**Intelligent Transportation Systems (ITS)**
**Commercial Vehicle Operations (CVO)**

# CVISN Operational and Architectural Compatibility Handbook (COACH)

## Part 1

## Operational Concept and Top-Level Design Checklists

Baseline Version

POR-97-7067 V1.0

## This is a Baseline Issue

This document has completed internal and external reviews of previously published drafts and preliminary versions. All comments received to date have been incorporated or addressed.

**Note:** This document and other CVISN-related documentation are available for review and downloading by the ITS/CVO community from the JHU/APL CVISN site on the World Wide Web. The electronic version of the glossary features hypertext links to the definitions. All updates to this glossary will be maintained and published on that site; hardcopies of future versions will not be distributed. The URL for the CVISN site is: **http://www.jhuapl.edu/cvisn/**

Additional review and comments to this document are welcome.


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**Change Summary:**

Version V1.0 of the document incorporates revisions related to these change reports:

- 970116 (stakeholder view, system names, flows associated with inspection reporting)
- 970303 (capability names)
- 970307 (add intrastate vehicle registration where missing)
- 970312 - A baseline update of design drawings to incorporate comments received from stakeholders and the CVISN technical team. Additional top-level design information has also been added.
- 970710 - Change groupings on Stakeholder View; add Treasury
- CRF 220 - Change inspection reporting/retrieval paths & methods
- CRF 285 - Add WebCAT, remove Safety Information System; change CAT to Credentialing System (e.g., CAT)
- CRF 311 - Clarify ITS/CVO versus CVISN Architecture
- CRF 493 - Update COACH Part 1 Chapter 4
- CRF 356 - Modifies the way intrastate inspections are reported
- CRF 529 - Add Electronic Screening Enrollment to the design

- CRF 530 - Add Licensing & Insurance, RSPA HazMat, SSRS; remove UCR
- CRF 548 - Primary Carrier ID
- CRF 549 - Transponder ID
- CRF 564 – Update COACH Part 1 Chapters 1, 3, 5-8

# CVISN Operational and Architectural Compatibility Handbook (COACH)
# Part 1 - Operational Concept and Top-Level Design Checklists

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# 1. INTRODUCTION

The CVISN Operational and Architectural Compatibility Handbook (COACH) provides a comprehensive checklist of what is required to conform with the Commercial Vehicle Information Systems and Networks (CVISN) operational concepts and architecture. It is intended for use by state agencies with a motor carrier regulatory function and by motor carriers. It is also intended to provide a quick reference for developers of CVISN Core Infrastructure systems.

Reference 1, the CVISN Glossary, contains an acronym list as well as brief descriptions of many commonly used terms.

## 1.1 COACH Structure

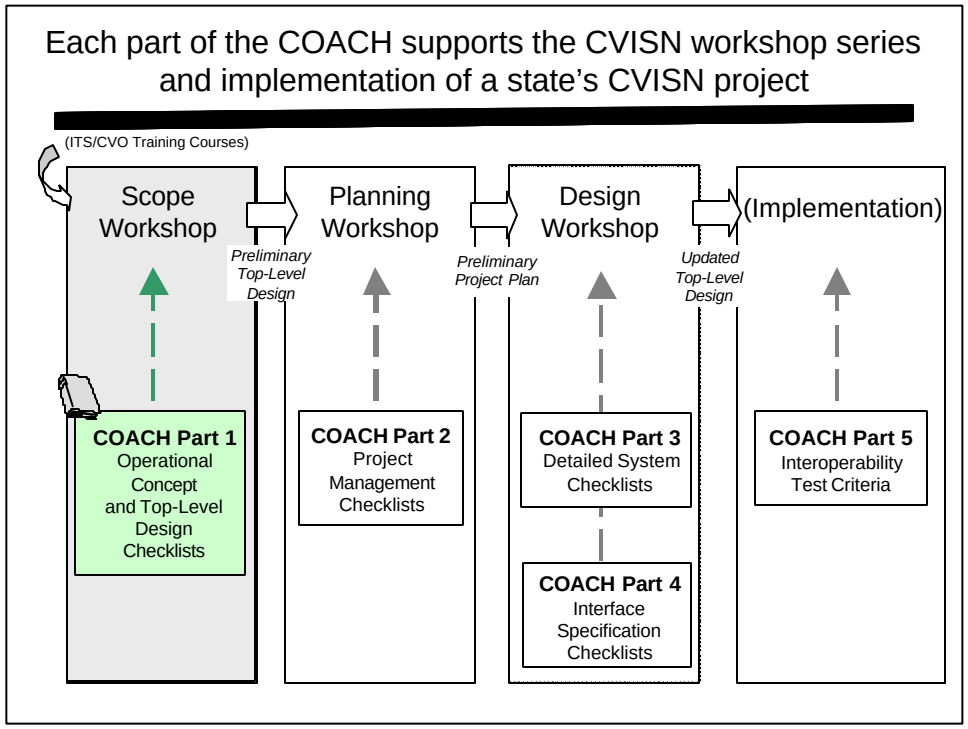
The COACH is divided into 5 parts:

**Part 1 - Operational Concept and Top-Level Design Checklists**

Part 2 - Project Management Checklists
Part 3 - Detailed System Checklists
Part 4 - Interface Specification Checklists
Part 5 - Interoperability Test Criteria

This is the third revision to the COACH Part 1 [see References 2 and 3 for earlier versions]. Parts 2 [Reference 4], and 5 [Reference 7] are available in preliminary form at the Browse and Download Documentation; Architecture section of the JHU/APL CVISN web site http://www.jhuapl.edu/cvo/. Initial versions of Parts 3 [Reference 5] and 4 [Reference 6] will be published in 1999.

**Figure 1.1-1 The COACH supports the workshops**



## 1.2 COACH Part 1 Description

This is Part 1. Part 1 includes several types of checklists related to operational concepts and top-level design:

- Guiding Principles: high level strategic guidelines [Chapter 2]
- Operational Concepts Checklists: compatibility requirements for processes [Chapter 3]
- State Institutional Framework Checklists: compatibility requirements for the policies and coordinating activities for states [Chapter 4]
- CVISN Top-level Design Checklists: top-level compatibility requirements for state and carrier system designs. For the CVISN Core Infrastructure systems, the checklists show the planned capabilities, and provide a place for states to indicate which capabilities they intend to utilize. [Chapters 5 , 6 and 7]

The COACH Part 1 checklists are intended to be used to indicate the scope and depth of CVISN commitment, and to provide a mechanism for planning development and test activities. Each state should maintain a filled-in master copy of the COACH.

## 1.3 COACH Heritage

The first versions of this part of the COACH [References 2 and 3] were derived from other CVISN technical documents:

- Introduction to CVISN [Reference 8]
- CVISN Operational Concept Document [Reference 9]
- CVISN Architecture Specification [Reference 10]
- CVISN System Design Description [Reference 11]

Only the last document in that list is still being maintained. The other documents have been replaced with some of the volumes in the CVISN Guide series. Technical guidance about CVISN is now provided in:

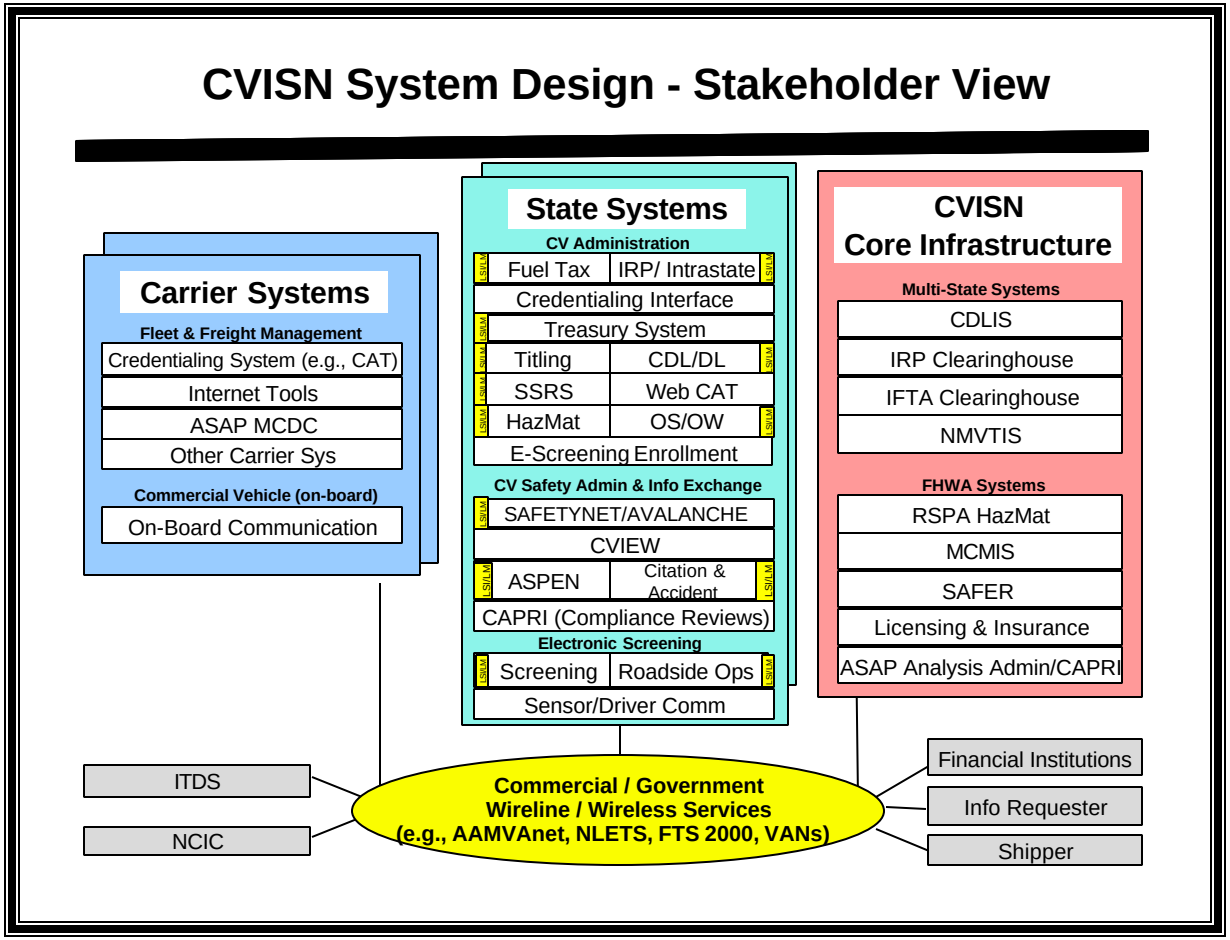
- The CVISN General and Technical Guides
  - Introductory Guide to CVISN [Reference 12]
  - CVISN Guide to Top-Level Design [Reference 13]
  - CVISN Guide to Safety Information Exchange [Reference 14]
  - CVISN Guide to Credentials Administration [Reference 15]
- CVISN Guide to Electronic Screening [Reference 16]

