to streamline the process.

Modules

The Electronic Credentialing Sub-project (Phase 1) contains three (3) modules:

- Credentialing interface (C) - to introduce the capability to accept and edit electronic transactions prior to submittal to VISTA RS and TS
- IRP submission for pilot (C) - to develop the capability to electronically submit state IRP supplements by carrier
- IFTA submission for pilot (C) - to develop a capability to electronically submit state IFTA supplements by motor carrier

The Electronic Credentialing Sub-project (Phase 2) contains four (4) modules:

- IRP Electronic Processing (C) - to develop the capability to electronically receive a wider range of IRP supplements and disseminate state credentials and invoices
- IFTA Electronic Processing (C) - to develop the capability to electronically receive a wider range of IFTA supplements and disseminate state credentials and invoices
- IRP Electronic Payment via EFT (C) - to develop the capability to receive IRP payments via electronic funds transfer
- IFTA Electronic Payment via EFT (C) - to develop the capability to receive IFTA payments via electronic funds transfer

Approach

The Credentialing Interface module will be completed before work on other Electronic Credentialing modules is initiated. The IRP submission for pilot and IFTA Submission for pilot modules will need to be developed in coordination with the Washington State Treasurer's Office and the independent development of an IRP Clearinghouse interface by Lockheed Martin, the state's current contractor for this effort.

IRP and IFTA electronic processing will be expanded to streamline or eliminate entirely the paper processing that is required. To issue and accept electronic IRP and IFTA payments, the state will conform to regional and national standards.

Capabilities To Be Provided

The Electronic Credentialing Sub-project (Phase 1) will provide the following capabilities:

- Electronic information used with paper processes for the administration of CVO credential and tax requirements
- Users can obtain more up-to-date information on Interstate vehicles
- Authorized users can electronically exchange credential and tax-related information and funds via open standards and transmission options
- Electronic carrier applications generated to conform to ANSI X.12 Transaction Set standards and Lockheed Martin IMS proprietary standards
- Electronic IRP and IFTA transmittal payments made per ANSI X. 12 Transaction Set requirements
- Motor carriers experience reduced timeframes for requesting and receiving state credentials

Development of the modules in Phase 2 will enable the state to:

- Accept IRP motor-carrier supplements/applications and IFTA applications
- Enable electronic IRP and IFTA payments from multiple sources.
- Capture electronic payment records associated with payments.
- Receive electronic payment records from other systems.
- Edit and post motor carrier electronic-payment records into legacy systems.
- Generate IRP and IFTA transmittal settlement payments.
- Post IRP and IFTA receipts from the transmittal settlement process.

Dependencies

DOL has initiated work on the Credentialing interface module. This work requires coordination with the State Treasurer's Office and Lockheed Martin. Work on Phase 2 of this Sub-project depends on successful completion of Phase 1 tasks.

6.2.5 Sub-Project #5: SNOOP1

The purpose of this project is to develop an electronic oversize/overweight trip permit system that supports uniform business practices, integrates critical bridge and highway data from other systems, provides access to trip permit data, and ensures that the permit process is Year 2000 compliant.

Background And Need

The System Network for Oversize and Overweight Permit Information (SNOOPI) will support a legislative mandate to provide overload vehicle permits to the trucking industry. SNOOPI is a unique component of the CVISN Pilot Project. First, it is an optional module which was selected based on work in progress and the ability to direct that work toward the

CVISN Pilot Project objectives. Second, it is not new development, but rather an enhancement to a system originally driven by legislative intent, and now with enhancements driven by audit findings from both the State Auditor's Office and WSDOT's Audit Office.

Oversize/overweight permits are issued from approximately 50 separate locations around the state and two out-of-state locations. Permits are applied for and issued in paper format and therefore are not readily available to customers remote from sales locations. Further, because the locations use stand-alone programs, it is difficult to (1) ensure that laws and regulations are consistently interpreted and applied; (2) maintain the same version of software used to issue trip permits; (3) ensure against misuse of software for personal gain; and (4) provide timely information regarding permit issuance.

The current oversize/overweight trip permit system lacks electronic access to critical information regarding bridge restriction data, closure data, and on-line permit verification for enforcement. The current system does not generate preferred route information appropriate for oversize/overweight moves. The state needs an automated oversize/overweight system that provides access to information on oversize/overweight permits issued, identifies key bridge and highway restrictions and closures, provides an on-line capability for CVEO personnel to verify permits, ensures consistent business practices are followed at the various sales locations and ensures the integrity and security of data and funds collected.

Modules

The SNOOP1 project includes the following four (4) modules:

- Oversize/overweight basic permitting application (C)
- Oversize/overweight interfaces with DOL and industry (C)
- Oversize/overweight routing (C)
- Oversize/overweight interface with ODOT (C)

Approach

In early' 1997, WSDOT acquired, at no cost, a system developed by the Utah Department of Transportation which paralleled quite closely the basic permitting needs of Washington State. Utah will have access to any of the developments created by Washington relative to the program. With the help of the first round of the CVISN Pilot Project funding, Phase 1 of SNOOP1 migrated the Utah program to WSDOT's environment and has placed the program in a secured client-server network. The new program is providing the same level of service as the existing program and has enabled development of two additional electronic permits for temporary trip registration and fuel tax, both of which were in preprinted paper format under the previous system. Phase 2 of SNOOP1 will encompass the remaining modules, depending upon the level of funding.

Capabilities To Be Provided

This project represents a business process re-engineering effort to capture oversize/overweight permit data in an electronic format, standardize how oversize/overweight permits are issued, and provide customers with critical information on bridge and highway restrictions. Specifically, the project will implement the following capabilities:

- Issued Electronic permits recorded in a database
- Permits processed and edited through a central server
- Permits requested via the Internet
- Information on bridge and highway restrictions provided to customers
- Trip routing information provided to customers
- WSP able to query permit information
- Trip permit activity reports generated
- Automated credit card verification system
- Automated link to the WSDOT accounting system (TRAINS)
- Interface with DOL to verify registration and fuel taxes

This Sub-project will deliver a complete working system. The system will be accessible from either the WSDOT LAN (for WSDOT operators) and over the Internet (for non-WSDOT operators). Internet use will be fully secure, allowing controlled access across the firewall. In addition, financial transactions will be secured by an encryption/decryption algorithm.

Dependencies

Work on the oversize/overweight Basic Permitting Application modules has begun, and is scheduled to be operational by December 30,1997. This project will establish motor carrier interfaces which are consistent with, and integrated into, DOL's Electronic Credentialing project.

Project Assump tions

It is assumed that:
- All customers will contribute sufficient staff time in a responsive fashion to fulfill obligations
- A consensus on system requirements is achievable from all SNOOP1 customers, and that there are no individual requirements that are dramatically opposed.
- All state customers will supply their own access to the Internet for on-line access to the WSDOT WAN/server or telecommunication network
- All industry (external) customers will supply their own access to the WSDOT Internet Server.

The project till be staffed by WSDOT employees familiar with the application, the development process, and the appropriate technology.

6.3 FUNCTIONAL DESIGN OVERVIEW

Figure 6-1, below, illustrates relationships among the several functional elements of the CVISN Pilot Project.
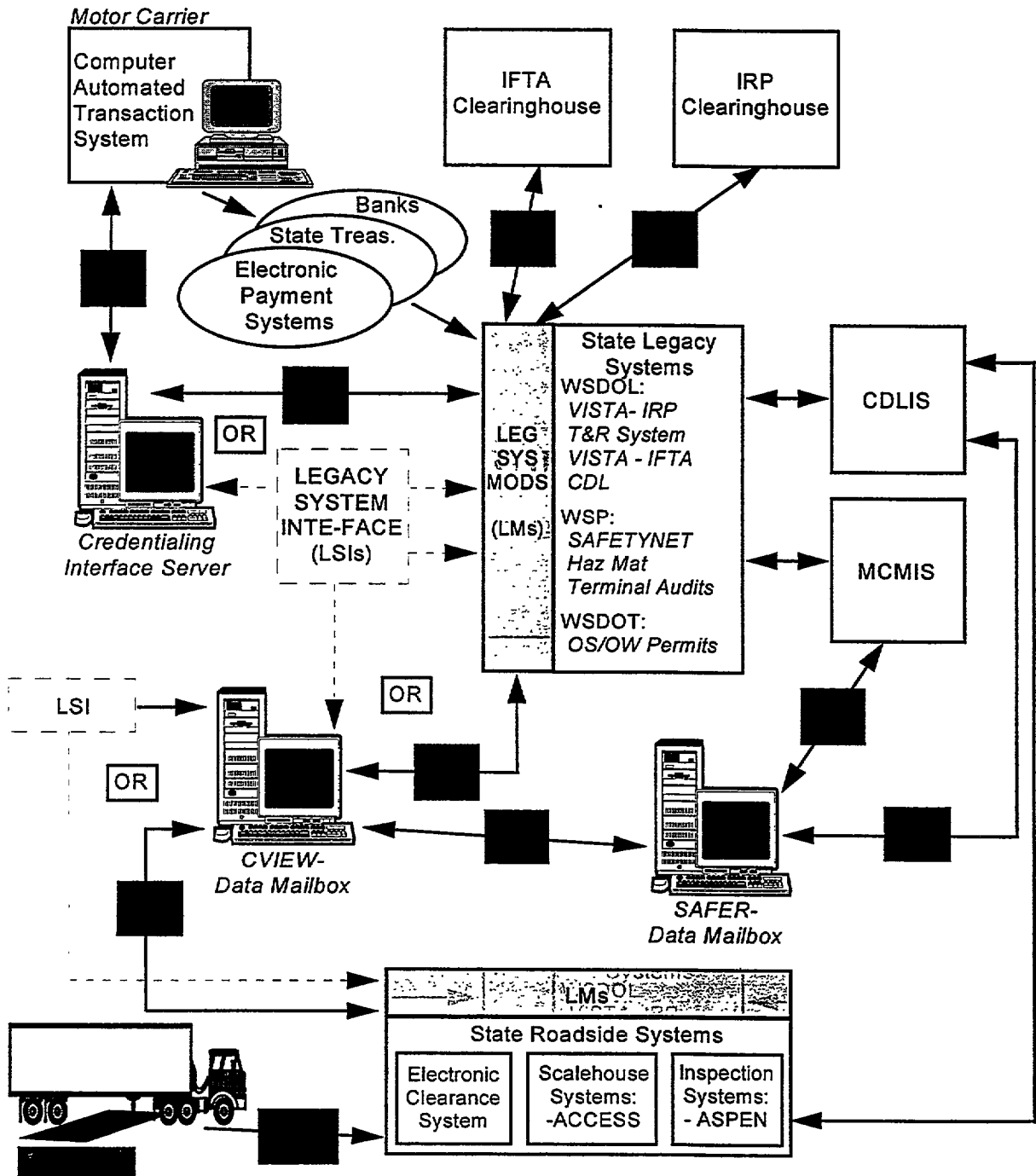
Figure 6-1. Overview of CVISN Pilot Project Functional Components.

6.3 TECHNICAL TOOLS USED TO SUPPORT THE SOLUTION

The technical tools used to support the CVISN Pilot Project are presented and discussed in the following sections.

6.3.1 Washington State Patrol

Network management tools will be needed to support the improved infrastructure and the CVIEW interfaces with external systems.

6.3.2 Department of Licensing

Lockheed Martin has assured DOL that all the equipment and tools required to set up the credentialing interface will be provided as part of their contract.

6.3.3 Washington State Department of Transportation

No additional technical tools are required for WSDOT to support the CVISN Pilot Project.

6.4 NEW ORGANIZATIONAL STRUCTURES AND PROCESSES NECESSARY TO SUPPORT IMPLEMENTATION

These are described in the following sections.

6.4.1 Washington State Patrol

An experienced Project Manager needs to be contracted to coordinate the technical activities of all three agencies. In addition, a system architect needs to be hired in order to describe the functional details of the CVISN Pilot Project. Finally, an assistant to the architect is needed to provide support services.

During CVISN Pilot implementation, CVEO employees at Ridgefield will need to update inspection and enforcement processes to incorporate the use of the new roadside assistance technologies.

6.4.2 Department of Licensing

Some processing staff will be re-deployed to training and customer service functions as the CVISN Pilot Project's electronic credentialing and payment services functions are implemented.

6.4.3 Washington State Department of Transportation

Existing intelligent transportation program staff will support the project. No additional staff is required.

7. ALTERNATIVE SOLUTION ASSESSMENTS

The State of Washington's CVISN Pilot Project is based upon the architectural model stipulated in *the Washington State Commercial Vehicle Operations (CVO) Strategic Plan* and the *Washington-Oregon CVISN Pilot Project Plan.* It is <u>advantageous</u> for Washington State to follow the Federal Highway Administration's (FHWA) guidance, and financial assistance, as well as the lessons-learned from other states participating in CVISN Pilot Projects. This guidance, and the lessons-learned, have been incorporated into the design and scheduled implementation of the proposed Washington State CVISN Pilot Project (ref. Section 6 - Proposed Solution).

The major IT alternatives that were considered during the design phase of the CVISN Pilot Project are presented in the following sections. This discussion assumes an integrated perspective for each of the three CVISN Pilot Project's functional components.

The CVISN Pilot Project addresses state and industry requirements by implementing IT systems, deploying ITS for CVO and introducing electronic business processes for credentialing and roadside enforcement functions. Several alternatives to the proposed CVISN Pilot Project solution were formulated and assessed. The alternatives are segmented in the following sections to reflect the potentially viable approaches for credentials (i.e., CVO administrative and permit services), CVO roadside enforcement operations (i.e., CVO permit services), and infrastructure (i.e., computing and network architecture). The environment for each of these three CVO functional segments varies; hence each is viewed separately as a unique prospect for alternative approaches.

7.1 DOL'S CVO ADMINISTRATIVE SERVICES

The foundation for the proposed CVISN Pilot Project is conformity with FHWA's national CVISN Program standards and protocols for electronic data exchange and electronic funds transfers and payment processing. Alternatives may be envisioned which do not depend upon national uniformity to the same degree. However, absence of multi-state commitments significantly dilutes the efficiency of such alternatives. Motor carriers are less likely to participate in programs limited to a single state. Other jurisdictions will have limited incentive to engage in electronic interchange transactions that are not standards-based. Three approaches to address CVO administrative services were considered:

- Offer more CVO licensing locations and fuel-tax processing services
- Offer alternative credentials payment methods
- Offer credentialing and tax services through third-party agents

7.1.2 Option 1: Offer More CVO Licensing Locations and Fuel Tax Processing Services

For motor carriers operating under the provisions of the IRP and IFTA, the DOL's Strategic Initiative Plan provides for improved service delivery by providing "one stop" shopping services, taking advantage of collocation opportunities when practical, and offering additional services at established DOL field offices. Under this scenario, IRP and IFTA motor carriers would be able to license their vehicles and file IFTA tax returns at multiple DOL field office locations.

Some CVO functions, such as licensing and tax return filing, can be accomplished via expansion of service delivery in DOL field offices. This alternative would offer more service location flexibility, bring CVO services closer to carrier locations, and improve service delivery times.

However, field office services do not significantly impact critical areas important to motor carriers and enforcement agencies. Prompt delivery of credentials with minimum impact on daily dispatching of vehicles and contracting for freight is essential to motor carriers. Many motor carriers do not have staff available to visit a DOL office for several hours to obtain licensing credentials and/or conduct fuel tax related business. Therefore, while local service delivery opportunities can be made available to motor carriers, many may still conduct business via FAX, mail, or priority mail. Others would utilize the Temporary Authority Permit, a self-credentialing document that allows qualified motor carriers to operate prior to submission of registration applications.

Expanded DOL field service delivery cannot be as ubiquitous or as convenient as electronic services over telephone lines, the Internet, or use of value added networks. Moreover, offering field services does not transfer data entry from DOL to customers as does electronic transaction services. Expanded DOL field services do not give law enforcement agencies access to the carrier information nor to corresponding carrier credential information from other issuing jurisdictions.

While expanded field office delivery provides some benefits for DOL, it would increase department costs. The department would need to maintain enhanced network communications access to the VISTA RS and TS systems from remote field offrces and to provide headquarters staff resources for policy liaison, operations, communications, auditing and training. Training of staff from multiple field offices is a significant issue in carrier credentialing and tax-return processing. Experience shows that unless an office staff conducts a significant amount of carrier business, the error rate in processing applications climbs dramatically due to the complexity of the application process. Incorrect processing of applications seriously detracts from the delivery services offered by the department and creates potential enforcement problems for motor carriers.

In summary, expanded field DOL offrce service delivery provides some benefits to the department and the industry, but fails to satisfy several critical CVO objectives. It does not offer law enforcement access to carrier information. It does not leverage information technology to improve services or reduce costs. It is less ubiquitous than credentialing service via electronic transactions, and expanded field service delivery is likely to increase department costs rather than reduce them.

7.1.2 Option 2: Offer Alternative Credentials Payment Methods

Pursuant to the DOL's Strategic Initiative Plan, this option offers motor carriers the ability to pay registration fees and fuel taxes via alternative payment methods, including ACH debit and credit transactions; credit/debit cards (contingent upon waiver of fee); and electronic funds transfers. This option may be a distinct department offering or in addition to expansion of field offrice delivery services.

Electronic payment capability will allow motor carriers to obtain credentials without submitting paper-based payments (checks, etc.) to DOL. Motor carriers may use company issued credit/debit cards to pay for registration fees owed, thus enhancing their cash flow and creating accounting efficiencies. These payment options will decrease the time a carrier waits for credentials. As payment will not be routed through the department's fiscal/revenue office prior to receipt by the IRP and IFTA processing units.

Departmental cash flow efficiencies will be created as accounts are swept on a daily basis for payments owed the department (ACH process). The department should experience a decrease in dishonored checks associated with CVO operations, and the corresponding costs associated with processing dishonored checks and recovering fees/taxes owed.

Conversely, the financial transaction infrastructure for CVO operations will become more complex as multiple methods of payment are accepted. This will require modifications to the VISTA system(s) and the financial interfaces to the current state revenue system. Sweeps of accounts via the ACH method will require subsequent information to determine the funds and accounts in which the revenue is to be deposited.

Electronic payments are an integral component in successful transition to electronic carrier transactions. Alternative payment methods will eliminate some time from the credential application/fuel tax filing process, but the effect is compromised if electronic filing and payment options are not implemented simultaneously.

Implementing alternative payment methods and expansion of field office service delivery may enhance CVO operations, but will increase the cost of department operations. Moreover, the addition of these services alone does little to reduce the volume of paper associated with carrier operations. Inefficiencies in the current paper-intensive data transmittal and warrant settlement procedures with other jurisdictions are not addressed. Law enforcement continues to lack access to up-to-date interstate carrier information for

Washington and other jurisdictions. Collectively, these are judged to be serious shortcomings.

7.1.3 Option 3: Third-Party Agents for Credentialing and Tax Services

This option would allow third party agents to contract for carrier credentialing and fuel tax filing. Third parties, including county auditors and vendors, could be licensing agents and subagents who would perform these services in addition to the current licensing services being performed. Motor carriers could use a local licensing agent to file applications, obtain credentials and file tax returns. The agent would charge a fee to the carrier for providing the services. This, in essence, is an expansion or variant of the DOL field office delivery option previously discussed. Many of the advantages and disadvantages to motor carriers discussed under the expanded field offrces option would be cogent to this option.

However, there are some additional advantages and disadvantages to this option. Agents and subagents are authorized a fee, set by statute, for performing vehicle titling and licensing functions. Due to the complexity of motor carrier credentialing and tax transactions, the prevailing, statutory fee schedules may not be sufficient to meet agent's costs.

Motor carriers could obtain CVO administrative services at an increased number of locations in many towns and cities with licensing agents and subagents performing vehicle registration and titling. This network of agents and subagents is substantially in place, mitigating some impacts surrounding development of a strong DOL field service delivery infrastructure.

New agents and subagents must become proficient in complex transactions involving carrier applications/tax filings. This will necessitate a strong DOL oversight, training outreach program, expanded audit requirements, and extensive liaison. The department would need to establish service level agreements with vendor(s) and participating agents and monitor and intervene as needed to ensure all parties are abiding by the agreements. These functions will require additional DOL human and capital resources.

In addition, extensive modifications to the contracts currently in place with the IRP/IFTA systems vendor will be needed. DOL's communications infrastructure would need to be enhanced to accommodate access by new service agent and associated systems and financial transactions. Additional department cost would be incurred for these items.

There are a significant number of motor carriers who use professional account administrators to conduct their IRP and IFTA business transactions with the department. These account administrators are trained and proficient in conducting IRP and IFTA business transactions with DOL and it can be expected that a significant number of them will wish to participate in opportunities for IRP and IFTA electronic credentialing and payment options.

Expansion of electronic filing by account administrators should have a beneficial impact on the department, as there will be a reduced number of paper applications submitted by these businesses on behalf of their motor carrier clients.

7.2 WSDOT'S SPECIAL-PERMIT SERVICES

Permit services exist to fulfill a legislative mandate to provide oversize/weight permits and temporary vehicle registration/fuel tax permits to the trucking industry. Alternatives for this functional area are limited.

WSDOT's Office of Motor Carrier Services manages applications and issuance of motor carrier temporary oversize and overweight permits. Motor Carrier Services also issues temporary registration and use fuel permits as a service to motor carriers. The CVISN Pilot Project proposes to automate these processes, including incorporation of an applicant and permit database system, electronic permit application and issuance options, and electronic payment methods. These system re-engineering steps will improve motor carrier service quality, increase state productivity, and provide better management control and security.

Two audit reviews by state and internal WSDOT auditors have itemized a number of deficiencies in the existing permit system. The adequacy of audit trails, cash transaction process controls; potential for forging permit documents, and control of voided permits were among identified weaknesses. Absence of statewide data integration from the 65 locations where the permit system is in use, security provisions for data and physical hardware and software, password administration, and access control also drew auditor comment. Other issues cited include configuration management and documentation for training, system, customer, and administrator functions.

Three approaches to address audit reviews and upgrade the existing permit systems were considered:

- Adapt a developed permit system
- Design and build a new perrnit system
- Procure or license vendor software and systems

7.2.1 Option 1: Adapt a Developed Permit System

This option is recommended in the CVISN Pilot Project. It advocates examining and adapting a similar system developed by, and in operational use by, another state. Utah has implemented a workstation, client-server-based permit system, which is available as public domain software. The Utah permit system is well designed, uses modem information technology and standards, and has good internal and external documentation. An estimated 20% of the existing code will need modification to meet State of Washington requirements, port it to a Microsoft NT operating environment, and integrate a SQL Server data base platform. This option is estimated to cost roughly one-half the cost of vendor licensed software offerings and about 85% of the anticipated cost were the state to undertake independent development of a new system.

7.2.2 **Option 2: Design and Develop a New Permit System**

A budget of approximately $600,000 was estimated to develop a new permit system with the technical features and specifications needed in Washington. This alternative is more costly than acquiring and adapting the existing Utah system. This approach would likely entail higher risks and require a longer design and development time schedule. Additionally, developing a new system from the ground up would consume more departmental information systems management and software development resources. These resources are currently focused on Year 2000 and other mandated projects.

7.2.3 Option 3: License Vendor Permit System Software Suite

There are few commercially available software suites for permit services. In general, the features of the commercial software packages reflect the design perceptions and prior contract commitments of the vendor. Software features may be rich as a result of a sizable installed base of users and enhancements added over time; but systems may not be fully responsive to Washington State's objectives and requirement specifications. A continuing maintenance agreement is usually necessary for vendor software, since software changes by users typically void any warranty provisions. In reality, users seldom gain enough direct knowledge of the vendor software code to be able to make changes.

This alternative is the most costly of the three choices evaluated. Solicitation of budgetary cost estimates from software vendors disclosed costs approximately twice as high as the other alternatives. Additional benefits to justify such higher cost were not identified.

7.3 WSP'S ROADSIDE-ENFORCEMENT OPERATIONS

The primary CVO functions under this segment are safety enforcement and CVO regulatory enforcement (e.g., weight/size and credentials). The CVISN Pilot Project automates roadside safety inspection processing with laptop computers to improve offrcer productivity. This interfaces with national CVO safety information systems to provide decision support information about the safety performance of motor carriers, vehicles and drivers. These strategies focus enforcement resources on high-risk operators, vehicles and drivers. Additionally, they are integral parts of the FHWA's national CVISN Program to deliver timely and accurate safety and credentials information to roadside officers.

The main regulatory enforcement thrust of the CVISN Pilot Project is to introduce electronic screening and clearance at enforcement facilities. This will increase the effectiveness and efficiency of enforcement officers while minimizing interruption to freight commerce by safe and legal motor carriers.

Weight and size enforcement is currently executed at permanent ports of entry and weigh stations, supplemented by mobile patrol operations. Over ninety percent of the vehicle weighing occurs at sites on I-5, I-82, and I-90. Roughly 60% of commercial vehicle

enforcement hours are expended at fixed sites on these interstate corridors and another 25% are devoted to mobile patrol enforcement.

WSP weigh stations are presently equipped only with static scales (except for two sites which have WIM scales). All vehicles are processed through these weigh station scales. Stations on interstate highways lack adequate capacity to handle interstate vehicle volumes. Motor carriers are delayed and the effectiveness of WSP officers is limited by lack of technology and information to focus enforcement resources on unsafe or illegal operations of motor carriers, vehicles and drivers.

Capabilities to identify, screen, and segregate safe and legal commercial vehicles and operators from unsafe or illegal vehicles and operators are essential to more efficient enforcement operations. The same capabilities improve productivity for safe and legal motor carriers.

Four approaches to address WSP roadside enforcement operations were considered:

- Equip existing weigh facilities for mainline electronic screening and clearance
- Upgrade existing weigh facilities with technology and systems for in-station electronic screening and clearance, or build new facilities
- Sample vehicles in the traffic stream for compliance and execute enforcement deployments in response to compliance levels
- Contract with third-party infrastructure technology and screening system providers

7.3.1 Option 1: Equip Existing Facilities for Mainline Electronic Clearance

The CVISN Pilot Project recommends mainline electronic clearance systems for high volume ports of entry and weigh stations on interstate highways. Electronic clearance utilizes vehicle identification transponders for screening and clearance logic processing. A central issue for this approach is the level of acceptance by motor carriers and voluntary industry procurement and installation of transponders on their fleet units.

Companion recommendations are proposed for non-interstate highway enforcement operations. These include use of existing WSDOT data collection sites as "control stations" to monitor commercial vehicle volume levels and corridor/area weight compliance. Mobile smart vans equipped as "portable weigh stations" are recommended for flexible coverage of the large mileage of state highways with lighter vehicle volumes. The fourth recommended piece of the weight enforcement program applies plug-in electronics at existing primary and secondary highway weigh scales, vision systems to capture video records of violation, and scale bypass route monitoring for evasion enforcement.

7.3.2 Option 2: Upgrade Existing Weigh Facilities or Build New Facilities

Many states use weigh-in-motion (WIM) scales on ramp entrances to weigh stations and sorter lanes within the stations to bypass vehicles with legal weight. However, most Washington State weigh facilities lack adequate right of way to construct a bypass lane. In such instances, the current station site and infrastructure may be abandoned and a new facility constructed at a different site.

Costs for new sites and weigh station infrastructure range from $4 million to $8 million per site, in sharp contrast to the $400,000 to $1,000,000 required to implement mainline clearance systems at existing weigh stations.

If a weigh station site has sufficient land available, the cost to construct a bypass lane, install WIM equipment, and implement associated computer systems and traffic control typically ranges from approximately $1.5 to $3 million. Thus, the cost of this approach is generally about double that for a mainline clearance system. Moreover, all vehicles continue to be delayed through station processing, albeit to a lesser extent for those authorized to use the bypass lane. One important advantage emerges - in-station sorting and clearance can be exercised on all vehicles--- not just the units with identification transponders.

7.3.3 Option 3: Statistical Sampling

Current enforcement practice finds over 99% of all vehicles checked at weigh stations to be within legal weight limits. Therefore, rather than checking and delaying all vehicles, a potential alternative approach is to sample vehicles from the total vehicle stream to test weight, size, safety, and credentials compliance. This approach seeks to alleviate the significant delay costs incurred by fully compliant motor carriers, while directing enforcement resources for maximum effectiveness where evidence indicates compliance is not satisfactory.

Statistical sampling of motor carrier regulatory compliance provides a gauge for the level of enforcement needed. The WSDOT has existing data collection sites with vehicle classification and WIM sensors installed. These sites could serve as a surveillance system to monitor vehicle volumes and weight compliance levels. The surveillance data stations and enforcement sampling plans would continuously guide enforcement deployment and enforcement intensity levels. Weights, size, safety, driver credentials and vehicle credentials would be sampled at weigh stations for compliance measurements. Enforcement would be intensified when violation levels exceed established control limits. Sampling rates would be adjusted upward when higher violation levels are observed. A corollary strategy would be to encourage compliant motor carriers to install transponders for identification and trusted carrier clearance options.

Clearly, the statistical-sampling alternative has serious shortcomings. Sampling strategies for regulatory compliance decisions suffer from lack of logical data/criteria to discriminate safe and unsafe operators or readily identify legal versus illegal weight loads or motor carriers

with and without legal operating credentials. Therefore the enforcement responses are necessarily coarse. Further, federal statutes provide for serious funding sanctions against states that fail to adequately enforce federal size and weight laws. Accordingly, obtaining an FHWA ruling and position on the acceptability of the proposed approach would be prudent before undertaking sampling strategies.

7.3.4 Option 4: Contract Third-Party Technology and CVO System Services

Third-party contracting or public/private partnership arrangements may be employed to implement and/or operate CVO technology systems and motor carrier services. HELP Inc. is one such public/private partnership that uses a private sector partner, Lockheed-Martin, to install and manage an electronic screening and clearance system called "PrePass". Lockheed participates in financing system installations and technology deployment as well as operating information systems to control clearance operations. Participating motor carriers enroll their fleets in PrePass and are charged a fee for each clearance transaction. Additional motor carrier and state services are under development to broaden the offerings available to the trucking industry and government. The novel feature of HELP Inc. is the funding mechanism which relieves state agencies of at least some of the cost of automating their roadside and administrative CVO systems.

HELP Inc.'s "pay for pass" and associated data ownership/privacy issues have been the center of considerable industry controversy. Not all motor carriers nor government agencies subscribe to this business model for motor carrier services. Recent indications as of summer 1997 are that HELP has enrolled 45,000 to 50,000 vehicles in its PrePass electronic clearance service. Installations are primarily in California, but sites are or will be operating in Arizona, Colorado, Missouri, New Mexico, and Wyoming as well.

Other electronic clearance systems operate with different forms of third-party contract services support. For example, the ADVANTAGE I-75 mainline automated clearance program spans six states and the province of Ontario. ADVANTAGE I-75 contracts for system manager and system maintenance services. Oregon has contracted with a private fun as system integrator for its statewide $38 million Green Light CVO electronic clearance program. Third party contract arrangements seldom are fully self-funding or transfer all system development costs to contractors or users, but may incorporate self-funding incentives.