- Other volumes of the COACH [Reference 4-7]
- CVISN System Design Description [Reference 11]
- Electronic Data Interchange standards and implementation guides [References 25, 27-31]
- Dedicated Short-Range Communications standards [References 32-34]

## 1.4 CVISN System Design

The figure below depicts the CVISN System Design - Stakeholder View. Chapters 5, 6, and 7 of this document focus on the three major groups of systems (State, CVISN Core Infrastructure, Carrier). For a brief description of each system shown on this figure, see the CVISN System Design Description [Reference 11].

**Figure 1.4-1 CVISN System Design - Stakeholder View**



## 1.5 How States Should Use This Document

The COACH summarizes key concepts and architectural guidelines for CVISN. The COACH focuses on topics important to states. The COACH Part 1 defines the CVISN Level 1 criteria.

To gain a more complete understanding of CVISN, state planners and designers should read the Introductory Guide to CVISN [Reference 12], other parts of the COACH [References 4-7], and the CVISN System Design Description [Reference 11]. This version of the COACH Part 1 is intended to be a working document that is used for setting requirements for modifications and enhancements to existing state systems, and for planning the development of new systems in states. This document will be used first in the planned CVISN Scope workshop.

The key concepts and architectural guidelines for CVISN states have been summarized in this document in a series of checklist tables. Each table in this document consists of these columns, unless otherwise noted:

- Commit Level (F/P/N) – the state's commitment level to the item

  Using the first column of each checklist entry, a **commitment level should be filled in** by the state. There are three possible levels of commitment:

  (F) This rating indicates a full commitment. This level means that at least 80% of the state's systems involved in the process implied by the checklist item are compatible or are intended to be compatible with the checklist item statement.

  (P) This rating indicates a partial commitment. This level means that between 50% and 80% of the state's systems involved in the process implied by the checklist item are compatible or are intended to be compatible with the checklist item statement.

  (N) This rating indicates no commitment. This level means that less than 50% of the state's systems involved in the process implied by the checklist item are compatible or are intended to be compatible with the checklist item statement.

- Item # (chapters 5-7 only) – a label to identify each row in the table.

- Compatibility Criteria - summary versions of operational concepts or architectural guidelines, culled from other CVISN documentation. For CVISN Core Infrastructure systems in Chapter 7, this column is called Planned Capabilities.

- Req Level - the compatibility requirement level assigned to this compatibility criterion by the FHWA CVISN project team

  For a state to be "compatible with CVISN," it must implement selected items in the checklists. To distinguish those items, the CVISN project team has assigned a **compatibility requirement level** to each checklist item:

  (L1) This rating identifies a CVISN Level 1 compatibility requirement.

  (E) This rating indicates an enhanced level of CVISN capability. These items may require a little longer to complete (3-4 years).

  (C) This rating indicates a complete level of CVISN capability. Satisfying all these provides complete CVISN compatibility. These items are expected to require a longer-range (5 or more years) time frame.

  States are expected to focus initially on checklist items with an *L1* compatibility requirement level rating. Making a *partial commitment* indicates that the state will at least demonstrate the feasibility of that concept or architectural guideline. Making a *full commitment* indicates that the state will fully implement the concept or architectural guideline and be ready for the next steps.

- Op Test Date (chapter 5 only) - to be used for planning/tracking by the owner of a particular copy of the document; indicates when the criterion is to be (has been) operationally tested (op test); may refer to a milestone by name rather than a specific date; if plans change, this column should be updated accordingly

- IOC Date (chapter 5 only) - to be used for planning/tracking by the owner of a particular copy of the document; indicates when initial operating capability (IOC) for the criterion is to be (has been) achieved; may refer to a milestone by name rather than a specific date; if plans change, this column should be updated accordingly

- FOC Date (chapter 5 only) - to be used for planning/tracking by the owner of a particular copy of the document; indicates when final operating capability (FOC) for the criterion is to be (has been) achieved; may refer to a milestone by name rather than a specific date; if plans change, this column should be updated accordingly

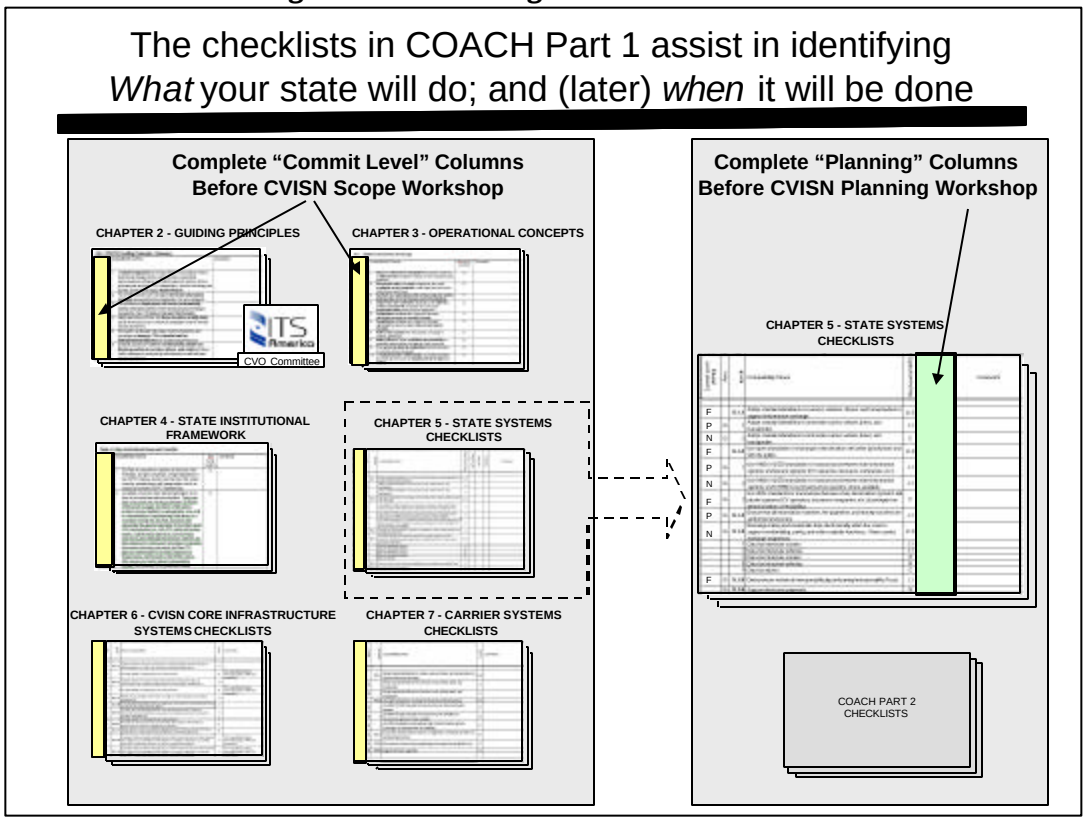
- Comments – available for the state to refer to another document or plan, note a question, record a clarifying comment, etc.

If the state maintains its master copy of this document electronically, the following conventions are recommended when filling in the columns to illustrate the "firmness" of the state's plan:

- *Italics type* : Tentative, not approved by the final decision makers
- Regular type : Approved by the decision makers (or supported by consensus)
- **Bold type** : Completed

States are to fill out the "Commit Level" column for the tables in chapters 2 (Guiding Principles), 3 (Operational Concepts), 4 (State Institutional Framework), 5 (State Systems Checklists), and 6 (CVISN Core Infrastructure Systems Checklists) prior to attending the CVISN Scope Workshop. Since the first workshop focuses on *what* the states will do rather than *when* those actions will be scheduled, it is not necessary to complete the planning columns (Op Test Date, IOC Date, FOC Date) for the CVISN Scope Workshop. The remainder of the tables will be completed as the project progresses.

**Figure 1.5-1 Using the COACH Part 1**



# 2. GUIDING PRINCIPLES

Statements of principle are being used to document fundamental concepts and guidelines supported by the CVO community. In addition to the specific checklists provided in subsequent sections, these guiding principles provide a top-level checklist of fundamental guidelines for all CVISN activities. CVO stakeholders should ensure that their actions are consistent with these principles. No planning columns are included in the tables for guiding principles since the principles provide guidance rather than specific details that can be scheduled or measured.

The guiding principles were developed under the auspices of the ITS America CVO Program Subcommittee [References 17, 18, 19]. These principles continue to be under review by ITS America and the US Department of Transportation. They will be updated as required to reflect the consensus of the CVO community. The current principles are copied verbatim into the tables in this chapter.

## 2.1 ITS/CVO Guiding Principles [Reference 17]

*"The ITS America CVO Committee presents this set of guiding principles which will guide the states and federal government on matters concerning technology and commercial vehicle operations. This list of 39 guiding principles was established by the CVO Programs Subcommittee with representation from National Private Truck Council, ATA, carriers, owner operators, motorcoach representation, UPS, several state administrative and regulatory agencies, AAMVA, AASHTO, and Canada. These principles took two years to create and 100% consensus was reached.*

### 2.1.1 ITS/CVO Guiding Principles : Summary

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. A **balanced approach** involving ITS/CVO technology as well as institutional changes will be used to achieve measurable improvements in efficiency and effectiveness for carriers, drivers, governments, and other CVO stakeholders. Specific technology and process choices will be largely **market-driven**. | |
| | 2. The CVISN architecture will enable **electronic information exchange** among authorized stakeholders via open standards. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 3. The architecture **deployment will evolve incrementally**, starting with legacy systems where practical and proceeding in manageable steps with **heavy end-user involvement**. | |
| | 4. Safety assurance activities will **focus resources on high risks**, and be structured so as to reduce the compliance costs of low-risk carriers and drivers. | |
| | 5. Information technology will support improved practices and procedures to **improve CVO credential and tax administration efficiency** for carriers and government. | |
| | 6. Roadside operations will **focus on eliminating unsafe and illegal operations by carriers, drivers, and vehicles** without undue hindrance to productivity and efficiency of safe and legal carriers and drivers. | |

### 2.1.2 ITS/CVO Guiding Principles: General CVO

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. To the extent possible, ITS/CVO technology development and deployment will be **market-driven**. The federal role in ITS deployment will be limited to instances in which a government role is indispensable and in which the technology is proven and reliable. | |
| | 2. **Investment and participation** in ITS/CVO technology will be **voluntary**. | |
| | 3. The relative benefits of various ITS/CVO technology applications and investments will be assessed quantitatively using **measures of effectiveness** and established methods of quality control. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 4. Potential ITS/CVO technology applications will be evaluated against regulatory choices involving low-technology and non-technological options to ensure applications are **cost-effective for both government and industry**. | |
| | 5. Government CVO policies and regulatory practices will permit safe and legal carriers and drivers to operate without **unnecessary regulatory and administrative burdens**. | |
| | 6. Stakeholders will use **technology and institutional reform** to implement continuous process improvement and cost-effective process re-engineering. | |
| | 7. The **confidentiality** of proprietary and other sensitive stakeholder information will be preserved. | |
| | 8. The United States CVO community will work to implement **compatible policies** and architecture and **interoperable systems** in all states. | |
| | 9. The United States CVO community will work with those in Canada, Mexico, and other nations to encourage **compatible policies** and architecture and to implement **interoperable systems** throughout North America and, when possible, worldwide. | |

### 2.1.3 ITS/CVO Guiding Principles: CVISN Architecture

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. The CVISN architecture will be **open**, modular, and adaptable. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 2. The architecture will enable **data exchange** among systems, a key to reaching CVO objectives. Methods used to exchange data will ensure **data integrity and prevent unauthorized access**. | |
| | 3. Data exchange will be achieved primarily via **common data definitions**, message formats, and communication protocols. These enable development of interoperable systems by independent parties. | |
| | 4. A jurisdiction shall have and maintain **ownership of any** data collected by any agent on its behalf. | |
| | 5. The architecture will accommodate **existing** and near-term **communications** technologies. | |
| | 6. The architecture will accommodate **proven technologies and legacy systems** whenever possible. | |
| | 7. The CVISN architecture will allow government and industry a **broad range of options**, open to competitive markets, in CVO technologies. | |

### 2.1.4 ITS/CVO Guiding Principles: CVISN Deployment

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. The feasibility of the **architecture will be demonstrated incrementally** in simulations, prototypes, operational tests, and pilots. There will be **heavy end-user involvement** in each step of the process. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 2. After feasibility has been demonstrated, key architectural elements will be incorporated into appropriate national and international **standards**. | |
| | 3. The architecture **deployment will evolve incrementally**, starting with legacy systems where practical and proceeding in manageable steps. | |
| | 4. **Strong federal leadership** will foster voluntary cooperative efforts within government jurisdictions and among groups of other stakeholders to develop systems which are in accord with the architecture. | |

### 2.1.5 ITS/CVO Guiding Principles: Safety Assurance

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. **Carriers and drivers will be responsible** for the safe and legal operation of commercial vehicles. | |
| | 2. Jurisdictions will develop and implement **uniform standards, practices, procedures, and education programs** to improve safety. These activities will leverage market forces that encourage safety. | |
| | 3. Jurisdictions **will focus** safety **enforcement** resources **on high risk** carriers and drivers. They will remove chronic poor performers from operation and help cooperative marginal performers to improve. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 4. Jurisdictions will conduct **inspections** and **audits** to provide **incentives** for carriers and drivers to improve poor performance and to collect information for assessing carrier and driver performance. | |
| | 5. Jurisdictions will use a **safety risk rating** for all carriers based on best available information and common criteria. | |
| | 6. Jurisdictions will identify **high risk drivers** based on best available information and common criteria. | |
| | 7. Safety programs will provide **benefits which exceed costs** for carriers and drivers as well as governments. | |

### 2.1.6 ITS/CVO Guiding Principles: Credentials & Tax

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. **Electronic information** will be used in place of paper documents for the administration of CVO credential and tax requirements. | |
| | 2. Authorized users will be able to electronically exchange credential and tax-related information and funds via **open standards** and transmission options. | |
| | 3. The information needed to administer tax and credential programs involving carriers, drivers, and vehicles will be **available to authorized officials**, on a need-to-know basis. | |
| | 4. Individual jurisdictions, or their designated agent, will be the **authoritative source** of information on credentials they issue. | |

### 2.1.7 ITS/CVO Guiding Principles: Roadside Operations

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | 1. Roadside operations will **focus on eliminating unsafe and illegal operations by carriers, drivers, and vehicles** and will be designed and administered to accomplish this in a manner that does not unduly hinder the productivity and efficiency of safe and legal motor carriers and drivers. | |
| | 2. Jurisdictions will support CVO roadside operations programs with **timely, current, accurate, and verifiable electronic information**, making it unnecessary for properly equipped vehicles to carry paper credentials." | |

## 2.2 Fair Information Principles for ITS/CVO [Reference 18]

"*These fair information principles were prepared in recognition of the importance of protecting individual privacy in implementing Intelligent Transportation Systems (ITS) for Commercial Vehicle Operations (CVO). They have been adopted by the ITS America CVO Technical Committee.*

*These principles represent values and are designed to be flexible and durable to accommodate a broad scope of technological, social, and cultural change. ITS America may, however, need to revisit them periodically to assure their applicability and effectiveness.*

*These principles are advisory, intended to educate and guide transportation professionals, policy-makers, and the public as they develop fair information and privacy guidelines for specific ITS/CVO projects. They are not intended to supersede existing statutes or regulations. Initiators of ITS/CVO projects are urged to publish the fair information principles that they intend to follow. Parties to ITS/CVO projects are urged to include enforceable provisions for safeguarding privacy in their contracts and agreements.*

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***FIP #1: Privacy***<br>The reasonable expectation of privacy regarding access to and use of personal information should be assured. The parties must be reasonable in collecting data and protecting the confidentiality of that data. | |
| | ***FIP #2: Integrity***<br>Information should be protected from improper alteration or improper destruction. | |
| | ***FIP #3: Quality***<br>Information shall be accurate, up-to-date, and relevant for the purposes for which it is provided and used. | |
| | ***FIP #4: Minimization***<br>Only the minimum amount of relevant information necessary for ITS applications shall be collected; data shall be retained for the minimum possible amount of time. | |
| | ***FIP #5: Accountability***<br>Access to data shall be controlled and tracked; civil and criminal sanctions should be imposed for improper access, manipulation, or disclosure, as well as for knowledge of such actions by others. | |
| | ***FIP #6: Visibility***<br>There shall be disclosure to the information providers of what data are being collected, how they are collected, who has access to the data, and how the data will be used. | |
| | ***FIP #7: Anonymity***<br>Data shall not be collected with individual driver identifying information, to the extent possible. | |
| | ***FIP #8: Design***<br>Security should be designed into systems from the beginning, at a system architecture level. | |
| | ***FIP #9: Technology***<br>Data encryption and other security technologies shall be used to make data worthless to unauthorized users. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***FIP #10: Use***<br>Data collected through ITS applications should be used only for the purposes that were publicly disclosed. | |
| | ***FIP #11: Secondary Use***<br>Data collected by the private sector for its own purposes through a voluntary investment in technology should not be used for enforcement purposes without the carrier's consent." | |