7.4 INFRASTRUCTURE FOR CVISN

7.4.1 Option 1: Utilize Mainframe Platform for Core Computing (CVIEW)

Washington State plans to use a Windows NT - based server platform for its CVIEW application. This server platform conforms with DIS and WSP standards for server computing. The only major alternative to this platform would be the use of existing

mainframe computing resources (IBM) to house CVIEW. In considering this alternative, the project team considered the following factors:

Computing Equipment

All three agency partners have significant, recent experience with the proposed server platform. However, while WSDOT and WSP are large IBM mainframe users, DOL is primarily a Unisys mainframe user for its large business applications. The implementation of servers on recent projects has proven to be timely and cost effective. A typical server configuration can be implemented at a cost of $25-30,000. The server systems can be implemented with Graphical User Interface (GUI) tools and are equipped to provide Internet-based user access. Recent WSP server systems have been designed, developed, and implemented in 6-12 months. This compares with typical large mainframe systems which require additional systems programming tasks and often take 18-36 months to implement.

Operating System Software

The large IBM mainframe systems require additional licensing and maintenance support fees for numerous operating system products which may not be in place. These products also require varying degrees of systems programming and tuning unique to the resident applications. The proposed server system software can be purchased and installed at a lower cost with a simpler level of technical specialist effort.

Electronic Payment Processing

The WSP has established a standard server-based approach to electronic payments, through its WATCH system. The software, encryption tools, and funds processing relationships have been established with the Offrce of the State Treasurer, and its financial institution, Harris Bank of Illinois. This infrastructure would need to be rebuilt in a new environment, if a mainframe platform were selected.

CVIEW Software Development and Implementation

The CVISN project team has opted to use the prototype CVIEW application being developed by JHUAPL as its core system. This application is being developed to operate in the proposed server environment. The design, development and implementation of a unique, mainframe CVIEW application would require significant time and personnel resources, and would delay the project's implementation.

Scaleability and Portability

The proposed server environment offers a wide range of starting points and migration paths related to the size of the computing platform. It is usually simple and inexpensive to upgrade both the processing memory and disk storage capacity on the servers. Mainframe upgrades are more expensive. In addition, there is a wide range of manufacturers offering servers

which can house the CVIEW application. The IBM-compatible mainframe vendor market is much smaller, reducing the opportunity for competitive pricing and feature promotion.

7.4.2 Option 2: Implement Separate Wide Area Network to Support CVISN

WSP currently manages a statewide wide area network (WAN) in support of its district and detachment offices. The backbone of this network is a WSP-owned and managed microwave communications network. This network provides email and schedule access (Microsoft) in support of the Governor's directive, and is connected through DIS to the Internet. The proposed CVISN plan would utilize this network and add routers and short communications lines to weigh stations, as required. An optional, separate WAN to support CVISN would require the duplication of the microwave network, using private utilities.

7.5 SUMMARY DISCUSSION OF ALTERNATIVES

In summary, the alternatives described above address individual pieces of commercial vehicle operations. They do not offer an integrated "systems" approach to meet the full, multi-faceted needs and problems that exist today.

In contrast, the CVISN Pilot Project does fully integrate respective CVO components. Each piece complements and reinforces the others. The CVISN Pilot Project moves away from current manual and paper-intensive practices to electronic business transactions and information-based roadside enforcement. Electronic motor carrier transactions and electronic data exchanges with other jurisdictions makes roadside databases feasible to support enforcement decisions. In turn, roadside screening and clearance systems minimize delay to legal motor carriers while permitting the WSP to concentrate enforcement attention and resources more effectively. The standard, scaleable computing platform offers a long-term solution to the infrastructure of CVISN.

The greatest strength of the CVISN Pilot Project approach lies in its conformity with national standards, design, and architecture for CVO systems. First, this approach leverages the extensive stakeholder input, requirements analysis, design, architecture, and standards development performed for the CVISN Pilot Project. Second, major parts of the state's CVO business functions involve interchange among jurisdictions and interactions with motor carriers. The national design, systems architecture, and data exchange standardsare critically important to gain broad consensus and voluntary participation of these stakeholders. Adopting common systems and data exchange standards reduces developmental costs and allows costs to be shared across multiple users, which further reinforces value and voluntary participation in the FHWA's national CVO Plan.

These common system features and standards significantly impact the feasibility of major functions and prospects for broad voluntary participation. They embody the most persuasive argument for the approach forwarded by the CVISN Pilot Project.

8. CONFORMITY WITH AGENCY STRATEGIC INFORMATION TECHNOLOGY PLANS

The FHWA's national CVISN Program is the architectural foundation for the CVISN Pilot Project. Both the CVISN Pilot Project and the CVO Strategic Plan incorporate guideline, principles and architecture design to facilitate data exchange, minimize impact on existing legacy systems and foster interoperability through open standards and protocols.

A central theme of the CVISN Pilot Project is adherence to adopted national standards for identifiers (motor carriers, vehicles, and drivers), data exchange protocols, and data sharing among agencies and jurisdictions. The CVISN Pilot Project includes IT elements to be implemented by three state agencies. WSP, DOL, and WSDOT will jointly implement the CVISN Pilot Project Plan in accordance *with the State of Washington Strategic Information Technology Plan.*

CVISN Pilot Project Information Technology plans from the WSP, DOL, and WSDOT were assembled and reviewed during the preparation of the *Washington State CVO Strategic Plan* and this IT Feasibility Study. Those provisions of each agency's information technology or CVO Strategic Plans that are relevant to the proposed CVISN Pilot Project are summarized in the following paragraphs.

8.1 WASHINGTON STATE PATROL CONFORMITY

The recommended CVISN Pilot Project directly supports the vision, mission and value statements, *as* well as the goals, of the *WSP CVO Strategic Plan:*

- **Vision Statement:** "The Washington State Patrol will continue to be a leader in providing public safety by utilizing technology and developing . . . . .."
- **Mission Statement:** "Our responsibility is to serve and protect the public, form partnerships with communities and focus resources on shared opportunities. The Washington State Patrol provides public safety and support services and promotes public compliance to laws through statewide enforcement, education and technology."
- **Value Statement:** "WSP... departmental efficiency and accountability will be realized through continuous quality improvement, performance-based outcomes, CVO strategic planning, and effective use of partnerships."
- **Goals:** "Provide a safer environment for the traveling public on all state transportation routes."

The proposed CVISN Pilot Project places a priority on safety. Applying information technology to improve safety of commercial vehicles and other travelers on state highways is a key strategy. The plan delivers motor carrier safety performance information to roadside

safety officers, employs laptop computers to automate safety inspection recording, and provides decision-support tools to focus enforcement resources on higher risk operators.

Resource and data sharing through interagency and inter-jurisdictional partnerships and collaboration are core features of the CVISN Pilot Project, designed to improve safety and agency effectiveness. Collaboration with other agencies, jurisdictions, and the FHWA's national CVISN Program provides WSP access to carrier and driver safety, credentials and special permits information.

The CVISN Pilot Project also reinforces and/or supports the following *WSP CVO Strategic Plan* elements:

- **Commercial Vehicle Enforcement Division:** Partner with the Department of Transportation on a 20-year plan to increase the number of commercial vehicle WIM facilities on interstate highways. This includes the development of performance measures and identifies an allocation model for commercial vehicle enforcement activities.

  Initial siting for implementing WIM interfaces to companion electronic screening and clearance systems are identified in the CVISN Pilot Project. A CVO compliance monitoring system is proposed, using existing WSDOT data collection sites for control measurements.

- **Information Technology:** Connect mobile computers to increase officer efficiency through the electronic recording of time and activity reports. This includes providing mobile computers for line officers to improve officer safety and productivity, upgrading the telecommunications network to improve the speed of data transmission (and meet state standards in telecommunications protocols), and partnering with WSDOT and the criminal justice community to develop a modem information system that is easier to maintain, more flexible, and responsive to changing business needs.

  The CVISN Pilot Project calls for laptop computers to be deployed for roadside safety inspections, terminal inspections, and carrier safety audit reviews. The commercial vehicle data exchange server assimilates commercial vehicle safety and credentials information from state legacy systems and the CVISN Pilot Project's SAFER system. Data is shared with field officers, field sites and other agencies through standard data exchange protocols. Public and private communication networks are used to deliver information to where it is needed.

- **Computer Systems and Telecommunications:** Extend WSPNet to all Patrol facilities, with links to WSDOT, DOL, and the Justice Information Network. This would include establishing a network link between WSPNet and a public information network like the Internet to provide public access to transportation

and patrol information. It would implement an enhanced data and network security plan and establish information technology standards, practices, products, and services consistent with, and in partnership with, the transportation agencies to meet state and industry standards

The CVISN Pilot Project utilizes available network links or establishes data links to WSP CVO field sites and relevant state CVO legacy systems and data sources. It employs data exchange standards and protocols based on adopted FHWA's national CVISN Program standards. Provision for Internet access is included to enable motor carriers to apply for and obtain credentials and permits and to file tax reports and payments. Security and privacy safeguards are incorporated to protect systems and data from unauthorized access and use.

- **Joint Capital Project:** In cooperation with WSDOT, install WIM systems (as a related, separate project) in designated areas of the interstate system to assist movement of freight while enforcing roadway weight limits. This would reduce operational costs (utilities, facility management, maintenance, and security) by sharing resources with other state agencies.

- **WSP Data Center:** Utilize advances in technology to provide the resources necessary to support and enhance current applications and to facilitate access to inter-related databases. This will increase synergism among allied agencies due to shared information and facilities.

Thirteen mainline electronic clearance systems are prominent elements of the CVISN Pilot Project for interstate highway CVO weighing/inspection facilities. These installations incorporate weigh-in-motion, automatic vehicle identification, and related ITS technologies. Safe and legal freight commerce can be electronically cleared with minimum impedance.

Data sharing through the commercial vehicle data exchange server (CVIEW) is another key element of the CVISN Pilot Project. Patrol access to WSDOT's oversize/overweight permit system databases and joint use of WIM data collected at WSDOT sites are additional shared resource items. The joint sponsorship and development of the CVO deployment plan by WSDOT, WSP, and DOL is reinforcing an established tradition of agency cooperation and synergy to achieve mutual goals.

8.2 WASHINGTON STATE DEPARTMENT OF LICENSING CONFORMITY

DOL's *Strategic Initiatives Plan* identifies fifteen (15) initiatives, each with action items to accomplish the agency's priority objectives. In particular, the CVISN Pilot, Project proposals relate directly to the following *DOL Strategic Initiatives Plan* activities:
- **Initiative B: Alternative Service Delivery.** This initiative seeks to enhance department services and service delivery processes by improving asset/facility utilization, expanding the agency's service delivery capacity, managing service delivery cost effectively, and increasing the return on the department's

investment. The CVISN Pilot Project is identified as one of the projects under this initiative, as is "Credit and ATM Debit Card Infrastructure." The projects in this initiative encourage customer data entry, thereby improving agency productivity; interface customer and agency technology to reduce in-person visits/contacts (such as electronic data exchange and payment methods); and expand the capacity of the agency's systems and personnel (electronic capacity is one of the mechanisms to increase capacity as well as improve service delivery cycles).

The CVISN Pilot Project proposes to implement several specific actions identified in Initiative B. Electronic data exchange and payment methods for credentialing and the CVISN Pilot Project's Clearinghouse interfaces are two such actions. Both actions will improve agency service quality, delivery capacity, cost effectiveness, and asset utilization.

- **Initiative F: Organization Re-design.** This initiative establishes principles, guidelines, and a framework for analyzing market needs, assessing technology opportunities, and managing organizational change to positively impact the agency's operational effectiveness. Common system support is one of the relevant projects within this initiative, and information technology advances and communications options are two strong external trends that will potentially influence such common systems.

- **Initiative G: Improve Technology Infrastructure.** This initiative recognizes the critical reliance of the Department on information technology. It addresses more flexibility in applying technology that enables business improvements, attaining more effective and efficient technology use, managing projects better, and attaining higher consistency in the use of technology within the agency. This strategic initiative also encompasses agency information technology architecture standards and migration to new technologies. It includes department use of the Internet, systems development process methodology, and inter- and intra-agency technology cooperation.

  Elements of the CVISN Pilot Project are pertinent to Initiatives G and H. The plan migrates current paper-intensive processes to electronic formats. The plan's foundation is built upon national electronic data interchange standards and protocols which motor vehicle administration agencies support. The plan's architecture is based on exhaustive studies, requirements analysis, and design work sponsored by the federal government and underlying the FHWA's national CVO Plan. The plan uses prototyping as a key system development methodology. The plan exploits the Internet for customer access and data exchange where appropriate. Interagency and inter-jurisdictional cooperation are key principles guiding the plan's work program and organization structure.

- **Initiative H: Information Stewardship.** This initiative examines policy and issues surrounding information management, data release and disclosure, data access, privacy, and data security.

- **"Initiative External Data Sharing".** This initiative is a close companion to Initiative H with a purpose to establish agency management processes for data sharing including developing policy procedures; preparing guidelines and standards for data sharing; and implementing more explicit and specific business agreements within the scope. This initiative anticipates projects regarding electronic access to DOL's licensing procedures (e.g., electronic filing of applications and queries) and electronic data access/exchange, public/private partnership arrangements, and client identifiers.

  Information stewardship and data sharing policies are highly germane to the public disclosure issues and data sharing mechanisms to be addressed in deploying the CVISN Pilot Project. Many of these issues have been widely debated in the development of the CVISN Pilot Project, and are reflected in its guideline principles. These principles will be further addressed by the ten states (including Washington) that are participating in the CVISN Pilot Project deployment. The CVISN Pilot Project will contribute to this process for formulating guidelines and policies and will search for collective best practices to address sensitive and sometimes thorny issues.

8.3 WASHINGTON STATE DEPARTMENT OF TRANSPORTATION CONFORMITY

There is a strong correlation between the CVISN Pilot Project and the *WSDOT Information Technology Strategic Plan* (1997) objectives:

- Cooperation among agencies is a high priority of the plan (as well as of the DIS *State of Washington Strategic Information Technology Plan)*
- Ensure that information technology is managed, budgeted, and funded as a department resource
- Align and deliver information technology services to support WSDOT attainment of business goals and to achieve customer satisfaction
- Empower our people to take ownership of their jobs and act in the best interest of our customers and agency to improve WSDOT's performance.
- Through the quality process, use information technology as an enabler of change and a tool for business improvement
- Establish and maintain an affordable and widely available information technology infrastructure.
- WSDOT's business needs include an information technology infrastructure that facilitates information exchange within the agency and with external entities. The information technology infrastructure also needs to employ standardized methods of data definition and exchange whenever cost justifiable.

Cooperation among agencies and facilitation of information exchange are among the primary objectives of WSDOT and the CVISN Pilot Project. Use of common data definitions and standardized exchange protocols are also supported by the initiative. Finally, WSDOT's oversize/overweight permit system is delivering information technology services to attain business goals of the department and as a major component of the CVISN Pilot Project.

8.4 WASHINGTON STATE DEPARTMENT OF INFORMATION SERVICES CONFORMITY

WSP, DOL, and WSDOT adhere to the *State of Washington Strategic Information Technology Plan* and to each agency's strategic plans that have been developed in accordance with guidance from DIS. Each agency will strive to meet the four goals outlined in *the State of Washington Strategic Information Technology Plan:*

Goals:

- Improve service delivery to the public through the use of information technology.
- Make information more accessible through an affordable, shared and widely-available information technology infrastructure.
- Use information technology to respond quickly to changing business requirements.
- Invest in people, tools, methods, and partnerships necessary to improve the knowledge and skills of the human resources within the IT community.