## 2.3 ITS/CVO Interoperability Guiding Principles [Reference 19]

*"These interoperability guiding principles were prepared in recognition of the importance of promoting interoperability in the implementation of Intelligent Transportation Systems (ITS) for Commercial Vehicle Operations (CVO). They have been adopted by the ITS America CVO Technical Committee.*

*These principles represent values and are designed to be flexible and durable to accommodate a broad scope of technological, social, and cultural change. ITS America may, however, need to revisit them periodically to assure their applicability and effectiveness.*

*These principles are advisory, intended to educate and guide transportation professionals, policy-makers, and the public as they develop interoperability guidelines for specific ITS/CVO projects. They are not intended to supersede existing statutes or regulations. Initiators of ITS/CVO projects are urged to publish the interoperability principles that they intend to follow. Parties to ITS/CVO projects are urged to include enforceable provisions for assuring interoperability in their contracts and agreements.*

### 2.3.1 ITS/CVO Interoperability Guiding Principles: General

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #1***<br>The CVO community will work to implement interoperable ITS/CVO systems in all United States jurisdictions. | |
| | ***IGP #2***<br>The CVO community will work with the CVO communities in Canada and Mexico to implement interoperable ITS/CVO systems throughout North America. | |
| | ***IGP #3***<br>The CVO community will work to ensure that ITS/CVO systems, where appropriate, are interoperable with other ITS systems (e.g., electronic toll systems). | |
| | ***IGP #4***<br>Interoperable ITS/CVO systems will be achieved through the development, adoption, and adherence to common standards for hardware, systems/software, operations, and program administration. | |
| | ***IGP #5***<br>Each jurisdiction will support the national ITS/CVO information system architecture and data exchange standards developed under the Commercial Vehicle Information Systems and Networks (CVISN) program. | |
| | ***IGP #6***<br>Transponders shall have a unique identifier. | |
| | ***IGP #7***<br>Information systems supporting electronic screening, credentials administration, and safety assurance will use:<br>7a. US DOT numbers for the identification of both interstate and intrastate motor carriers.<br>7b. Commercial Drivers License (CDL) numbers for the identification of commercial drivers.<br>7c. Vehicle Identification Numbers (VIN) and license plate numbers for the identification of power units. | |

### 2.3.2 ITS/CVO Interoperability Guiding Principles: Hardware

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #8***<br>Commercial vehicle operators will be able to use one transponder for power unit-to-roadside communications in support of multiple applications including electronic screening, safety assurance, fleet and asset management, tolls, parking, and other transaction processes. | |
| | ***IGP #9***<br>Public and public-private DSRC applications will support open standards that are consistent with the national ITS architecture. | |

### 2.3.3 ITS/CVO Interoperability Guiding Principles: Systems/Software

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #10***<br>Public and public-private organizations will support open data exchange standards for the state-state, state-federal, state-provincial, and carrier-agency exchange of safety and credentials information as described in the national ITS architecture. | |

### 2.3.4 ITS/CVO Interoperability Guiding Principles: Operations

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #11***<br>Jurisdictions will support common standards for placement of DSRC transponders on trucks and buses to ensure the safe and cost-effective use of transponders. | |
| | ***IGP #12***<br>Jurisdictions will support a common set of recommended practices concerning the selection, layout, and signage of roadside screening sites (i.e., weigh stations, ports-of-entry, international border crossings, and temporary inspection sites) to ensure safe operations. | |
| | ***IGP #13***<br>Jurisdictions will support a common performance standard for roadside electronic enforcement screening and passage of transponder-equipped motor carriers to ensure equity in enforcement. | |
| | ***IGP #14***<br>Roadside electronic enforcement screening criteria will include the following: motor carriers must be enrolled in the jurisdiction's program; must meet the jurisdiction's enrollment criteria; and must meet all legal requirements established by the jurisdiction. | |
| | ***IGP #15***<br>Jurisdictions will support quarterly reviews of carrier qualifications to ensure that the standards evolve to meet the changing needs of government and motor carriers. | |
| | ***IGP #16***<br>A jurisdiction will not retain the identification codes or other data from the DSRC transponders of passing motor carriers who are not enrolled in the jurisdiction's program. | |
| | ***IGP #17***<br>Jurisdictions will support a common performance standard for selection of vehicles and drivers for roadside safety inspection. | |

| Commit Level (F/P/N) | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #18***<br>Jurisdictions will support a common performance standard for recording and reporting roadside safety inspection results. | |
| | ***IGP #19***<br>Jurisdictions will support a common performance standard for reconciling disputed roadside safety inspection results. | |

### 2.3.5 ITS/CVO Interoperability Guiding Principles: Program

| Commit Level (F/P/N | Compatibility Criteria | Comments |
|---|---|---|
| | ***IGP #20***<br>Motor carrier participation in ITS/CVO roadside electronic screening programs will be voluntary; motor carriers will not be required to purchase or operate DSRC transponders. | |
| | ***IGP #21***<br>Motor carriers will have the option of enrolling in any ITS/CVO roadside electronic screening program. | |
| | ***IGP #22***<br>Jurisdictions will support uniform criteria for enrollment of motor carriers in ITS/CVO roadside screening programs. | |
| | ***IGP #23***<br>Enrollment criteria will include consideration of safety performance and credentials status (e.g., registration, fuel and highway use taxes, and insurance). | |
| | ***IGP #24***<br>No jurisdiction will be required to enroll motor carriers that do not meet the criteria for enrollment. | |

| | | |
|---|---|---|
| | ***IGP #25***<br>Motor carriers may obtain a DSRC transponder from the enrolling jurisdiction or a compatible DSRC transponder from an independent equipment vendor of the motor carrier's choice. | |
| | ***IGP #26***<br>Each jurisdiction will determine the price and payment procedures, if any, for motor carriers to enroll and participate in its ITS/CVO electronic screening program. | |
| | ***IGP #27***<br>Jurisdictions shall work to establish business interoperability agreements among roadside electronic screening programs. | |
| Commit Level (F/P/N | Compatibility Criteria | Comments |
| | ***IGP #28***<br>A jurisdiction will make a motor carrier's DSRC transponder unique identifier available to another jurisdiction upon written request and authorization by the motor carrier. | |
| | ***IGP #29***<br>Jurisdictions will work toward development of a single point of contact for motor carriers enrolling in more than one ITS/CVO roadside screening program. | |
| | ***IGP #30***<br>Each jurisdiction will fully disclose and publish its practices and policies governing, at a minimum:<br>30a. Enrollment criteria;<br>30b. Transponder unique identifier standards;<br>30c. Price and payment procedures for transponders and services;<br>30d. Screening standards;<br>30e. Use of screening event data; and<br>30f. Business interoperability agreements with other programs." | |

Note: F – Full Commitment; P – Partial Commitment; N – No Commitment
L1 – CVISN Level 1; E – Enhanced Level of CVISN capability; C – Complete level of CVISN capability

Complete code descriptions are given in section 1.5.

# 3. OPERATIONAL CONCEPTS

The Operational Concepts in this chapter are organized into 4 groups: general, safety information exchange, credentials administration, electronic screening. Concepts in the "general" category apply to the other three. The concepts are based on an interpretation of the guiding principles and the state of existing and emerging technologies today. The elements in each table in this section were originally based on the *Key Operational Concepts* sections of the OCD [Reference 9]. Updated versions of the operational concepts are included in the CVISN Guide to Top-Level Design [Reference 13] and in the CVISN Guides to Safety Information Exchange, Credentials Administration, and Electronic Screening [References 14-16]. This version of the COACH reflects the updated concepts.

## 3.1 General

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 1. Good business processes can be enhanced through improved automated access to accurate information. | L1 | |
| | 2. Authoritative sources are responsible for maintaining accurate information. Each jurisdiction participating in ITS/CVO information exchange identifies the authoritative source for each data item. | L1 | |
| | 3. Sometimes it is practical for authoritative systems to authorize indirect sources to assist in the information exchange process. | L1 | |

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 4. To enable cross-referencing and standard look-ups in multiple information systems, a common scheme for identifying carriers must be adopted. The Primary Carrier ID should be used in interface agreements (open standards, Internet-based exchanges, and custom interface agreements) to facilitate the exchange of carrier information. How the ID is stored internally outside the interface is up to the system implementers. The ID should be based on the USDOT number for both interstate and intrastate carriers. If it is not feasible for the state to use USDOT number as the ID type for all intrastate carriers, then the state should establish some convention for the Primary Carrier ID that will apply to all intrastate carriers in that state. | L1 – interstate<br>C – intrastate | |
| | 5. To enable cross-referencing and standard look-ups in multiple information systems, a common scheme for identifying drivers must be adopted for interstate and intrastate operators. The Commercial Drivers License (CDL) number should be the basis of the Driver ID. | L1 | |
| | 6. To enable cross-referencing and standard look-ups in multiple information systems, a common scheme for identifying vehicles must be adopted for interstate and intrastate operators. The Vehicle Identification Numbers (VIN) and jurisdiction plus license plate numbers should be the bases for the identification of power units. | L1 | |
| | 7. To enable cross-referencing and standard look-ups in multiple information systems, a common scheme for identifying international trips must be adopted. The Trip/Load number consisting of DUNS and trip-specific ID should be the basis for identifying international trips. | E | |

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 8. Standard information exchange is supported via carrier and vehicle (and eventually driver) snapshots. | L1 – carrier & vehicle<br>C – driver | |
| | 9. Flexible implementation/deployment options are accommodated by the ITS/CVO architecture. As technology changes, so will the architecture. | L1 | |
| | 10. Open standards are used for interchanges between public and private systems. In particular, ANSI ASC X12 EDI transactions are used for carrier-state and state-core infrastructure information systems' interactions. DSRC standards for the messages, data link, and physical layers are used for vehicle-roadside interactions. | L1 | |
| | 11. Enhanced data exchange will allow all activities to focus resources on high risk operators. | L1 | |
| | 12. Interoperability is assured by a process of architecture conformance checks throughout a project's lifecycle, culminating in execution of standardized interoperability tests. If a tested system is changed, the interoperability tests are re-run as part of the re-validation process. | L1 | |
| | 13. The Fair Information Principles for ITS/CVO will be implemented using a combination of policies, procedures, technology, and training. Stakeholders will be included in the discussions of the techniques to be used to implement the principles. | L1 | |
| | 14. Citations are based on a review of real-time conditions and checks with authoritative sources. | L1 | |

## 3.2 Safety Information Exchange

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 1. Data are collected to quantify the primary measures of effectiveness related to safety of CVO (accidents and fatalities). | L1 | |
| | 2. Electronic safety records (snapshots) are made available at the roadside to aid inspectors and other enforcement personnel. | L1 | |
| | 3. Inspectors use computer applications to capture, verify, and submit intrastate and interstate inspection data at the point of inspection. | L1 | |
| | 4. Safety data are made available electronically to qualified stakeholders. | L1 | |
| | 5. User access to data is controlled (restricted and/or monitored) where necessary. | L1 | |
| | 6. Mechanisms are made available for operators to dispute safety records held by government systems. | L1 | |
| | 7. Compliance reviews are supported through electronic access to government-held safety records. | E | |
| | 8. Safety risk ratings are determined according to uniform guidelines. | E | |
| | 9. Jurisdictions support a standard set of criteria for inspection selection. | E | |
| | 10. A comprehensive safety policy, including roadside and deskside activities, is implemented to improve safety. | C | |
| | 11. Carriers are associated with a base state for safety information record storage and credentialing. | C | |
| | 12. Compliance reviews are supported through electronic access to carrier-held records. | C | |

## 3.3 Credentials Administration

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 1. Credential applications and fuel tax returns are filed electronically from CVO stakeholder facilities. | L1 | |
| | 2. Internal state administrative processes are supported through electronic exchange of application data, safety records, carrier background data, and other government-held records. | L1 | |
| | 3. IRP and IFTA base state agreements are supported electronically. | L1 | |
| | 4. Credential and fuel tax payment status information for interstate operators are made available electronically nationally to qualified stakeholders. | L1 | |
| | 5. User access to data is controlled (restricted and/or monitored) where necessary. | L1 | |
| | 6. Mechanisms are made available for operators to dispute credentials records held by government systems. | L1 | |
| | 7. Fees and taxes are paid electronically. | E | |
| | 8. Electronic access to administrative processes and information is available from “one stop shops” in public sites. | E | |
| | 9. Credential and fuel tax payment status information for intrastate operators are made available electronically to qualified stakeholders throughout the state. | E | |
| | 10. Carrier audits are accomplished with electronic support. | C | |
| | 11. The “paperless vehicle” concept is supported, i.e. electronic records become primary and paper records become secondary. | C | |

## 3.4 Electronic Screening

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 1. Widespread participation in electronic screening programs is encouraged. | L1 | |
| | 2. Jurisdictions disclose practices related to electronic screening. | L1 | |
| | 3. Electronic screening is provided for vehicles equipped with FHWA-specified DSRC transponders. See Reference 35. | L1 | |
| | 4. Credentials and safety checks are conducted as part of the screening process. | L1 | |
| | 5. Fixed and/or mobile roadside check stations are employed for electronic clearance functions, according to the jurisdiction's needs and resources. | L1 | |
| | 6. Jurisdictions support a common set of screening criteria. | E | |
| | 7. Screening systems are interoperable with those in different jurisdictions. | E | |

Note: F – Full Commitment; P – Partial Commitment; N – No Commitment
L1 – CVISN Level 1; E – Enhanced Level of CVISN capability; C – Complete level of CVISN capability
Complete code descriptions are given in section 1.5.

# 4. STATE INSTITUTIONAL FRAMEWORK

The checklist in this section summarizes the institutional and business planning steps that states should take to become ready to implement the CVISN architecture and concepts. The checklist is based on the ideas outlined in the January 1999 letter from the Director, Office of Motor Carrier Safety & Technology on CVISN Workshops [Reference 23] and the CVISN Model Deployment Request for Information and Request for Application [References 21-22].

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**Table 4-1 State Institutional Framework Checklist**

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 1. The State is committed to complete the full cycle of the workshops, and upon completion, to begin deployment of the ITS/CVO systems and services that meet the unique economic, administrative, and transportation needs, as outlined in the State ITS/CVO Business Plan. | L1 | |
| | 2. A qualified core project team that will participate in all three of the workshops has been identified. This project team must include the following individuals: the State's CVISN project manager; the State's CVISN system architect; a project facilitator/administrator, who could be a representative of a participating State agency or a consultant working with the State; operations staff representing the agencies responsible for the State's major CVO functional areas (i.e., IRP, IFTA, safety information systems, roadside safety inspections, size and weight enforcement, and credentials enforcement); staff from the State department of information technology or comparable information technology units within the State CVO agencies; representative of the State Department of Transportation; representative of the FHWA Division office; and a motor carrier industry representative (invited). See Reference 23 for qualification details. | L1 | |

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 3. Appropriate and sufficient staff, equipment, and State and private funding are available to carry out the deployment of CVISN and ITS/CVO services. The CVISN project has sufficient priority (i.e., other higher-priority projects are not competing for the same resources). | L1 | |
| | 4. A State CVO strategic plan and/or business plan exists and has been accepted by the FHWA. It outlines the goals, strategies, anticipated benefits and costs, organization, projects, schedules, and resources relevant to achieving the envisioned CVO environment. | L1 | |
| | 5. A planning and coordination process exists which includes all State agencies involved in any aspect of motor carrier safety and regulation. | L1 | |
| | 6. The top executives and chief information systems managers of each involved agency have endorsed State CVO plans and given the CVISN project manager adequate authority. | L1 | |
| | 7. A process for resolution of conflicts among participating agencies exists. | L1 | |
| | 8. State agencies have a strong commitment to customer service and the ability to work with the motor carrier industry in their State. | L1 | |
| | 9. State agencies involve the motor carrier industry in the planning process. | L1 | |
| | 10. State agencies conduct education programs to improve the safety performance and regulatory compliance of motor carriers. | L1 | |
| | 11. State agencies provide periodic forums for obtaining suggestions and concerns from the motor carrier industry. | L1 | |

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 12. State agencies actively pursue opportunities for and implement business process reengineering projects. | L1 | |
| | 13. An e-mail system is available among agencies. | L1 | |
| | 14. At least key agency staff members have access to the Internet. | L1 | |
| | 15. The State has adopted an open standard (ANSI ASC X12, for example) for electronic data interchange with the public. | L1 | |
| | 16. The State's communications infrastructure is sufficiently developed to extend to the kinds of exchanges needed under the CVISN Architecture. | L1 | |
| | 17. There are no State legislative barriers relative to data privacy, physical signature requirements, data exchange among agencies, data exchange with other states, or other uses of information technology required to implement the CVISN concept of operations. | L1 | |
| | 18. The legislature provides adequate resources to support an active ITS/CVO program and deployment of the ITS/CVO services. | L1 | |
| | 19. The State participates in one or more regional CVO forums to assist in developing regional and national interoperable systems and compatible policies and procedures. | L1 | |
| | 20. The State is willing to provide timely, electronic information to the planned clearinghouses to support the base state agreements. | L1 | |

| Commit Level (F/P/N) | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|
| | 21. The project team has completed the ITS/CVO technical training courses. The first course, Introduction to ITS/CVO, is recommended for workshop participants but can be waived for personnel with prior ITS/CVO knowledge and experience. The second course, ITS/CVO Technical Project Management for Non-Technical Managers, and third course, Understanding ITS/CVO Technology Applications, are required for the personnel who will represent each State at the workshops. | L1 | |
| | 22. The State has identified and made adequate progress towards the resolution of any Y2K problems among CVO agencies. It is strongly recommended that States resolve any Year 2000 computer problems among CVO agencies before beginning the workshops. | L1 | |
| | 23. Effective procurement plans and processes are in place to acquire services and equipment needed to support the CVISN project, and the CVISN team is aware of constraints the processes impose. | L1 | |
| | 24. Effective subcontract management processes are in place and allow timely identification and resolution of performance problems. | L1 | |
| | 25. The CVISN team has a clear understanding of the State-specific requirements for information technology projects, e. g., whether or not a feasibility study is required. | L1 | |
| | 26. The CVISN team has a clear understanding of the State-specific budget cycles and is aware of constraints they impose. | L1 | |

Note: F – Full Commitment; P – Partial Commitment; N – No Commitment
L1 – CVISN Level 1; E – Enhanced Level of CVISN capability; C – Complete level of CVISN capability
Complete code descriptions are given in section 1.5.