The implementation of a customer-based electronic credentialing and payment approach clearly improves delivery of service to the motor carrier industry. Partnerships with FHWA and ODOT will help Washington implement a sound technology solution, with the sharing of information as the ultimate result.

9.   PROJECT MANAGEMENT AND ORGANIZATION

9.1 PROJECT TEAM ORGANIZATION

Project Oversight

The CVISN Pilot Project for the State of Washington will be overseen by the CVISN Steering Committee consisting of selected personnel from each of the three agencies participating in the CVISN Pilot Project: WSP, WSDOT and the DOL. The Washington State CVISN Steering Committee will work closely with the Oregon State Steering Committee to ensure that overlapping responsibilities relating to the success of the CVISN Pilot Project are accomplished. The Washington State CVISN Steering Committee members are: Capt. Tim Erickson, WSP; Mr. Dave Peach, WSDOT; and Mr. Jim Wadsworth, DOL. The Washington State CVISN Steering Committee is shown in Figure 9-l.

Washington State Committee Structure

The Washington CVISN Steering Committee will be advised by Operational, Technical, Facilities, and Financial committees comprised of people with expertise in their specific fields. Each committee is comprised of representatives from WSP, WSDOT, and DOL. Committee members provide expertise as needed and work with their counter-parts on the Washington State and Oregon Steering committees, as well as with the members of the Oregon/Washington Steering Committee. The Washington State Committee structure is shown in Figure 9-1.
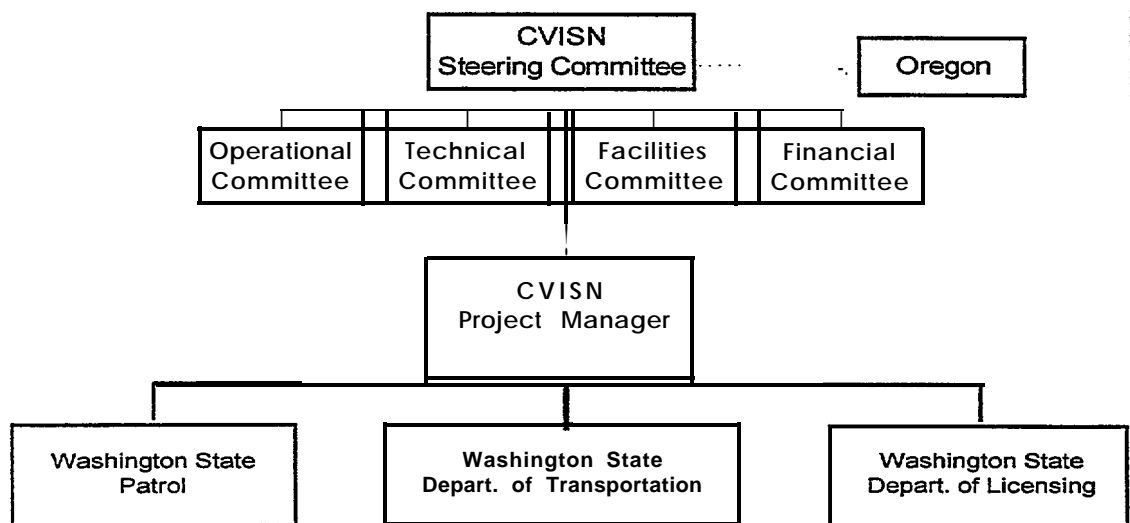
Figure 9.1 - **Steering Committee CVISN Team Organization**

Project Manager

A Project Manager will be assigned to direct Washington State's CVISN Pilot Project. The Project Manager from each state will report directly to the respective state's Steering Committee. The Washington State Project Manager works closely with the members of the Steering Committee from each agency. The Project Manager is responsible for the day-to-day management of the CVISN Pilot Project, and will interface directly with each agency's Project Task Leader to ensure the successful completion of each project's goals and scheduled milestones. The CVISN Pilot Project team organization is shown in Figure 9-2.
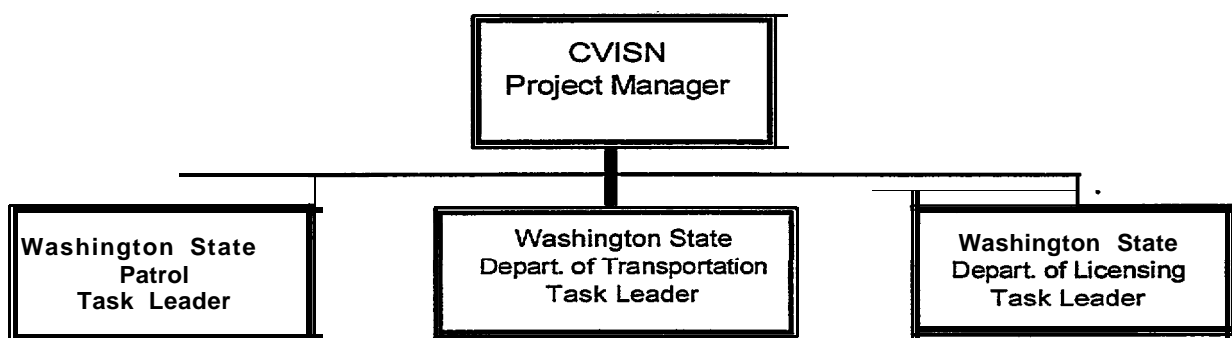
Figure 9.2 -Washington State CVISN Team Organization

9.2 ROLES AND RESPONSIBILITIES

The Steering Committees from Oregon and Washington State provide executive oversight to their State's CVISN Pilot Project to include oversight of the Washington-Oregon CVISN Pilot Project. The Washington Project Manager will interface directly with the Oregon Project Manager to ensure shared work responsibilities and critical project concerns are addressed in a timely and effective manner. The success of this project depends on the Washington and Oregon Project Managers working closely together throughout the life of this Pilot Project and beyond.

The CVISN Pilot Project's Project Manager will work with designated Project Task Leaders from WSP, WSDOT, and DOL. The CVISN Pilot Project's Project Manager and a designated Project Task Leader from each agency will work together to ensure that each project is accomplished successfully, and is on time and within budget. A designated point of contact (POC) will be identified from each agency to serve as the liaison between the Project Manager and the agency's project staff. Agency Project Task Leaders will be responsible for managing agency resources to assign tasks, monitor progress, and take corrective action. In addition, the Task Leaders will log and immediately report project issues to the Project Manager, for discussion and resolution.

9.3 DECISION-MAKING PROCESS

The Steering Committee Member from each of the respective organizations will have executive oversight, with delegated authority to other project team members based upon assigned roles and responsibilities outlined in the CVISN Pilot Project. The Project Manager will report directly to the Steering Committee members from each organization, and serve as the interface between agency's and team members working various components of the CVISN Pilot Project. Day-to-day operations will be conducted between the Project Manager and the agency's designated Project Task Leader to ensure the completion of scheduled objectives and milestones. The Project Manager and the Project Task Leader from each agency will work closely together to prevent unnecessary overlap in projects that interface directly. Understanding project dependencies and meeting time-line schedules are the responsibility of the Project Manager and the Project Task Leader from each organization.

9.4 MANAGEMENT QUALIFICATIONS

The CVISN Pilot Project Manager is expected to have, at a minimum, the following qualifications:

- Five years or more of Project Management experience with multi-year projects exceeding $2 million in value

- Experience working with multiple project groups, including vendors, oversight groups, and sponsoring organizations

- Trucking industry recognized Project Management certification

- Experience working with all organizational levels, including executive

- Experience developing project budgets

- Excellent written and oral communications skills; formal presentation skills

Desirable qualifications include:

- Knowledge of and experience with state and federal transportation agencies

- Knowledge of Intelligent Transportation Systems

It is anticipated that a qualified Project Manager will be engaged from a private firm through a personal services contract.

9.5 QUALITY ASSURANCE (QA)

The head of each agency is ultimately responsible for the quality assurance of each project that is under their agency's sponsorship. The Washington State Steering Committee provides executive

oversight of the CVISN Pilot Project, but the agency heads of the WSP, WSDOT and DOL and their designated representatives must bear responsibility for their individual projects. The CVISN Pilot Project Manager, as the interface between the Steering Committee and the agency's, also must ensure that an established QA program is in place throughout the life-cycle of the CVISN Pilot Project.

The Quality Assurance program consultant would be hired as an independent organization reporting to the agency executives.

10. ESTIMATED TIMEFRAME AND WORK PLAN

The CVISN Pilot Project is expected to be completed prior to July 1, 1999. The roll out of the prototype systems and infrastructure will commence following this project, and is subject to approval and funding.

The work plan and resource assignments are provided in the *Washington-Oregon CVISN Pilot Project Plan*

11. INCREMENTAL COSTS

Incremental costs for the CVISN Pilot Project are expected to be $2.7 million for the 1997-99 biennium. This does not include ongoing personnel and equipment support costs in future biennia. The support costs are reflected, however, in the attached forms for the fiscal years indicated. The 10 year cost to support only the pilot infrastructure is estimated at $6.0 million.

These costs do also not include the roll out of CVISN technology to other weigh stations (beyond the pilot at Ridgefield).

Please see Forms 1-5, prepared for each of the sub-projects, and included in Attachment A. One exception: Infrastructure Improvement sub-project costs have been included in the CVIEW cost forms, since the server and network costs are directly attributable to providing CVIEW support at the Ridgefield location.

12.   BENEFITS

Estimated CVISN Net Benefits

Incremental tangible benefits for the CVO Plan deployment project were estimated for CVO safety activities and roadside enforcement (screening and clearance enforcement processes) and for CVO administrative services and processes. Benefits are categorized into four groupings:

- Costs avoided by motor carrier and general public benefits (classified intangible)
- Costs avoided by state CVO agencies
- Savings to state CVO agencies through efficiencies
- Anticipated state revenue increases

12.1   BENEFIT CATEGORIES AND DESCRIPTIONS
Benefits were examined for 20 categories. **Table 12-1** shows the benefit items by category groupings.

Table 12-1 *Classification of Benefits*

Benefit Description	Carriers & Public	Cost Avoided	Efficiency Savings	Increased Revenue
1. Motor carrier weigh stations delay avoided	✔			
2. Motor carrier weigh stations fuel expenses avoided	✔			
3. Motor carrier-safety inspections delay avoided	✔			
4. Motor carrier administrative compliance cost savings	✔			
5. Motor carrier & general public accident costs avoided	✔			
6. Pavement & bridge damage cost avoided		✔		
7. New CVO facilities construction cost avoided		✔		
8. IRP and IFTA administration cost avoided		✔		
9. IRP and IFTA warrant production cost avoided		✔		
10. OS/OW permit processing cost savings			✔	
11. Safety inspection data entry cost savings			✔	
12. Safety inspection report input time savings			✔	
13. WSP CVEO weigh stations operation savings			✔	
14. Increase in voluntary credential & tax compliance revenues				✔
15. Increase in credential revenue due to enforcement				✔
16. Increase in interest earnings - IRP & IFTA				✔
17. Increase in safety citation collections				✔
18. Increase in traffic citation collections (border)				✔
19. Increase in OW citation collections				✔
20. Increase in OS/OW permit fees & enforcement revenues				✔

12.1.1 Motor Carrier and General Public Benefits

Motor carriers avoid time loss and fuel consumption at weigh stations, reduce on-road safety inspection delays, and save regulatory compliance costs. Both motor carriers and the general public realize reduced costs from a reduction of commercial vehicle accidents and incidents.

Motor Carrier Weigh Station Time and Fuel Consumption Savings with Electronic Clearance. Motor carriersthat receive electronic clearance at ports of entry and weigh stations will avoid time losses and fuel consumed in weigh stations. Commercial vehicle time savings were valued at $50 per hour based on economic analysis guidelines from WSDOT financial management. (Note, An alternative minimum rate of $28 per hour also was used for sensitivity analysis to calculate direct driver compensation, fringe benefits, and direct supervision costs). Carriers with driver time settlements that are not time-based may not realize time savings, but those carriers are not assumed to participate in electronic clearance. Fuel consumption in weigh stations was estimated at 1.5 gallons per hour and fuel was priced at $1.10 per gallon.

Delay time at weigh stations was estimated at three minutes (high) and two minutes (low), based upon results from a simulation model for the Ridgefield port of entry, weigh station queue frequency counts in May 1997, and a literature review of delay studies at weigh facilities. Alternative estimates were calculated for the Bow Hill port of entry to reflect reduced delay for more carriers with a ramp WIM at that facility.

Estimate of Vehicles with Transponders. The number of vehicles with identification transponders and eligible for electronic clearance was estimated as a proportion of the total vehicles weighed at each facility. The number of vehicles weighed in 1995-1996 was used as a base and escalated three percent per year (vehicle volumes on I-5 and I-90 have been increasing at over 5% per year in the 1990's). The electronic clearance market penetration was estimated site by site, based on the year that an electronic clearance system became operational

The percentage of vehicles cleared electronically each fiscal year, and the approximate number of vehicles with installed transponders for clearance eligibility is shown below.

FY	*97-98*	*98-99*	*99-00*	*00-01*	*01-02*	*02-03*	*03-04*	*04-05*	*05-06*	*06-07*
% Clearance	*0*	*1*	*10*	*13*	*21*	*26*	*31*	*36*	*41*	*43*
1000'S of Vehicles with transponders	*0*	*0.7*	*5.9*	*8.0*	*12.3*	*15.9*	*17.9*	*21.5*	*25.2*	*27.6*

Avoided Safety Inspection Delay Costs. With SAFER information available to WSP safety officers, motor carriers with good safety performance records will be less frequently selected for roadside safety inspections. These carriers will realize time savings from avoided roadside inspection delays. Estimates for the dollar value of these avoided delay savings were calculated using the same carrier hourly rates as used for weigh station delays.

WSP use of safety performance information to focus enforcement attention on carriers and drivers with higher safety risk will improve safety and reduce accidents involving commercial vehicles. Motor carriers and the general public will benefit from reduced societal costs associated with CVO accidents.

Motor carriers with good safety performance records will be stopped less frequently for safety inspections when WSP safety officers use safety performance information to select vehicles for inspection. Avoided safety inspection delays were projected at 30 minutes for Level 1 inspections and valued at $50 per vehicle hour. From two percent to 18 percent of all vehicles screened for Level-1 safety inspections are estimated to have high safety performance ratings, and are cleared without incurring inspection delays.

Carrier Credential and Tax Administration Savings. Electronic carrier credential applications and fund payment methods will reduce motor carrier time and cost for credentials and tax administration. It will shorten processing cycles and eliminate postal delays.

Carrier savings were estimated for adoption of electronic credential application and electronic payment methods based on studies by the American Trucking Associations Foundation. The Foundation determined that credentials and tax regulatory compliance expense for carriers with fleets of ten or fewer power units averaged over $500 per power unit per year. Carriers with 11 to 99 power units averaged $307 per power unit, while those with over 100 power units averaged $145.

Larger carriers with existing electronic data interchange experience and capability are forecast to be early users of electronic filing and payment. Carriers operating over 50 power units account for about 20% of the vehicles registered under the apportioned Interstate Registration Plan in Washington State. These carriers comprise less than one percent of all IRP carriers. Electronic filing was estimated for five percent of all apportioned fleet units for 1998-99, and projected to increase by 5% per year to a maximum of 40%. Savings for carriers adopting computer-assisted electronic filing and payments were estimated to range from 12% to 15% of the average credential administrative cost per unit.

CVO-related Accident Costs Avoided. Commercial vehicle accidents on I-5 and I-90 over a five year period from 1990 to 1995 were analyzed to determine the number of CVO-related incidents, and to determine the societal costs of commercial vehicle accidents. Findings show that I-5 and I-90 CVO-related accidents in Washington State cost society over $85 million per year. Safety performance information for motor carriers and drivers will help the WSP focus safety enforcement on higher risk operations of carriers, vehicles, and drivers. The improved safety focus together with electronic screening and clearance systems is projected to reduce the cost of accidents involving commercial vehicles by 0.25% initially and grow to 1.5% annually by the end of the ten-year evaluation period.

Incidents involving commercial vehicles cause thousands of vehicle hours of traffic delay each year. Some reduction in commercial vehicle-related incident delay costs may result from the CVO Plan but estimates for these savings were not quantified.

12.2 STATE COSTS AVOIDED

Electronic screening and clearance systems and access to safety, credentials, and permit information will increase the effectiveness of WSP commercial vehicle enforcement. One effect will be avoidance of certain state costs related to commercial vehicle operations in the state. Three categories of cost avoidance were examined.

Pavement and Bridge Infrastructure Damage Costs Avoided. Damage to state road pavements and bridge infrastructure occurs from overweight/oversize loads. WSDOT expends $260,000,000 for infrastructure preservation each biennium. Roadway weigh-in-motion scales at electronic clearance stations, improved mobile enforcement systems and strategies, the "RoadNet" CVO activity monitoring system, and the automated permit system will contribute to reduction of road and bridge damage from overweight/oversize loads. The value of infmstructure damage costs avoided was estimated to grow from zero to a nominal 0.70% of WSDOT infrastructure expenditures for rehabilitation and preservation by the end of the 10-year evaluation period.

New CVO Enforcement Facilities Construction Costs Avoided. Washington weigh stations on interstate highways have inadequate capacity to handle vehicle volumes. The problem is growing as vehicle traffic volumes increase. Costs of alternative approaches to relieve weigh station capacity deficiencies and carrier delays were considered.

The mainline clearance approach advocated in the CVO Plan project costs under $1 million per station. Re-building current weigh stations to include ramp weigh-in-motion scales and a bypass lane to clear legal weight vehicles is a solution commonly used by other states at a cost of $1.5 million to $3 million per site. Alternatively, a new facility may be constructed at a cost of $4 million to $8 million. Accordingly, costs avoided may range from $0.5 million minimum for station rebuilding to $7 million for building a new facility. In Washington State, very few weigh stations on interstate highways have sufficient real estate to allow rebuilding with a bypass lane. WSDOT's 1995 "P-3" projected 20-year budget shows nearly $40 million for building six new (or relocated) interstate weigh station facilities. However, because of uncertainty that the planned expenditures will actually occur, no savings were projected for avoided capital construction costs.

State Administrative and Enforcement Savings from Productivity and Efficiency Gains. State administrative cost savings for IRP, IFTA, tax reporting, and oversize/overweight permits were estimated as a function of the volume of transactions, the current costs for each function, the estimated proportion of transactions which become automated, and unit savings for automated transactions. State processing cycle times and costs were developed for IRP and IFTA applications, re-worked applications and tax report filings. Estimates of the proportion of motor carrier transactions filed electronically were based on the number of carriers with 50 or more power units. State savings for electronic applications and electronic payments were estimated as a percentage reduction of the current processing cycle costs. State savings in IRP and IFTA transmittals and

funds settlements with other jurisdictions were estimated from unit cycle time and costs, the number of transactions annually, and estimated time savings per cycle. DOL baseline data for 1995-l 996 were used for the estimates. Similarly, savings in the cost of warrant preparation for jurisdiction settlements were estimated based on current unit warrant costs versus electronic warrant costs, the number of settlement cycles per year, and the number of warrants issued.

12.3   IMPROVEMENTS IN STATE PRODUCTIVITY AND EFFICIENCY

Automation and information technology applications in the CVO Plan project will yield state gains in productivity and efficiency of operation. The following benefits areas were examined:
Similar kinds of productivity and efficiency gains will be realized by the WSDOT Office of Motor Carriers. Cost savings for the automated oversize and overweight permit system were derived from detailed studies completed by the WSDOT Office of Motor Carrier Services. When the automated oversize and overweight permit system is deployed, it will reduce personnel hours required to maintain reference materials, to process and issue permits, and to verify routing and roadway conditions. The automated permit system will also reduce support personnel requirements from MIS and from WSDOT Accounting.

Enforcement benefits were estimated for productivity gains in safety inspections and in weigh station enforcement functions. Manual key entry from safety inspection forms into the WSP SafetyNet database will be eliminated by inspection data entry into laptop computers in the field. Laptops will improve the efficiency of inspection data recording by field officers. Savings of slightly over four percent in inspection data entry time were projected for field safety inspections.

Electronic screening and clearance systems are projected to reduce the number of WSP CVEO hours required to staff Interstate Highway at ports of entry and weigh stations. The effect of electronic clearance systems on CVEO staffing was estimated as a function of the number of vehicles cleared electronically per year at each weighing facility. WSP officers weighed 2.28 million vehicles over static scales at Interstate weigh stations in 1995-1996. Vehicles cleared electronically by automated mainline clearance systems will free CVEO hours from static scale weighing operations at weigh stations for other enforcement or safety assignments. CVEO hours available for re-assignment at each facility were estimated in relation to current CVEO hours expended and the percentage of vehicles electronically cleared by mainline automated systems. The projected CVEO hours available for reassignment ranged from two FTE CVEO's in Year 1999-2000 to eight FTE CVEO's in Year 2006-2007. These productivity improvements were valued at FY 1997-1998 CVEO-1 compensation rates.

12.4 STATE REVENUE INCREASE

State revenue increases are projected from the following sources:

- Increased voluntary compliance and reporting for IRP, IFTA and special permits
- Increased IRP and IFTA interest earnings
- Improved audit and roadside enforcement effectiveness
- Increased collections from citations and fines

Improved credentialing service response, easier credentials access, and more effective enforcement are projected to marginally improve voluntary carrier compliance and revenues from credentials, taxes, and special permits. Similarly, enhanced enforcement capabilities due to availability of timely information is projected to increase collections from audits and enforcement sanctions. Electronic payment cycles will yield IRP and IFTA increased interest earnings by reducing postal delivery delays and earlier recognition of payments.

Benefits for each of these items were estimated as marginal gains relative to prevailing revenues. Voluntary compliance is projected to increase IRP and IFTA revenues between one-tenth percent and nine-tenths percent over the 10-year evaluation period. An annual gain of two-percent is projected in OS/OW permit sales revenue after implementing the automated permit system, based on experience of other states.

Revenue gains from audit and enforcement are projected at a fractional percent (e.g. up to maximum of two-tenths on one percent) for IRP and IFTA revenues and up to three percent for temporary and oversize/overweight permit citations and enforcement. The gain in permit enforcement revenues is partially attributable to supporting enforcement actions of the DOL and the Department of Revenue with respect to registration, fuel tax and excise/sales tax collections. Additionally, collection revenues form traffic citations issued to non-resident carriers is projected to be reinforced by the international border clearance system.

12.1.4 Benefit Summary

Table 12-l summarizes the non-discounted 10-year aggregate benefits for each of the benefit categories. In the OITO Cost Benefit forms (Appendix A) only the conservative Low Estimate was used for computation. Where implementation applies to the entire state, the benefits were increased over time to reflect the expected "ramping up" period of carrier participation.

Table 12-1, *IO-Year Estimated Non-discounted Benefits for CVO Plan Project*

Benefit Category	Estimated 10 Year CVO Plan Non-Discounted Benefits	
	Low Est.	High Est.
Costs Avoided		
1. Estimated reduced motor carrier weigh station delay costs	$5,850,690	$15,674,280
2. Estimated reduced motor carrier weigh station delays - fuel costs	$524,283	$1,048,566
3. Estimated reduced safety inspection delays for safe motor carriers	$888,398	$1,586,425
4. Estimated reduced motor carrier CVO administration costs	$2,014,530	$3,812,137
5. Estimated savings from avoided commercial vehicle accidents	$3,743,957	$7,406,030
6. Estimated pavement & bridge infrastructure preservation savings *	$2,473,800	$4,947,600
7. Estimated new CVO facilities construction cost avoided *	$0	$0
8. Estimated reduced IRP and IFTA state CVO administrative costs *	$1,544,178	$2,868,055
9. Estimated reduced state IRP and IFTA warrant production costs *	$419,580	$578,340
Subtotal Estimated Cost Avoided	*$17,459,416*	*$37,921,433*
Cost Savings		
10. Estimated reduced oversize/overweight permit processing costs *	$1,075,814	$1,613,653
11. Estimated reduced safety inspection reports data key-entry costs *#	$272,719	$403,094
12. Estimated reduced labor costs preparing safety inspection reports*#	$335,318	$735,807
13. Increased CVEO staff resources available for redirected enforcement activities *#	$2,100,627	$3,099,763
Subtotal Estimated Cost Savings	**$5,748,236**	**$9,298,712**
Anticipated Revenue Increases		
14. Est. increased voluntary compliance in IRP and IFTA reporting *	$1,554,150	$3,180,705
15. Est. increased IRP and IFTA enforcement revenue collections *#	$1,024,163	$1,324,701
16. Est. increased interest earnings on IRP and IFTA revenues *	$63,606	$148,413
17. Est. increased safety citation revenues *#	$704,79 1	$1,409,581
18. **Est.** increase traffic citation revenues *#	$392,395	$784,791
19. Est. increased size and weight citations revenues *#	$725,131	$971,676
20. Est. increased OS/OW permit fees & enforcement collections *#	$961,059	$1,523,997
Subtotal Estimated Revenue Increases	*$5,425,294*	*$9,343,867*
Estimated Total Benefits	**$26,669,187**	**$53,117,616**

Note: Items marked with an asterisk (*) are considered tangible benefits and are included in the OITO Cost Benefit forms l-5, Appendix A.

Note: Items marked with a pound sign (#) are carried to the OITO Cost Benefit forms at 25% of this estimate because implementation affects only the Ridgefield POE which handles approximately 28% of the vehicle volume in the state.

Section 13 - Risk Management

This section addresses the risk associated with each of the seven projects/components of the CVISN Pilot Project through the end of the CVISN Pilot Project. The risks associated with each project/component will be discussed individually, and risks associated with any overlapping tasks, responsibilities, etc., of other projects/components involved in the CVISN Pilot Project will be identified and addressed accordingly. An overview of the long-term risks associated with the CVISN Pilot Project in regard to the state's CVO Strategic Plan and the state and federal CVISN Plans will be provided at the end of this section. The functional and organizational risks of each project/component are addressed, and risks to stakeholders are also discussed. The risks associated with the complexity of each project/component, project planning, project resources and project schedule are also addressed in this section.

WSP

Sub-Project #1 CVIEW
VISTA RS and TS Interfaces to CVIEW
SAFETY/AVALANCHE Interface

Functional Risk: - High
The functional risks associated with this project reflect the tying together of several separate and distinct systems together. These systems are from different organizations; some are legacy systems that need an interface defined; and some are systems under development or planned. The creation of interfaces with these multiple systems requires extensive planning and a detailed strategy. The goal is to create application interfaces without or minimal modification to existing systems.

Organizational Risk: - High
The data base and application sources for CVIEW belong to several organizations, both state and federal. The necessity of coordinating several organizations, creating interfaces if they do not exist calls for extensive coordination and planning.

Stakeholders: - High
The stakeholders have high expectations for the outcome of this project and the associated projects. While there is great benefit from the results, the expectations have not been managed at this point. Establishing clear and timely objectives, setting resource driven results will require communication and management of the stakeholders.

Complexity - High
The complexity of this project derives from implementing a new product with interfaces to applications that don't exist. The applications belong to several state and federal organizations with uncoordinated schedules. While the interfaces may be very important to this project, it may be a minor aspect of the source project. All of the interfaces should be created within the **CVISN** architecture, however, the legacy applications predate CVISN and will be difficult to modify.

Project Planning: - Medium

The project planning associated with this project includes determining schedules for the development of extensive software, the development of new applications, the modification or adaptation to existing systems. The planning requirements will span multiple agencies using multiple communication architectures, both physical and logical.

Project Resources: - High

This project will require commitment of information technology and business staff from at least three state agencies to define current processes, define interfaces, minimize impact upon current operation, and deploy a CVIEW application. Correspondingly, the commitment of existing resources to Year 2000 compliance projects makes the competition for experienced personnel quite stiff.

Project Schedule: - High

The schedule must align tasks from multiple agencies on multiple projects where the result has not been defined nor prioritized.

The schedule expects to complete what appears to be eighteen months of planning, acquisition, and development in approximately twelve months because of the budget, legislative, and spending cycles and dates. This places considerable pressure upon the project team.

Sub-Project #2 ODOT Interfaces
DSRC/LPR at Ridgefield Using ODOT's data base
Integrate ODOT's MCIS System and Ridgefield office

Functional Risk: - Medium
Since the ODOT MCIS system is operational, this task should be relatively simple to
accomplish. The customers, WSP CVE personnel, must learn and accept the ODOT system as it
is. Their experience will be useful in developing the Washington CVIEW system.

Organizational Risk: - Low
No recognizable risk.

Stakeholders: - Low
The stakeholders are identifiable and few in number. Although the information technology
personnel have not worked together, the business personnel have worked together.

Complexity: - Medium
The task must be defined.

Project Planning: - Low
Normal project planning discipline should suffice to keep the project on course.

Project Resources: - Medium
The resources must be identified during task planning, and ODOT must commit to supply the
required assistance.

Project Schedule: - Low
The schedule must be identified during task planning, but should be relatively simple to
accomplish. The most difficult will be cross-organization meetings, Washington and Oregon.

Sub-Project #3 Infrastructure Improvements
Infrastructure at Ridgefield
WSP Data Center
Carrier Transponders
USDOT ID Assignment

Functional Risk: - Low
As normal WSP systems and methods will be used, the risk for the project should be well contained. WSP has recent experience with installing the servers and network components proposed. The largest functional risk will be having systems installed and aging while development takes place.

Organizational Risk: - Low
Risk will come if maintenance of computing equipment is the responsibility of WSP ESD field technicians because of the labor organization being involved. Additional central support personnel are necessary as more servers and computers are deployed.

Stakeholders: - Medium
A key component of the screening process is the implementation of transponders by motor carriers. While the industry has indicated a willingness to do so, the project team must focus on educating and encouraging the motor carriers to make the investment in transponders as quickly as possible.

Complexity: - High
While Ridgefield POE station has room for the computer equipment, it cannot be considered a model for other stations where space is at a premium. While not a risk with this particular project, building modifications may be necessary in other facilities.

The systems must fit into the WSP Data Center and operations staff trained before the application begins production operation. The network components must be well-designed and the implementation must be coordinated among several state and federal organizations.

Project Planning: - Low
The resources must be identified during task planning.

Project Resources: - Medium
The resources must be identified during task planning and personnel commitments made.

Project Schedule: - Medium
The schedule must be identified during task planning and communicated with the stakeholder and pilot groups.

DOL

Sub-Project #4 Electronic Credentialing
Credentialing Interface
IRP and IFTA Submission Electronic Processing
IRP and IFTA Electronic Payment

Functional Risk: - High
- CVISN electronic transactions sets defining the attributes of electronic data transmission for IRP and IFTA business applications have not been clearly 6 defined, nor have they been adopted. Failure to adopt national standards in IRP/IFTA EDI uniformity will impact cost, complexity, and risks associated with the credentialing interface and EDI translation software.
- Several institutional issues at the state and federal level have not been resolved and could limit deployment of full EDI transactions capability. They include:
    - 0 Federal requirement that proof of Heavy Vehicle Use Tax has been paid impacts increased gross weight supplements.
    - 0 Proof of vehicle registration and a copy of the vehicle bill of sale establishing purchase price must be submitted when adding a new vehicle to a fleet.
    - 0 In order to received gross weight credit for deleted vehicles, the plates and credentials for the vehicle must be returned to the department.