# 5. STATE SYSTEMS CHECKLISTS

The checklists in this chapter provide top-level requirements for the design of state systems. The top-level requirements are divided into these categories:

- General
- CV Administration
- Safety Information Exchange and Safety Assurance
- Electronic Screening

## 5.1 General State Systems Design Requirements

The general state system design requirements apply to all state systems. They facilitate interoperability and the exchange of information within a single state, and across jurisdictions.

**Table 5-1 General State Systems Design Requirements Checklist**

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **5.1.1** | Adopt standard identifiers for carriers, vehicles, drivers, and transponders to support information exchange | L1 | | | | |
| | 1 | Adopt standard identifiers for interstate carrier, vehicle, driver, and transponder. | L1 | | | | |
| | 2 | Adopt standard identifiers for intrastate carrier, vehicle, driver, and transponder. | C | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | **5.1.2** | Use open standards for exchange of information with other jurisdictions and with the public. | L1 | | | | |
| | 1 | Use ANSI X12 EDI standards for transactions between state information systems and private systems (CV operators, insurance companies, etc.). | L1 | | | | |
| | 2 | Use ANSI X12 EDI standards for transactions between state information systems and CVISN Core Infrastructure systems, where available. | L1 | | | | |
| | 3 | Use XML standards for transactions between state information systems and private systems (CV operators, insurance companies, etc.) (contingent on demonstration of feasibility). | C | | | | |
| | **5.1.3** | Ensure that all information transfers, fee payments, and money transfers are authorized and secure. | L1 | | | | |
| | **5.1.4** | Exchange safety and credentials data electronically within the state to support credentialing, safety, and other roadside functions. Where useful, exchange snapshots. | L1 | | | | |
| | 1 | Data for interstate carriers | L1 | | | | |
| | 2 | Data for interstate vehicles | L1 | | | | |
| | 3 | Data for intrastate carriers | E | | | | |
| | 4 | Data for intrastate vehicles | E | | | | |
| | 5 | Data for drivers | C | | | | |
| | **5.1.5** | Demonstrate technical interoperability by performing Interoperability Tests. | L1 | | | | |
| | **5.1.6** | Support electronic payments. | E | | | | |

## 5.2 State Safety Information Exchange and Safety Assurance Systems Design Requirements

The state safety information exchange and safety assurance systems are likely to consist of:

- ASPEN
- SAFETYNET/AVALANCHE
- Citation & Accident
- CAPRI (Compliance Analysis Performance Review Information)
- CV Information Exchange Window (CVIEW)

The state CV safety information exchange and safety assurance systems will operate at one or more (generally) fixed locations within a state. The systems perform safety information exchange and safety assurance functions supporting safety regulations. States may form regional alliances to support these functions. Each state coordinates with other states, regional alliances, and CVISN Core Infrastructure systems to support nationwide access to safety information for administrative and enforcement functions.

### Table 5-2 State Safety Information Exchange and Safety Assurance Systems Design Requirements Checklist

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **5.2.1** | Use ASPEN (or equivalent) at all major inspection sites | L1 | | | | |
| | 1 | Select vehicles and drivers for inspection based on availability of inspector, standard inspection selection system, vehicle measures, and random process, as statutes permit. | L1 | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | 2 | Report interstate inspections to MCMIS via SAFETYNET | L1 | | | | |
| | 3 | Report intrastate inspections to SAFETYNET | L1 | | | | |
| | 4 | Submit interstate and intrastate inspections for 45-day storage to SAFER. | L1 | | | | |
| | 5 | Periodically check OOS orders issued in the state to focus enforcement and safety assurance activities. | E | | | | |
| | 6 | To assist in inspection, use DSRC to retrieve summary vehicle safety sensor data, if driver allows and vehicle is properly equipped. | C | | | | |
| | 7 | To assist in inspection, use DSRC to retrieve driver's daily log, if driver allows and vehicle is properly equipped. | C | | | | |
| | 8 | Use electronically-generated driver's daily log, if driver offers as an alternative to a manually-maintained log during an inspection. | C | | | | |
| | **5.2.2** | SAFETYNET 2000 submits interstate and intrastate inspections reports to SAFER. | L1 | | | | |
| | **5.2.3** | Use CAPRI (or equivalent) for compliance reviews. | L1 | | | | |
| | 1 | Report interstate compliance reviews to MCMIS via SAFETYNET | L1 | | | | |
| | **5.2.4** | Collect, store, analyze, and distribute citation data electronically. | C | | | | |
| | 1 | Report citations for interstate operators to MCMIS via SAFETYNET | L1 | | | | |
| | **5.2.5** | Collect, store, analyze, and distribute crash data electronically. | C | | | | |
| | 1 | Report interstate crashes as required to MCMIS via SAFETYNET | L1 | | | | |
| | **5.2.6** | Compute carrier safety risk rating for intrastate carriers based on safety data collected. | E | | | | |
| | **5.2.7** | Identify high risk drivers based in the state through regular performance evaluation of various factors such as license status, points, and inspections. | C | | | | |

## 5.3 State CV Administration Systems Design Requirements

The state CV administrative systems are likely to consist of:

- Interstate & Intrastate Vehicle Registration
- Fuel Tax Credentialing/Tax Return Processing
- Credentialing Interface
- Web CAT
- Carrier Registration (SSRS)
- Driver licensing
- Titling
- Treasury or Revenue
- HazMat Credentialing/Permitting
- Oversize/Overweight Permitting
- Electronic Screening Enrollment

These systems operate at one or more (generally) fixed locations within a state. The systems perform administrative functions supporting credentials and tax regulations. States may form regional alliances to support these functions. Each state coordinates with other states, regional alliances, and CVISN Core Infrastructure systems to support nationwide access to credentials information for administrative and enforcement functions.

### Table 5-3 State CV Administration Systems Design Requirements Checklist

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **5.3.1** | Support electronic credentialing (electronic submission of applications, evaluation, processing, and application response) for IRP using EDI standards. | L1 | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | **5.3.2** | Proactively provide updates to vehicle snapshots as needed when IRP credentials actions are taken, using EDI standards. | L1 | | | | |
| | 1 | Interface to SAFER for interstate vehicle snapshots, using EDI standards | L1 | | | | |
| | **5.3.3** | Proactively provide updates to carrier snapshots as needed when IRP credentials actions are taken, using EDI standards. | L1 | | | | |
| | 1 | Interface to SAFER for interstate carrier snapshots, using EDI standards | L1 | | | | |
| | **5.3.4** | Provide IRP Clearinghouse with IRP credential application information (recaps). | L1 | | | | |
| | 1 | Interface to IRP Clearinghouse using EDI standards. | E | | | | This capability is being investigated by an IRP CH committee. Change Request Form 313 in process. |
| | **5.3.5** | Review fees billed and/or collected by a jurisdiction and the portion due other jurisdictions (transmittals) as provided by the IRP Clearinghouse. | L1 | | | | |
| | 1 | Interface to IRP Clearinghouse using EDI standards. | L1 | | | | This capability is being investigated by an IRP CH committee. Change Request Form 313 in process. |
| | **5.3.6** | Support electronic state-to-state fee payments via IRP Clearinghouse | L1 | | | | |
| | **5.3.7** | Support electronic credentialing (electronic submission of applications, evaluation, processing, and application response) for IFTA registration using EDI standards. | L1 | | | | |
| | **5.3.8** | Proactively provide updates to carrier snapshots as needed when IFTA credentials actions are taken or tax payments are made, using EDI standards. | L1 | | | | |
| | 1 | Interface to SAFER for interstate carrier snapshots, using EDI standards | L1 | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | **5.3.9** | Provide IFTA Clearinghouse with IFTA credential application information using EDI standards. | L1 | | | | |
| | **5.3.10** | Support electronic tax filing for IFTA quarterly fuel tax returns using EDI standards. | L1 | | | | |
| | **5.3.11** | Provide information on taxes collected by own jurisdiction and the portion due other jurisdictions (transmittals) to the IFTA Clearinghouse using EDI standards. | L1 | | | | |
| | **5.3.12** | Download for automated review the demographic information from the IFTA Clearinghouse using EDI standards. | L1 | | | | |
| | **5.3.13** | Download for automated review the transmittal information from the IFTA Clearinghouse using EDI standards. | L1 | | | | |
| | **5.3.14** | Retrieve IFTA tax rate information electronically from IFTA, Inc. | L1 | | | | |
| | **5.3.15** | Support electronic credentialing (electronic submission of applications, evaluation, processing, and application response) for other credentials using EDI standards. | E | | | | |
| | 1 | Interstate carrier registration | E | | | | |
| | 2 | Intrastate carrier registration | E | | | | |
| | 3 | Vehicle title | E | | | | |
| | 4 | Intrastate vehicle registration | E | | | | |
| | 5 | HazMat credentialing/permitting, if such credentials/permits are required by state law. | E | | | | |
| | 6 | Oversize/overweight permitting. | E | | | | |
| | **5.3.16** | Proactively provide updates to vehicle snapshots as needed when credentials actions are taken, using EDI standards. | | | | | |
| | 1 | Vehicle title | E | | | | |
| | 2 | Intrastate vehicle registration | E | | | | |
| | 3 | Oversize/overweight permitting. | E | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | **5.3.17** | Proactively provide updates to carrier snapshots as needed when credentials actions are taken, using EDI standards. | E | | | | |
| | 1 | Interstate carrier registration | E | | | | |
| | 2 | Intrastate carrier registration | E | | | | |
| | 3 | HazMat credentialing/permitting, if such credentials/permits are required by state law. | E | | | | |
| | 4 | Oversize/overweight permitting. | E | | | | |
| | **5.3.18** | Record transponder number and default carrier ID for each vehicle that intends to participate in electronic screening. | E | | | | |
| | **5.3.19** | Collect from the registrant a list of jurisdictions in which the vehicle chooses to participate in electronic screening, and inform those jurisdictions. | E | | | | |
| | **5.3.20** | Allow CV operators, government-operated, or third party systems to submit one or more applications in a single transaction. | E | | | | |
| | **5.3.21** | Provide commercial driver information to other jurisdictions via CDLIS. | L1 | | | | |
| | **5.3.22** | Evaluate safety performance prior to issuing credentials (i.e. support PRISM processes or equivalent). | E | | | | |
| | **5.3.23** | Allow carriers to provide information for audits electronically. | C | | | | |
| | **5.3.24** | Provide titling information to other jurisdictions via NMVTIS. | C | | | | |
| | **5.3.25** | Provide revoked IFTA motor carrier information to other jurisdictions via STOLEN. | C | | | | |
| | **5.3.26** | Accept electronic credential and supporting electronic documentation, in lieu of paper versions. | C | | | | |
| | **5.3.27** | Proactively provide updates to driver snapshots as needed when credentials actions are taken, using EDI standards. | C | | | | |