The above examples require submission of documents not accounted for in or complimentary to EDI transactions.

- Uniform, nationally adopted EDI transactions sets may not accommodate Washington specific data elements or conform to our processing requirements. As future changes to laws regulating IRP and IFTA carriers occur, costs in adapting and modifying CAT and interface software will be incurred, and we may be unable to conform our submission requirements to national EDI standards.
- DOL currently contracts with Lockheed Martin IMS for IRP and IFTA credentialing and tax return processing systems. The contracts are for a period of five years and will require an RFP for renewal. If a new vendor with a different data processing system is selected, or DOL provides its' own IRP/IFTA processing system, new or modified software, hardware and business processes must be developed.

Risk Mitigation:
- The project takes a sequential approach to implementing electronic credentialing and payment, offering those electronic services which do not clash with institutional barriers or where national standard transaction sets have not been developed.
- Washington will actively participate in the development, review, and approval of national transaction set standards to ensure they provide sufficient information to met our needs, using the IFTA and IRP agreement application requirements as a standard base.

- Request for Proposal (RFP) requirements will require the vendor to be capable of providing CVISN compliant electronic credentialing and payment services.

Organizational Risk: - Medium
- Changes in organizational functions required to accommodate business and data processing requirements contained in electronic Credentialing/payments may temporarily impair service delivery within the organization due to staffing changes and training learning curves.

Risk Mitigation:
- Training programs and new business processes will be developed as part of the project work plan to ensure smooth transition to electronic credentialing/payments.

Stakeholder Risk: - Medium
- Participating commercial motor carriers will be'required to make changes in their business practices, including obtaining software and communications technology necessary to conduct EDI transactions.

Risk Mitigation:
- Trading partner agreements will be developed for participating motor carriers which clearly define their roles, responsibilities, and hardware/software requirements necessary to conduct electronic commerce with the department.

Complexity: - High
- The electronic submission of credentials and payments is complicated by the CVISN goal of establishing uniform, national standards for each type of electronic transaction coupled with the ability of carriers to utilize a variety of vendor supplied software designed to send information to proprietary mainframes. This concept of interoperability will require close scrutiny of vendor supplied CAT software to ensure Washington processing requirements and edits have been properly accounted for.

Risk Mitigation:
- Trading partner agreements will be developed for participating motor carriers which clearly define their roles, responsibilities, and hardware/software requirements necessary to conduct electronic commerce with the department.

Project Planning: - Medium
- The primary risk involved in project planning will surround potential changes in law, operating procedures, private vendor and carrier business practices which may impact execution of the plan.

Risk Mitigation:
- Strong emphasis on change management and communications plans will be incorporated into the project to ensure potential project impacts are identified and assessed, and a course of action developed to mitigate potential negative impacts on the execution of the plan.

Project Resources: - High

- DOL is relying on current staff to perform essential project duties necessary to ensure successful implementation. This staffing level can be classified as no more than adequate. DOL Information Services staff are currently focused on Year 2000 compliance issues and on the BTAP project.

Risk Mitigation:

- The phased delivery of project deliverables will minimize the impact on available staff, maximize output via focused efforts, and ensure that federal funding is available for each phase.

Project Schedule: - Medium

- A significant portion of the project work will be completed by the vendor providing data processing services for the IRP and IFTA programs. Scheduling will be dependent upon the successful negotiation for the commitment by the vendor, of the necessary resources.

Risk Mitigation:

- Project scheduling will require a detailed schedule of deliverables and project dependencies, obtained from the vendor and approved by the department. Project reviews to assess adherence to project schedules will be an integral part of the plan.

WSDOT

Sub-Project #6: SNOOP1
OS/OW Basic Permitting Application
OS/OW Interfaces with DOL and trucking industry
OS/OW Routing
OS/OW Interface with ODOT

Functional Risk: - Low
Phase 1 of SNOOP1 provided the functionality of the existing TAPS system, and Phase 2 will provide enhancements to Phase 1. The functional risks of SNOOP1 are considered extremely low because it is basically an enhancement project. Also, Phase 2 includes conversion and importing data from the existing TAPS system.

Organizational Risk: - Low
There is no organizational risk associated with SNOOPI. Deliverables from Phase 2 will consist of a complete working system fully implemented and documented. The system will be accessible from either the WSDOT LAN (for WSDOT operators), and over the Internet (for non-WSDOT operators). SNOOP1 will benefit numerous agencies through the State of Washington and positively impact other states that participate in the Western Region Permitting System.

Stake holders: - Low
SNOOP1 will support a legislative mandate to provide permits to the trucking industry. Requests for permits originate at MCS, Ports of Entry (POE), WSDOT regional offices, Washington Truckers Association (WTA), WSP offices, DOL, and self-issuers. SNOOP1 is an enhancement to the TAPS system and does not increase risk to the various stake holders.

Complexity - Medium
This project is considered of medium complexity because it is an enhancement to an existing system.

Project Planning: - Low
Planning for the SNOOP1 project has been completed and Phase 2 plans have been completed and have been activated.

Project Resources: - Low
Project resources have been identified and are working on Phase 2 - OS/OW analysis/design, construction, and implementation of SNOOPI. Adequate resources have been allocated to this project and no risk impact is anticipated.

Project Schedule: - Medium
The SNOOP1 is a two phase project: 1) OS/OW Basic Permitting that provides the same level of service as the existing program, but within a secure client server network. Also in Phase 1, two electronic permits were developed to replace the pre-printed paper format for Single Trip Registration and Fuel Tax. Phase 1 was operational by mid-November 1997. Phase 2 will

encompass interfaces with DOL , WSP and industry (March 1998) an interface with ODOT, and a routing module capable of selecting preferred routes after taking into consideration bridge and highway restrictions/obstacles (July 1998).

The risk factors identified that could impact the project schedule are: 1)Loss of availability of key project personnel from any project area, 2) Change in scope of project, 3) Delays caused by activity or decision not under the control of MIS or sponsoring organizations, or 4) Funding problems due to budget restrictions, i.e., loss of CVISN funding.

2,)

APPENDIX A - COST BENEFIT FORMS

The accompanying spreadsheets are the forms/format from DIS OITO for feasibility studies.

The costs are for the pilot study of CVISN with SNOOPI, CVIEW, IRP/IFTA credentialing, and the infrastructure changes at ridgefield POE and WSP data center. The benefit estimates for ceredentialing are the statewide projection found in the feasibility study spreadsheets. The roadside assistance and infrastructure apply only to the Ridgefield POE. Since this POE does over 25 percent of the CVO volume in the state, the benefit estimate was adjusted to the 25 percent level.

Estimated Costs

Capital costs for the Washington State CVO Strategic Plan are estimated to total $21,220,000 million as shown on page 1 l-40. As part of this total, the State Patrol has identified estimates for Weigh-in-Motion (WIM) of $12.8 million and Cabinet Scales of $552,000. The proposed CVISN pilot project and estimated costs are shown in the Feasibility Study at $3.1 million. Expenditures for Interstate Highway mainline electronic screening and clearance systems (including the International Border Crossing) comprise over 80% of the total capital expenditure. Electronics and upgrades at primary and secondary highway weigh stations, a data collection system to monitor CVO compliance, and mobile enforcement units will be included in the budget.

NOTE: The CVO costs presented in this document are only preliminary cost estimates which will be refined as the project progresses. Several factors that will affect these preliminary estimates are as follows:

- The Feasibility Study is in final draft form.

- Washington State's Information Services Board (ISB) has not yet reviewed the Feasibility Study.

- Preliminary cost estimates do not include technical support and ongoing maintenance.

- Statewide deployment costs need to be determined during the pilot project.

- Management of the CVISN project has been transferred from the Washington State Patrol to the Washington State Department of Transportation.

- John Hopkins University is developing the CVIEW software, and has not provided cost estimates for this software.

- The CVO Plan is a very dynamic program, which will be reviewed and updated annually.

State of Washington OITO Cost Benefit and Feasibility Analysis **1997-1999 Feasibility Study Guidelines**

Form 1/ Summary, Cost Benefit and Cash Flow Analysis   Agency   Washington State Patrol   Project Option   CVISN Pilot Summary
07-Jan-98

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
TOTAL OUTFLOWS	1,304,300	1,348,600	740,900	374,600	374,600	333,800	374,600	374,600	374,600	374,600	5,975,200
TOTAL IN FLOWS	33,350	471,047	740,900	576,996	682,945	781,325	947,817	1,061,334	1,212,690	1,424,587	7,769,086
NET CASH FLOW	(1,270,950)	(877,553)	(163,904)	202,396	308,345	447,525	573,217	686,734	838,090	1,049,987	
INCREMENTAL NPV	NA	(2,015,776)	(2,158,788)	(1,990,038)	(1,744,375)	(1,403,667)	(986,659)	(509,268)	47,453	713,940	
Cumulative costs	NA	2,652,900	3,393,800	3,768,400	4,143,000	4,476,800	4,851,400	5,226,000	5,600,600	5,975,200	
Cumulative Benefits		504,397	1,081,393	1,658,388	2,341,333	3,122,658	4,070.475	5,131,809	6,344,499	7,769,086	

Cost of Capital	Breakeven Period - yrs.*		NPV $	IRR%
	Non-Discounted	Discounted		
4.65%			713.940	9.58%

*- "Non-Discounted " represents breakdown period for cumulative costs and benefits (no consideration of time value of money)
* - "Discounted" considers effect of time value of money through incremental Net Present Value.

FORM1   CVISNSUM.xls

Form 1/ Summary, Cost Benefit and Cash Flow Analysis   Agency   Washington State Patrol   Project Option   CVIEW Summary
07-Jan-98

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
TOTAL OUTFLOWS	1,304,300	1,348,600	740,900	374,600	374,600	333,800	374,600	374,600	374,600	374,600	5,975,200
TOTAL IN FLOWS	33,350	471,047	740,900	576,996	682,945	781,325	947,817	1,061,334	1,212,690	1,424,587	7,769,086
NET CASH FLOW	(1,270,950)	(877,553)	(163,904)	202,396	308,345	447,525	573,217	686,734	838,090	1,049,987	
INCREMENTAL NPV	NA	(2,015,776)	(2,158,788)	(1,990,038)	(1,744,375)	(1,403,667)	(986,659)	(509,268)	47,453	713,940	
Cumulative costs	NA	2,652,900	3,393,800	3,768,400	4,143,000	4,476,800	4,851,400	5,226,000	5,600,600	5,975,200	
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Cost of Capital	Breakeven Period - yrs.*		NPV $	IRR%
	Non-Discounted	Discounted		
4.65%			713.940	9.58%

*- "Non-Discounted " represents breakdown period for cumulative costs and benefits (no consideration of time value of money)
* - "Discounted" considers effect of time value of money through incremental Net Present Value.

Benefits												
	# 6	0	123690	164920	164920	206150	244435	309225	353400	412300	494760	2473800	2473800
	# 11	0	13636	18181	18181	22727	26947	34090	38960	45453	54544	272719	272719
	# 12	0	16766	22355	22355	27943	33133	41915	47903	55886	67064	335318	335318
	# 13	0	105031	140042	140042	175052	207562	262578	300030	350105	420125	2100627	2100627
	# 17	0	35240	46986	46986	58733	69640	88099	100684	117465	140958	704791	704791
	# 18	0	19620	26160	26160	32700	38772	49049	56056	65399	78479	392395	392395
	# 19	0	36270	48359	48359	60449	71675	90674	103627	120899	145078	725391	725391
	Total	**0**	**350252**	**467003**	**467003**	**583753**	**692164**	**875630**	**1000720**	**1167507**	**1401008**	**7005041**	

Form 2/ Project Detail cost Flow Analysis   Agency   Washington State Patrol   Project Option   CVIEW
07-Jan-98
Suggested Format

FISCAL COSTS, PROJECT DEVELOPMENT	OFM Object Codes	FY 1998	FY 1999	FY 2000	DEVELOPMENT PHASES			FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
					FY 2001	FY 2002	FY 2003					
Salaries and Wages	(A)	0	109,500	203,000	0	0	0					313,300
Employee Benefits	(B)	0	17.500	32,500	0	0	0					50,000
Personal Service Contracts	(CA)	200,000	200,000	200,000	0	0	0					600,000
Communications	(EB)	44,500	0	0	0	0	0					93,900
Hardware Rent/Lease	(ED)	0	0	0	0	0	0					0
Hardware Maintenance	(EE)	0	0	0	0	0	0					0
Software Rent/Lease	(ED)	0	0	0	0	0	0					0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0					0
DP Goods/Services	(EL)	0	0	0	0	0	0					0
Goods/Services Not Listed	(E)	7,500	30,600	61,200	0	0	0					99,300
Travel	(G)	5,000	15,000	35,000	0	0	0					55,000
Hardware Purchases Capitalized	(JC)	407,100	14,000	0	0	0	0					421,100
Software Purchase Capitalized	(JC)	0	0	0	0	0	0					0
Hardware Purchase - Non. Cap.	(KA)	7,200	3,000	5,000	0	0	0					15,200
Software Purchase - Non. Cap.	(KA)	13,000	0	0	0	0	0					13,000
Hardware Lease/Purchase	(P)	0	0	0	0	0	0					0
Software Lease/Purchase	(P)	0	0	0	0	0	0					0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL DEVELOPMENT		684,300	439,300	537,500	0	0	0	0	0	0	0	1,660,600

State of Washington OITO Cost Benefit and Feasibility Analysis **1997-1999 Feasibility Study Guidelines**

Form 3/ Project Detail cost Flow Analysis   Agency   Washington State Patrol   Project Option   CVIEW
07-Jan-98

		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
OPERATIONS INCREMENTAL COSTS OF PROJECT (Per Form 4 - Column C)												
Salaries and Wages	(A)	0	0	0	94,300	94,300	94,300	94,300	94,300	94,300	94,300	660,100
Employee Benefits	(B)	0	0	0	15,100	15,100	15,100	15,100	15,100	15,100	15,100	105,700
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	51,800	51,800	51,800	51,800	51,800	51,800	51,800	51,800	414,400
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	40,800	40,800	40,800	40,800	40,800	40,800	40,800	40,800	40,800	367,200
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	81,600	81,600	40,800	81,600	81,600	81,600	81,600	530,400
Travel	(G)	0	0	0	12,000	12,000	12,000	12,000	12,000	12,000	12,000	84,000
Hardware Purchases Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap.	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap.	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATIONS		0	40,800	92,600	295,600	195,600	254,800	254,800	254,800	254,800	254,800	2,161,800
TOTAL OUTFLOWS		684,300	479,800	630,100	295,600	295,600	254,800	295,600	295,600	295,600	295,600	3,822,600
CUMULATIVE COSTS			1,164,100	1,794,200	2,089,800	2,385,400	2,640,200	2,935,800	3,231,400	3,527,000	3,822,600	

(1) Total Outflows the sum of Fiscal Total Operations and Total Development from Form 2
(2) Total Outflows carried to Form 1

FORM2   CVIEW.xls

Form 4/ Current versus Proposed Method Operations Costs
07-Jan-98
Suggested Format

Agency: Washington State Patrol

Project Option: CVIEW

OPERATIONS COSTS	Obj. Codes	FY 1998 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 1999 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2000 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2001 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2002 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	94,300	94,300	0	94,300	94,300
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	15,100	15,100	0	15,100	15,100
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	0	0	0	51,800	51,800	0	51,800	51,800	0	51,800	51,800
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	40,800	40,800	0	40,800	40,800	0	40,800	40,800	0	40,800	40,800
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	81,600	81,600	0	81,600	81,600
Travel	(G)	0	0	0	0	0	0	0	0	0	0	12,000	12,000	0	12,000	12,000
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS				0	0	40,800	40,800	0	92,600	92,600	0	295,600	295,600	0	295,600	295,600
FTE'S				0			0			0			0			0

OPERATIONS COSTS	Obj. Codes	FY 2003 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2004 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2005 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2006 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2007 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	94,300	94,300	0	94,300	94,300	0	94,300	94,300	0	94,300	94,300	0	94,300	94,300
Employee Benefits	(B)	0	15,100	15,100	0	15,100	15,100	0	15,100	15,100	0	15,100	15,100	0	15,100	15,100
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	51,800	51,800	0	51,800	51,800	0	51,800	51,800	0	51,800	51,800	0	51,800	51,800
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	40,800	40,800	0	40,800	40,800	0	40,800	40,800	0	40,800	40,800	0	40,800	40,800
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	40,800	40,800	0	81,600	81,600	0	81,600	81,600	0	81,600	81,600	0	81,600	81,600
Travel	(G)	0	12,000	12,000	0	12,000	12,000	0	12,000	12,000	0	12,000	12,000	0	12,000	12,000
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	254,800	254,800	0	295,600	295,600	0	295,600	295,600	0	295,600	295,600	0	295,600	295,600
FTE'S				0			0			0			0			0

(1) FY__ Column (c) for each Cost Code carried to Form3

State of Washington OITO cost Benefit and Feasibility Analysis   **1997-1999 Feasibility Study Guidelines**

Form 5/ Benefits Cash Flow Analysis   Agency: Washington State Patrol   Project Option: CVIEW
07-Jan-98
suggested Format

TANGIBLE BENEFITS	OFM Object Codes	FY 1998	FY 1999	FY 2000	BENEFITS FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TOTAL
Hard $												
Revenues (specify)	(revenue											0
Saftety citations	codes)	0	8,810	11,747	14,683	17,410	22,025	25,171	29,366	35,240	35,240	176,198
Traffic citations		0	4,905	6,540	8,175	9,693	12,262	14,014	16,350	19,620	19,620	98,099
Size/weight citations		0	9,067	12,090	15,112	17,919	22,668	25,907	30,225	36,270	36,270	181,348
												0
												0
Reimbursements (specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
Cost Reduction (specify) (1)												0
Data entry of Inspections		0	3,409	4,545	5,682	6,737	8,522	9,740	11,363	13,636	13,636	68,180
Report preparation		0	4,191	5,589	6,986	8,283	10,479	11,976	13,972	16,766	16,766	83,829
Redirected CVEOs		0	26,258	35,010	43,763	51,890	65,645	75,022	87,526	105,031	105,031	525,157
												0
												0
Other (specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
												0
Soft $												0
Cost Avoidance (specify)	(object codes)	0	0	0	0	0						0
Pavement/Bridge		0	30,923	41,230	51,538	61,109	77,306	88,350	103,075	123,690	123,690	618,450
												0
												0
												0
Other(specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
												0
												0
												0
TOTAL INFLOWS		0	87,563	116,751	116,751	145,938	173,041	218,908	250,180	291,877	350,252	1,751,260
CUMULATIVE BENEFIITS			87,863	204,314	321,064	467,003	640,044	858,951	1,109,131	1,401,008	1,751,260	
(1) Reflect all Cost Reduction Benefits except Operations reductions (which are reflected in Cost of Operations).												
(2) Total Inflows carries to Form1												

		Project Manager	System Architect range 62	Assistant range 58	System Support range 54	System Administrator range 54
Employee Salary	AA		$ 57,432	$ 52,044	$ 47,148	$ 47,148
Social Security/Medicare	BA		$ 3,561	$ 3,227	$ 2,923	$ 2,923
Retirement	BB		$ 4,376	$ 3,966	$ 3,593	$ 3,593
Industrial Insurance	BC		$ 30	$ 30	$ 30	$ 30
Health Insurance	BD		$ 315	$ 315	$ 315	$ 315
Medicare	BH		$ 833	$ 755	$ 684	$ 684
Supplies & Materials	EA	$ 4,000	$ 4,000	$ 4,000	$ 4,000	$ 4,000
Telephone & Postage	EB		$ 1,200	$ 1,200	$ 1,200	$ 1,200
Professional Development	EG		$ 3,000	$ 2,000	$ 5,000	$ 5,000
Personnel Services	EN	$ 200,000				
Subsistence & Lodging	GA	$ 5,000	$ 5,000	$ 5,000	$ 15,000	$ 5,000
Equipment [Capitalized]	JC	$ 8,000	$ 7,000	$ 7,000	$ 9,000	$ 7,000
Furnishing [non-capitalized]	JC	$ 1,000	$ 1,000	$ 1,000	$ 1,000	$ 1,000
Total Annual Costs		**$ 219,000**	**$ 87,000**	**$ 80,536**	**$ 89,892**	**$ 77,892**
Benefits	**B**	**$ -**	**$ 9,115**	**$ 8,292**	**$ 7,544**	**$ 7,544**
Other Object E		**$ 5,000**	**$ 8,200**	**$ 7,200**	**$ 10,200**	**$ 10,200**

Note: System Architect is salary range 62; Assistant and System Administrator are salary range 58; and System Support is salary range 54.
Project Manager is contracted.
Note: Project Manager is year 1 thought year 3; System Architecture is year 1 through 3; Project Assistant is year 1 through year 3; System Administrator is year 1 and out; System Support is year 3 and out

CVISN Project Infrastructure

Location	Part Number	Description	# of Units	Price ea.	Total		
Port of Entry		*Infrastructure Requirements*					
	Cisco 2513	Cisco 2513 Token ring/Ethernet/Dual Serial Router	1	$ 2,195	$ 2,195		
	SF25DS-11.1.13	IOS IP.Ix & IBM Feature Set	1	$ 1,900	$ 1,900		
	MEM2500-8U16F	8MB-to-16MB flash SIMM Upgrade	1	$ 700	$ 700		
	MEM-1x-16D	16MB DRAM SIMM	1	$ 1,000	$ 1,000		
	78620	Stand-alone Kentrox T1 DSU/CSU	2	$ 1,044	$ 2,088		
	78900	Adapter	2	$ 156	$ 312		
	93025-151	RJ48C to DS15S, 25ft.	2	$ 83	$ 166		
	3C16720	3Com OfficeConnect Hub	1	$ 619	$ 619		
	3C16730	3Com Office connect Switch 140	1	$ 748	$ 748		
	3C510511B	3Com SuperStack II Hub TR	1	$ 1,474	$ 1,474		
	LW007A	Black Box Wireless Ethernet Hub	1	$ 1,295	$ 1,295		
	LW006A	Black Box PCMCIA Wireless Adapter	6	$ 395	$ 2,370		
	LW0011A	Black Box Lightning Arrestor	1	$ 225	$ 225		
	LW014	Black Box Lightning Arrestor	1	$ 195	$ 195		
		Misc. costs (cable, connectors, raceway, etc.)	1	$ 1,500	$ 1,500		
		T1 Installation fee	1	$ 2,500	$ 2,500		
		equipment total				$	**16,790**
		tax	*8.2%*			*$*	*1,380*
		Subtotal				$	**18,170**
		Desktop Computers					
		Standard Office Package Desktop Computer	1	$ 6,800	$ 6,800		
		equipment total				$	**6,800**
		tax				*$*	*560*
		Subtotal				$	**7,360**
		Portable Computers					
		Computer	2	$ 9,000	$ 18,000		
		Port Replicator	2	$ 300	$ 600		
		Keyboard	2	$ 175	$ 350		
		Mouse	2	$ 75	$ 150		
		Mouse Pad	2	$ 20	$ 20		
		AC Adapter	2	$ 40	$ 80		
		equipment total				$	**19,220**
		tax				*$*	*1,580*
		Subtotal				$	**20,800**
		Server					
		Compaq Server w/software	1	$ 30,000	$ 30,000		
		equipment total				$	**30,000**
		tax				*$*	*2,460*
		Subtotal				$	**32,460**
		Software					
		ROC Software	1	$ -	$ -		
		Safevue Software	1	$ -	$ -		
		equipment total				$	**-**
		Misc Hardware/Software					
		Windows Training Workbooks	2	$ 30	$ 60		
		Excel Training Workbooks	2	$ 40	$ 80		
		Mail Training Workbooks	2	$ 15	$ 30		
		Word Training Workbooks	2	$ 40	$ 80		
		Printers	2	$ 2,200	$ 4,400		
		Printer Network Interface	2	$ 500	$ 500		
		equipment total				$	**5,650**
		tax				*$*	*470*
		Subtotal				$	**6,120**

Location	Part Number	Description	# of Units	Price ea.	Total	
Tumwater (ISD)		***Infrastructure Requirements***				
	Cisco 7513/4x2	Cisco 7513 13 Slot, 2 CyBus, 2 RSP4, Dual Power S	1	$ 49,000	$ 49,000	
	SF75DSV-11.1.13	RSP1, RSP2, RSP7000 IOS IP/IPX, IBM & Basic VIP	1	$ 5,000	$ 5,000	
	FR-WPP75	WAN Packet Protocols	1	$ 5,000	$ 5,000	
	MEM-RSP4-256M	RSP4 256MB DRAM Option	2	$ 13,300	$ 26,600	
	MEM-RSP4-FLC2	RSP4 Flash Card: 20MB Option	2	$ 200	$ 400	
	CX-TRIP4	Four Port Token Ring I/F Processor	1	$ 18,000	$ 18,000	
	CX-SSIP8	8 Port Standard Serial I/F Processor	2	$ 9,000	$ 19,800	
	CAB-V35MT	Male DTE V35 Cable, 10ft	8	$ 100	$ 800	
	78620	Stand-Alone Kentrox T1 DSU/CSU	8	$ 1,044	$ 8,352	
	78900	Adapter	8	$ 156	$ 1,248	
	93025-151	RJ48C to DS 15S, 25ft.	8	$ 1,500	$ 1,500	
		Misc. costs (cable, connectors, raceway, etc.)	1	$ 1,500	$ 1,500	
		equipment total				$ 137,270
		tax				*$ 11,260*
		Subtotal				$ 148,530
		Server				
		Compaq Server	1	$ 30,000	$ 30,000	
		equipment total				$ 30,000
		tax				*$ 2,460*
		Subtotal				$ 32,460
		SAFER Connectivity				
		CVIEW/SAFER Connection Installation	1	$ 5,000	$ 5,000	
		CVIEW/SAFER connection Recurring	monthly	$ 2,664	$ 31,968	
		equipment total				$ 32,000
		tax				*$ 2,630*
		Subtotal				$ 34,630
Generic District Office		***Infrastructure Requirements***				
	Cisco 75057/4X2	Cisco 7507 7 Slot, 2 CyBus, 2 RSP$, Dual Power Su	1	$ 40,900	$ 40,900	
	SF75DSV-11.1.13	RSP1, RSP2, RSP7000 IOS IP/IPX, IBM & Basic VIP	1	$ 5,000	$ 5,000	
	FR-WPP-75	WAN Packet Protocols	1	$ 5,000	$ 5,000	
	MEM-RSP4-256M	RSP4 256MB DRAM Option	2	$ 13,000	$ 26,600	
	MEM-RSP4-FLC2	RSP4 Flash Card: 20MB Option	2	$ 200	$ 400	
	CX-TRIP4	Four Port Token Ring I/F Processor	1	$ 18,000	$ 18,000	
	CX-SSIP8	8 Port Standard Serial I/F Processor	1	$ 9,900	$ 9,900	
	CAB-V35MT	Male DTE V35 Cable, 10ft	1	$ 100	$ 100	
	78620	Stand-Alone Kentrox T1 DSU/CSU	1	$ 1,044	$ 1,044	
	78900	Adapter	1	$ 156	$ 156	
	93025-151	RJ48C to DS 15S, 25ft.	1	$ 83	$ 83	
		Misc. costs (cable, connectors, raceway, etc.)	1	$ 1,500	$ 1,500	
		equipment total				$ 108,683
		tax				*$ 8,920*
		Subtotal				$ 117,610
	Object EB	T1 Communication line	month	500	6000	
						$ 6,000
	Object EB	T1 Communication line - district/center	month	$ 250	3000	
						$ 3,000

State of Washington OITO cost Benefit and Feasibility analysis   **1997-1999 Feasibility Study Guidelines**

Form 1/Summary. Cost Benefit and Cash Flow Analysis   Agency: <u>Washington State Patrol</u>   Project Option: <u>SNOOPI</u>
07-Jan-98

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GAND TOTAL
TOTAL OUTFLOWS	316,000	190,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	770,000
TOTAL INFLOWS	33,350	153,200	153,200	153,200	153,200	153,200	153,200	153,200	153,200	153,200	1,412,150
NET CASH FLOW	(282,650)	(36,800)	120,200	120,200	120,200	120,200	120,200	120,200	120,200	120,200	
INCREMENTAL NPV	NA	(303,693)	(198,815)	(98,596)	(2,831)	88,679	176,123	259,682	339,527	415,825	
Cumulative Costs	NA	506,000	539,000	572,000	605,000	638,000	671,000	704,000	737,000	770,000	
Cumulative Benefits	NA	186,550	339,750	492,950	646,150	799,350	952,550	1,105,750	1,258,950	1,412,150	

Cost of Capital	Breakeven Non-Discounted	Period - yrs. Discounted	NPV $	IRR%
4.65%			415,825	25.74%

    * - "non-Discounted" represents breakeven periods for
       cumulative costs and benefits (no consideration of time value of time value of money)
    ** - "Discounted" considers effect of time value of money through incremental Net Present Value

FORM 1   SNOOPI.xls

Form 2/ Project Detail Cost Flow Analysis
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Agency Washington State Patrol   Project Option   SNOOPI

FISCAL COSTS, PROJECT DEVELOPMENT	OFM Object Codes	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
						DEVELOPMENT PHASES						
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	251,000	175,000	0	0	0	0	0	0	0	0	426,000
Communlcatlons	(EB)	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgra	(EE)	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	65,000	0	0	0	0	0	0	0	0	0	65,000
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase -Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase-Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL DEVELOPMENT			316,000	175,000	0	0	0	0	0	0	0	0	491,000

'orm 3/ Summary, Operations Incremental Cost of Project   Agency   Washington State Patrol   **Project Option**   SNOOPI

7-Jan-98

OPERATIONS INCREMENTAL COSTS OF PROJECT (Per Form 4 - Column C)		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	15,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	279,000
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgr	(EE)	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Net Listed	(E)	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalize	(JC)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATIONS		0	15,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	279,000
TOTAL OUTFLOWS		316,000	190,000	33,000	33,000	33,000	33,000	33,000	33,000	33,000	33.000	770,000
CUMULATIVE COSTS			506,000	539,000	572,000	605,000	638,000	671,000	704,000	737,000	770,000	

(1) Total Outflows THE sum of Fiscal Total Operations and Total Development from Form 2
(2) Total Outflows carried to Formt

Form 4/ Current versus Proposed Method ⊃perations Costs

Agⱼcy Washington State Patrol   Project Option   SNOOPI

07-Jan-98
Suggested Format

OPERATIONS COSTS	Obj. Codes	FY 1998 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 1999 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2000 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2001 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2002 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	15,000		0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	15,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	0	0	0	15,000	15,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000
FTE's				0			0			0			0			0