## 5.4 State Electronic Screening Systems Design Requirements

The roadside systems consist of:

- Screening System
- Roadside Operations System
- Sensor/Driver Communications System

These roadside systems will operate at each fixed or mobile CV check station within a state. The systems perform roadside functions supporting automated carrier, vehicle, and driver identification and associated look-ups in infrastructure-supplied data for credentials and safety checks.

**Table 5-4 State Roadside Systems Design Requirements Checklist**

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | **5.4.1** | Follow FHWA guidelines for Dedicated Short Range Communications (DSRC) equipment. Details below extracted from Reference 35. | L1 | | | | |
| | 1 | "For the immediate future, all CVO and Border crossing projects will continue to utilize the current DSRC configuration employed by the programs. This is the "ASTM version 6" active tag. | L1 | | | | |
| | 2 | Beginning January 1, 2001, all CVO and Border Crossing projects will use an active configuration that is backward compatible with the current configuration and yet consists of the following: | E | | | | |
| | 2a | "ASTM version 6" defines the data link layer. | E | | | | |
| | 2b | The IEEE P1455 application layer standard and the ASTM 1 active physical layer standard will be implemented." | E | | | | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Op Test Date | IOC Date | FOC Date | Comments |
|---|---|---|---|---|---|---|---|
| | **5.4.2** | Use snapshots to support screening decisions. | L1 | | | | |
| | 1 | Carrier snapshots. | L1 | | | | |
| | 2 | Vehicle snapshots. | L1 | | | | |
| | 3 | Driver snapshots. | C | | | | |
| | **5.4.3** | Implement interoperability policies as they are developed by ITS America, the American Association of State Highway Transportation Officials, HELP, Inc., MAPS, Advantage CVO, I-95 Corridor Coalition, and the Commercial Vehicle Safety Alliance. | L1 | | | | |
| | 1 | See AASHTO's Commercial Vehicle Electronic Screening Interoperability Policy Resolution, PR-14-97, Reference 20. | L1 | | | | |
| | **5.4.4** | Provide electronic mainline or ramp screening for transponder-equipped vehicles, and clear for bypass if carrier & vehicle were properly identified and screening criteria were passed. | L1 | | | | |
| | 1 | For transponder-equipped vehicles, identify carrier at mainline or ramp speeds. | L1 | | | | |
| | 2 | For transponder-equipped vehicles, identify vehicle at mainline or ramp speeds. | L1 | | | | |
| | 3 | Use WIM or weight history at mainline speed or on the ramp in making screening decisions. | L1 | | | | |
| | 4 | Record screening event data. | E | | | | |
| | 5 | For transponder-equipped vehicles, identify driver at mainline or ramp speeds. | C | | | | |
| | **5.4.5** | Verify credentials/safety information with authoritative source prior to issuing citation. | L1 | | | | |
| | **5.4.6** | If a vehicle illegally bypasses or leaves the CV check station, alert law enforcement for possible apprehension. | C | | | | |
| | **5.4.7** | Report periodically to State safety information system on the activities conducted at each station (e.g. statistics). | C | | | | |

# 6. CVISN CORE INFRASTRUCTURE SYSTEMS CHECKLISTS

The checklists in this chapter provide top-level requirements for the design of CVISN Core Infrastructure systems. The top-level requirements are divided into these categories:

- General
- IRP Clearinghouse
- IFTA Clearinghouse
- SAFER
- CDLIS
- NMVTIS
- RSPA
- MCMIS
- Licensing & Insurance
- ASAP
- CAPRI

## 6.1 General CVISN Core Infrastructure Planned Capabilities

The general CVISN Core Infrastructure system design requirements apply to all CVISN Core Infrastructure systems. They facilitate interoperability and the exchange of information among states, and across functional boundaries.

**Table 6-1 General CVISN Core Infrastructure Planned Capabilities Checklist**

| Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **6.1.1** | Adopt standard identifiers for carriers, vehicles, drivers, and transponders to support information exchange | L1 | |
| | 1 | Adopt standard identifiers for interstate carrier, vehicle, driver, and transponder. | L1 | |
| | 2 | Adopt standard identifiers for intrastate carrier, vehicle, driver, and transponder. | C | |

| Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.1.2** | Use open standards for exchange of information with jurisdictions and with the public. | L1 | |
| | 1 | Use ANSI X12 EDI standards for transactions between CVISN Core Infrastructure systems and private systems (CV operators, insurance companies, etc.). | L1 | |
| | 2 | Use ANSI X12 EDI standards for transactions between state information systems and CVISN Core Infrastructure systems, where available. | L1 | |
| | 3 | Use XML standards for transactions between CVISN Core Infrastructure information systems and private systems (CV operators, insurance companies, etc.) (contingent on demonstration of feasibility). | C | |
| | **6.1.3** | Ensure that all information transfers, fee payments, and money transfers are authorized and secure. | L1 | |
| | **6.1.4** | Exchange safety and credentials data electronically with other CVISN Core Infrastructure to support credentialing, safety, and other roadside functions. Where useful, exchange snapshots. | L1 | |
| | 1 | Data for interstate carriers | L1 | |
| | 2 | Data for interstate vehicles | L1 | |
| | 3 | Data for intrastate carriers | E | |
| | 4 | Data for intrastate vehicles | E | |
| | 5 | Data for drivers | C | |
| | **6.1.5** | Demonstrate technical interoperability by performing Interoperability Tests. | L1 | |
| | **6.1.6** | Support electronic payments. | E | |

## 6.2 IRP Clearinghouse Planned Capabilities

The CVISN Core Infrastructure includes two different clearinghouses (IRP, IFTA). This section presents a checklist that applies to the IRP Clearinghouse.

### Table 6-2 IRP Clearinghouse Planned Capabilities Checklist

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **6.2.1** | Support electronic input of interstate credential application information (demographic and cab card data) from member jurisdictions. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | E | This capability is being investigated by an IRP CH committee. Change Request Form 313 in process. |
| | **6.2.2** | Support electronic input of fee allocation information (recaps), in association with credential applications, from member jurisdictions. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | E | This capability is being investigated by an IRP CH committee. Change Request Form 313 in process. |
| | **6.2.3** | Maintain accounting of fees due to, paid to, and received from member jurisdictions. | L1 | |
| | **6.2.4** | Periodically (monthly), initiate fee payment and transfers among jurisdictions via electronic funds transfer (EFT). | L1 | |

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.2.5** | Provide accounting information (e.g., netting summaries, financial information about vehicles, Canada-US exchange rates) electronically to member jurisdictions. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | This capability is being investigated by an IRP CH committee. Change Request Form 313 in process. |
| | **6.2.6** | Provide an optional service to determine allocation of fees/taxes to jurisdictions in which the applicant will operate. | C | |
| | **6.2.7** | Upon request, share credential application data from base state with other jurisdiction to audit financial reconciliation of credential/tax fees | E | |
| | **6.2.8** | If requested by a member jurisdiction, and with concurrence from the relevant base states, proactively provide updates to vehicle snapshots as needed when IRP credentials actions are taken, using EDI standards. | L1 | This capability is being investigated by an IRP CH committee. Change Request Form 312 in process. |
| | **6.2.9** | If requested by a member jurisdiction, and with concurrence from the relevant base states, proactively provide updates to carrier snapshots as needed when IRP credentials actions are taken, using EDI standards. | L1 | This capability is being investigated by an IRP CH committee. Change Request Form 312 in process. |

## 6.3 IFTA Clearinghouse Planned Capabilities

The CVISN Core Infrastructure includes two different clearinghouses (IRP, IFTA). This section presents a checklist that applies to the IFTA Clearinghouse.