OPERATIONS COSTS	Obj. Codes	FY 2003 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2004 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2005 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2006 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)	FY 2007 (a) Current	(b) Project	(c)=(b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	33,000	33,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000	0	33,000	33,000
FTE's				0			0			0			0			0

NOTE: Column (A) for each Cost Code carried to Form4

State of Washington OITO cost Benefit and Feasibility Analysis   **1997-1999 Feasibility Study Guidelines**

Form 5/ Benefits Cash Flow Analysis   Agency: <u>Washington State Patrol</u>   Project Option: <u>SNOOPI</u>
07-Jan-98
suggested Format

TANGIBLE BENEFITS	OFM Object Codes	FY 1998	FY 1999	FY 2000	BENEFITS FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TOTAL
Hard $												
Revenues (specify)	(revenue codes)	8,000	58,900	58,900	58,900	58,900	58,900	58,900	58,900	58,900	58,900	538,100
												0
												0
												0
												0
Reimbursements (specify)	(object codes)	0	0	0	0	0	0	0	0	0	0	0
												0
												0
												0
												0
												0
Cost Reduction (specify) (1)	object codes)	0	0	0	0	0	0	0	0	0	0	0
Labor Reduction	A	15,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	510,000
Reimbursement	S	0	0	0	0	0	0	0	0	0	0	0
Training	EG	0	0	0	0	0	0	0	0	0	0	0
												0
												0
Other (specify)	(object codes)	0	0	0	0	0	0	0	0	0	0	0
Reduced Fax Storage		450	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400	13,050
Reduced Storage Space		1,200	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	3,600	33,600
Automated Faxes		4,200	12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600	12,600	117,600
Automated Voice Mail		500	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	15,800
												0
Soft $												0
Cost Avoidance (specify)	(object codes)	4,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	0
Labor avoidance from												0
predetermined routs												0
Labor avoidance creating												0
advisory paperwork, and												0
distribution												0
Other(specify)	(object codes)	0	0	0	0	0	0	0	0	0	0	0
												0
												0
		33,500	153,200	153,200	153,200	153,000	153,200	153,200	153,200	153,200	153,200	1,412,150
CUMULATIVE BENEFIITS			186,550	339,750	492,950	646,150	799,350	952,550	1,105,750	1,258,950	1,412,150	

(1) Reflect all Cost Reduction Benefits except Operations reductions (which are reflected in Cost of Operations).
(2) Total Inflows carries to Form1

Development costs

Assigned	days	%	rate/day	Total
MIS Project Management	144	50%	280	20,160
Consultant Programmer	132	100%	808	106,656
Contracted Program Services	145	100%	850	123,250
				250,066

Maintenance costs

Contracted Program Services	15	100%	850	12,750
MIS Project Management	15	50%	280	2,100
				14,850

Routing Component	175,000

SNOOP1 Server

Hardware/software	60,000	
tax 8.2%	4920	
Total		64,920

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Form 1/Summary, Cost Benefit and Cash Flow Analysis   Agency   Washington State Patrol   Project Option   Credentialing

I-Jan-98

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
TOTAL OUTFLOWS	151,000	647,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	1,166,000
TOTAL INFLOWS	0	230,284	307,045	307,045	383,806	455,084	575,710	657,954	767,613	921,135	4,605,676
NET CASH FLOW	(151,000)	(416,716)	261,045	261,045	337,806	409,084	529,710	611,954	721,613	875,135	
INCREMENTAL NPV	NA	(524,797)	(297,026)	(79,376)	189,760	501,202	886,559	1,311,966	1,791,314	2,346,813	
Cumulative Costs	NA	798,000	844,000	890,000	936,000	982,000	1,028,000	1,074,000	1,120,000	1,166,000	
Cumulative Benefits	NA	230,284	537,329	844,374	1,228,181	1,683,264	2,258,974	2,916,928	3,684,541	4,605,676	

Cost of Capital	Breakeven Period - yrs		NPV - $	IRR %
	Non-Discounted	Discounted		
4.65%			2,346,813	51.71%

- -"Non-Discounted" represents breakeven period for cumulative costs and benefits (no consideration of time value of money).
- -"Discounted" considers effect of time value of money through incremental Net Present Value.

Benefits													
	# 8	0	77209	102945	102945	128662	152579	193022	220597	257363	306636	1544178	154417
	#9	0	20979	27072	27972	34965	41450	52446	59940	69930	93916	419560	41958
	# 14	0	77700	103610	103610	129513	153565	194269	222021	259025	310630	1554150	155415
	# 15	0	51206	66278	66276	05347	101197	126020	146309	170694	204633	1024163	102416
	# 16	0	3160	4240	4240	5301	6265	7951	9097	10601	12721	63606	63606
	Total	0	230284	307045	307045	383806	455084	575710	657954	767613	921135	4605677	

Form 2/ Project Detail Cost Flow Analysis   Agency   <u>Washington State Patrol</u>   Project Option   <u>Credentialing</u>

07-Jan-98
Suggested Format

FISCAL COSTS, PROJECT DEVELOPMENT	OFM Object Codes	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	617,000	0	0	0	0	0	0	0	0	617,000
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgra DP Goods/Services	(EE)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(EL)	0	0	0	0	0	0	0	0	0	0	0
Travel	(E)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(G)	30,000	30,000	0	0	0	0	0	0	0	0	60,000
Software Purchase Capitalized	(JC)	121,000	0	0	0	0	0	0	0	0	0	121,000
Hardware Purchase - Non. Cap	(JC)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	(P)	0	0	0	0	0	0	0	0	0	0	0
	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL DEVELOPMENT			151,000	647,000	0	0	0	0	0	0	0	0	798,000

(Header spanning "DEVELOPMENT PHASES" over FY 2001, FY 2002, FY 2003 columns)

State of Washington OITO Cost Benefit and Feasibility Analysis   **1997-1999 Feasibility Guidelines**

Form 3/ Project Detail cost Flow Analysis   Agency   Washington State Patrol   Project Option Credentialing
07-Jan-98

		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
OPERATIONS INCREMENTAL COSTS OF PROJECT (Per Form 4 - Column C)												
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	368,000
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchases Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap.	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap.	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATIONS		0	0	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	368,000
TOTAL OUTFLOWS		151,000	647,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	46,000	1,166,00
TOTAL DEVELOPMENT			798,000	844,000	890,000	936,000	982,000	1,028,000	1,074,000	1,120,000	1,166,000	

FORM3   credentll.xls

Form 4/ Current versus Proposed Method Operations Costs

07-Jan-98
Suggested Format

Agency Washington State Patrol

Project Option Credentialing

OPERATIONS COSTS	Obj. Codes	FY 1998 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 1999 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2000 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2001 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2002 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	0	0	0	0	0	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000
FTE'S				0			0			0			0			0

OPERATIONS COSTS	Obj. Codes	FY 2003 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2004 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2005 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2006 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2007 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000
DIS Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	46,000	46,000	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000	0	46,000	46,000
FTE'S				0			0			0			0			0

(1) FY___ Column (c) for each Cost Code carried to Form3

State of Washington OITO cost Benefit and Feasibility Analysis | **1997-1999 Feasibility Study Guidelines**

Form 5/ Benefits Cash Flow Analysis   Agency: Washington State Patrol   Project Option: CVIEW
07-Jan-98
suggested Format

TANGIBLE BENEFITS	OFM Object Codes	FY 1998	FY 1999	FY 2000	BENEFITS FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TOTAL
Hard $												
Revenues (specify)	(revenue											0
Saftety citations	codes)	0	8,810	11,747	14,683	17,410	22,025	25,171	29,366	35,240	35,240	176,198
Traffic citations		0	4,905	6,540	8,175	9,693	12,262	14,014	16,350	19,620	19,620	98,099
Size/weight citations		0	9,067	12,090	15,112	17,919	22,668	25,907	30,225	36,270	36,270	181,348
												0
												0
Reimbursements (specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
Cost Reduction (specify) (1)												0
Data entry of Inspections		0	3,409	4,545	5,682	6,737	8,522	9,740	11,363	13,636	13,636	68,180
Report preparation		0	4,191	5,589	6,986	8,283	10,479	11,976	13,972	16,766	16,766	83,829
Redirected CVEOs		0	26,258	35,010	43,763	51,890	65,645	75,022	87,526	105,031	105,031	525,157
												0
												0
Other (specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
												0
Soft $												0
Cost Avoidance (specify)	(object codes)	0	0	0	0	0						0
Pavement/Bridge		0	30,923	41,230	51,538	61,109	77,306	88,350	103,075	123,690	123,690	618,450
												0
												0
												0
Other(specify)	(object codes)	0	0	0	0	0						0
												0
												0
												0
												0
												0
												0
TOTAL INFLOWS		0	87,563	116,751	116,751	145,938	173,041	218,908	250,180	291,877	350,252	1,751,260
CUMULATIVE BENEFIITS			87,863	204,314	321,064	467,003	640,044	858,951	1,109,131	1,401,008	1,751,260	
(1) Reflect all Cost Reduction Benefits except Operations reductions (which are reflected in Cost of Operations).												
(2) Total Inflows carries to Form1												

FORM 5   CVIEW.xls

IRP Development	**56, 183**
Hardware/Software	**12, 375**
sub-total	**68, 558**
tax	**5, 622**
DOL managment	**13, 712**
Total	**87, 891**
IRP Maintenance	8,789
IFTA Development	**13, 845**
sub-total	**13, 845**
tax	**1, 135**
DOL management	2,769
Total	17,749
I FTA Maintenance	**1, 775**
Phase I - CI/CAT	**87, 620**
Phase II - Vista/RS	**50, 024**
Phase II - CI/CAT	**20, 280**
Phase III - EDI	**68, 276**
Phase lll - CI/CAT	**172, 380**
sub-total	398,580
tax	**32, 684**
DOL management	79,716
Total	510,980
Phase ll/lll hardware/software	110,000
sub-total	110,000
tax	9,020
DOL management	1,804
Total	120,824
Travel per year	30,000
Maintenance Phase	35,000

Form 1/ Summary, Cost Benefit and Cash Flow Analysis   Agency   Washington State Patrol   Project Option   ODOT Integration

7-Jan-98
Suggested Format

	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
TOTAL OUTFLOWS	153,000	31,800	31,800	0	0	0	0	0	0	0	216,600
TOTAL INFLOWS	0	0	0	0	0	0	0	0	0	0	0
NET CASH FLOW	(153,000)	(31,800)	(31,800)	0	0	0	0	0	0	0	
INCREMENTAL NPV	NA	(175,238)	(202,985)	(202,985)	(202,985)	(202,985)	(202,985)	(202,985)	(202,985)	(202,985)	
Cumulative Costs	NA	184,800	216,600	216,600	216,600	216,600	216,600	216,600	216,600	216,600	
Cumulative Benefits	NA	0	0	0	0	0	0	0	0	0	

Cost of Capital	Breakeven Period - yrs.		NPV $	IRR %
	Non Discounted	Discounted		
4.65%			(202,985)	#NUM!

- * "Non-Discounted" represents breakeven period for cumulative costs and benefits (no consideration of time value of money).
- 8 "Discounted considers effect of time value of money through incremental Nett Present Value.

Form 21 Project Detail Cost Flow Analysis   Agency Washington State Patrol   Project Option   ODOT Integration
7Jan-98

FISCAL COSTS, PROJECT DEVELOPMENT	OFM Object Codes	FY 1998	FY 1999	FY 2000	DEVELOPMENT PHASES FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	31,500	0	0	0	0	0	0	0	0	0	31,500
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgra	(EE)	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	2,500	0	0	0	0	0	0	0	0	0	2,500
Hardware Purchase Capitalized	(JC)	119,000	0	0	0	0	0	0	0	0	0	119,000
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase-Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase-Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL DEVELOPMENT			153,000	0	0	0	0	0	0	0	0	0	153,000

Form 3/ 07 Jan-98	Sum ary,Operations Increment al Co of Project			Agency		Washington State Patrol			Project Option		ODOT Integration	

OPERATIONS INCREMENTAL COSTS OF PROJECT (Per Form 4 - Column C)		FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	GRAND TOTAL
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	30,000	30,000	0	0	0	0	0	0	0	60,000
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgr	(EE)	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	,800	1,800	0	0	0	0	0	0	0	3,600
Hardware Purchase Capitalize	(JC)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATIONS		0	31,800	31,800	0	0	0	0	0	0	0	63,600
TOTAL OUTFLOWS		153,000	31,800	31,800	0	0	0	0	0	0	0	216,600
CUMULATIVE COSTS			184,800	216,600	216,600	216,600	216,600	216,600	216,600	216,600	216,600	

(1) Tot⁰ ˄utflows the sum of Fiscal Total ᵒpera ᵒn and Total Development from Form2.
(2) Tot⁼ utflows carried to Form1

Form 4/ Current versus Proposed Method Operations Costs   Agency Washington State Patrol   Project Option ODOT Integration

07-Jan-98
Suggested Format

OPERATIONS COSTS	Obj Codes	FY 1998 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 1999 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2000 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2001 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2002 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	30,000	30,000	0	30,000	30,000	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DP Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	1,800	1,800	0	1,800	1,800	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS					0	31,800	31,800	0	31,800	31,800	0	0	0	0	0	0
FTE'S						0			0			0			0	

OPERATIONS COSTS	Obj. Codes	FY 2003 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2004 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2005 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2006 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)	FY 2007 (a) Current	(b) Project	(c) = (b)-(a) Incremental Effect of Project (to summary)
Salaries and Wages	(A)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Employee Benefits	(B)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Personal Service Contracts	(CA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Communications	(EB)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Maintenance	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Rent/Lease	(ED)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Maintenance & Upgrade	(EE)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DIS Goods/Services	(EL)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Goods/Services Not Listed	(E)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel	(G)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase Capitalized	(JC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Purchase - Non. Cap	(KA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardware Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Software Lease/Purchase	(P)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other (specify)	( )	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL OPERATION COSTS		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FTE'S				0			0			0			0			0

(1) FY__ Column (c) for each Cost Code carried to Form3

Form 5/ Benefits Cash Flow Analysis   Agency   Washington State Patrol   Project Option   ODOT Integration
07-Jan-98
Suggested Format

					BENEFITS							
TANGIBLE BENEFITS	OFM Object Codes	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	TOTAL
Hard $												
Revenues (specify)	(revenue codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
												0
Reimbursements (specify)	(object codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
												0
Cost Reduction (specify) (1)	(object codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
												0
Other (specify)	(object codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
												0
Soft $												
Cost Avoidance (specify)	(object codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
												0
Other (specify)	(object codes)	0	0	0	0	0	0					0
												0
												0
												0
												0
TOTAL INFLOWS		0	0	0	0	0	0	0	0	0	0	0
CUMULATIVE BENEFITS			0	0	0	0	0	0	0	0	0	

(1) Reflect all Cost Reduction Benefits except Operations reductions (which are reflected in Cost of Operations).
(2) Total Inflows carries to Form1

Costs associated with Oregon Department
of Transportation system in Ridgefield POE
TI line *costs*

Installation	$1,500
Monthly	$2,500
annual	$30,000

Coordination travel

Development years	$2,500
Other years	$1,800

Project Module begins in FY 1998

ODOT items can be removed when Washington
is operating with CVIEW and SAFER in June 1999

Automatic Vehicle Identification equipment must be
in place to work with transponder equipped vehicles
that operate in Oregon

AVI System	49,500
Public Works Admin	4,000
project managemen	6,000
vehicle transponder	40,000
tax	8,159
contingency	10,766
AVI total	19,000