### Table 6-3 IFTA Clearinghouse Planned Capabilities Checklist

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **6.3.1** | Support electronic input of interstate credential application information (demographic) from member jurisdictions. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.3.2** | Support electronic input of tax payment information (transmittals), in association with quarterly tax filings, from member jurisdictions. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.3.3** | Provide reports on demographic and transmittal information. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.3.4** | Upon request, share credential application data from base state with other jurisdiction to audit financial reconciliation of credential/tax fees | E | |
| | **6.3.5** | If requested by a member jurisdiction, and with concurrence from the relevant base states, proactively provide updates to carrier snapshots as needed when IFTA credentials and tax filing actions are taken, using EDI standards. | L1 | This capability is being investigated by an IFTA CH committee. |

## 6.4 SAFER Planned Capabilities

The Safety and Fitness Electronic Records (SAFER) system is under development. As capabilities are implemented, the version of the system is tested and made available for general use. The checklist shows general capabilities. For more details, see the SAFER build plans.

**Table 6-4 Information Storage and Exchange Systems Design Requirements Checklist**

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **6.4.1** | Maintain carrier and vehicle snapshots for interstate operators. | L1 | |
| | **6.4.2** | Accept inputs from authoritative sources for carrier and vehicle snapshots. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.4.3** | Provide snapshot subscription service to government users. | L1 | |
| | 1 | Proactively transmit updated snapshot segments to subscribers based on subscription criteria. | L1 | |
| | 2 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.4.4** | Upon request, retrieve existing snapshot(s) and transmit to requester. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |
| | **6.4.5** | Provide means for commercial vehicle operators to view data about themselves. | L1 | |
| | **6.4.6** | Facilitate the exchange of inspection reports. | L1 | |
| | 1 | Provide ANSI X12 EDI option for transactions. | L1 | |

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.4.7** | Provide inspection report subscription service for Law Enforcement. | L1 | |
| | **6.4.8** | Facilitate the exchange of crash data. | E | |
| | 1 | Provide open standard option for transactions. | E | |
| | **6.4.9** | Facilitate the exchange of citation data. | E | |
| | 1 | Provide open standard option for transactions. | E | |
| | **6.4.10** | Maintain driver snapshots. | C | |
| | **6.4.11** | Accept inputs from authoritative sources for driver snapshots. | C | |
| | 1 | Provide ANSI X12 EDI option for transactions. | C | |

## 6.5 CDLIS Planned Capabilities

The Commercial Driver License Information System (CDLIS) currently supports CVO by providing access to information about commercial drivers to authorized users.

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **6.5** | **CDLIS - existing system** | | |
| | **6.5.1** | Connect to SAFER so systems that access SAFER can also link to CDLIS. | L1 | |
| | | | | |

## 6.6 NMVTIS Planned Capabilities

The National Motor Vehicle Title Information System (NMVTIS) is a developing system. No specific changes are planned, although it is possible that access will be provided via SAFER in the future.

## 6.7 RSPA HazMat Planned Capabilities

The FHWA Research and Special Projects (RSPA) Hazardous Materials (HazMat) system registers carriers according to federal hazardous materials regulations. No specific changes are planned.

## 6.8 MCMIS Planned Capabilities

The Motor Carrier Management Information System (MCMIS) is the FHWA repository for inspection, compliance, crash, and citation data for interstate commercial vehicle operators. Some upgrades have been implemented to support CVISN concepts, such as linking MCMIS to SAFER. Further modernization is planned.

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.8** | **MCMIS - existing system** | | |
| | **6.8.1** | Provide safety information to SAFER for snapshots. | L1 | |
| | **6.8.2** | Provide safety information to users via SAFER Data Mailbox and MCMIS/SAFER Gateway. | L1 | |

## 6.9 Licensing & Insurance Planned Capabilities

The Licensing & Insurance system currently supports registering financial responsibility for interstate carriers according to Federal regulations. Some upgrades have been implemented to support CVISN concepts such as linking to SAFER. Further modernization is planned.

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.9** | **Licensing & Insurance - existing system** | | |
| | **6.9.1** | Provide licensing & insurance information to SAFER for snapshots | L1 | |

## 6.10 ASAP Planned Capabilities

The Automated Safety Assessment Program (ASAP) system is under development. As it matures, links to other systems may be implemented. Contact FHWA's Dan Hartman for additional information.

| State Commit Level (F/P/N) | Item # | Planned Capabilities | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **6.10** | **ASAP - developing system** | | |
| | **6.10.1** | Collect compliance data from carrier electronically | E | |

## 6.11 CAPRI Planned Capabilities

The Carrier Automated Performance Review Information (CAPRI) system is used today to record compliance reviews. No specific changes are planned, although it is expected that access to past reports may be provided via SAFER in the future.

# 7. CARRIER SYSTEMS CHECKLISTS

The checklists in this chapter provide top-level requirements for the design of carrier systems. This chapter is based on the design requirements from the tables in the State Systems and CVISN Core Infrastructure Systems chapters of this document. It is not intended to cover all functions associated with carrier operations.

The top-level requirements are divided into these categories:

- General
- Fleet & Freight Management
- Commercial Vehicle

## 7.1 General Carrier Systems Design Requirements

The general carrier systems design requirements apply to all carrier systems. They facilitate interoperability and the exchange of information with government systems.

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **7.1.1** | Adopt standard identifiers for carriers, vehicles, drivers, and transponders to support information exchange | L1 | |
| | 1 | Adopt standard identifiers for interstate carrier, vehicle, driver, and transponder. | L1 | |
| | 2 | Adopt standard identifiers for intrastate carrier, vehicle, driver, and transponder. | C | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **7.1.2** | Use open standards for exchange of information with jurisdictions. | L1 | |
| | 1 | Use ANSI X12 EDI standards for transactions with state information systems. | L1 | |
| | 2 | Use ANSI X12 EDI standards for transactions with CVISN Core Infrastructure systems, where available. | L1 | |
| | 3 | Use XML standards for transactions with state information systems (contingent on demonstration of feasibility). | C | |
| | 4 | Use XML standards for transactions with CVISN Core Infrastructure information systems (contingent on demonstration of feasibility). | C | |
| | **7.1.3** | Ensure that all information transfers, fee payments, and money transfers are authorized and secure. | L1 | |
| | **7.1.4** | Demonstrate technical interoperability by performing Interoperability Tests. | L1 | |
| | **7.1.5** | Support electronic payments. | E | |

## 7.2 Fleet and Freight Management Systems Design Requirements

The fleet and freight management systems design requirements apply to the office-based carrier systems (as opposed to the vehicle-based systems). These are the carrier counterparts to the state and core infrastructure requirements listed earlier.

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **7.2.1** | Support electronic credentialing (electronic submission of applications, receipt & processing of application response, acknowledgements, error indications, and invoices) for IRP using EDI standards. | L1 | |
| | **7.2.2** | Support electronic credentialing (electronic submission of applications, receipt & processing of application response, acknowledgements, error indications, and invoices) for IFTA registration using EDI standards. | L1 | |
| | **7.2.3** | Support electronic tax filing for IFTA quarterly fuel tax returns using EDI standards. | L1 | |
| | **7.2.4** | Support electronic credentialing (electronic submission of applications, receipt & processing of application response, acknowledgements, error indications, and invoices) for other credentials using EDI standards. | E | |
| | 1 | Interstate carrier registration | E | |
| | 2 | Intrastate carrier registration | E | |
| | 3 | Vehicle title | E | |
| | 4 | Intrastate vehicle registration | E | |
| | 5 | HazMat credentialing/permitting, if such credentials/permits are required by state law. | E | |
| | 6 | Oversize/overweight permitting. | E | |
| | **7.2.5** | Provide transponder number and default carrier ID for each vehicle that intends to participate in electronic screening. | E | |
| | **7.2.6** | Provide a list of jurisdictions in which the vehicle chooses to participate in electronic screening, and inform those jurisdictions. | E | |
| | **7.2.8** | Provide the ability to submit one or more like-kind applications in a single transaction. | E | |
| | **7.2.9** | Provide information for audits electronically. | C | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | **7.2.10** | Connect the Credentialing System to other fleet/freight legacy systems so that credential application information is generated, evaluated, and submitted electronically and automatically, as appropriate, for renewals and periodic tax filings (for medium to large carriers). | E | |
| | **7.2.11** | Accept electronic credential and supporting electronic documentation, in lieu of paper versions. | C | |
| | **7.2.12** | Provide compliance data electronically. | E | |
| | **7.2.13** | Review government-held safety and credentials data periodically. | L1 | |

## 7.3 Commercial Vehicle Systems Design Requirements

The commercial vehicle systems design requirements apply to the vehicle-based systems. These are the carrier counterparts to the state requirements listed earlier.

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | | | | |
| | **7.3.1** | Follow FHWA guidelines for Dedicated Short Range Communications (DSRC) equipment. (Reference 35) | L1 | |
| | 1 | For the immediate future, all CVO and Border crossing projects will continue to utilize the current DSRC configuration employed by the programs. This is the "ASTM version 6" active tag. | L1 | |

| Commit Level (F/P/N) | Item # | Compatibility Criteria | Req Level (L1/E/C) | Comments |
|---|---|---|---|---|
| | 2 | Beginning January 1, 2001, all CVO and Border Crossing projects will use an active configuration that is backward compatible with the current configuration and yet consists of the following: | E | |
| | 2a | "ASTM version 6" defines the data link layer. | E | |
| | 2b | The IEEE P1455 application layer standard and the ASTM 1 active physical layer standard will be implemented. | E | |
| | **7.3.2** | For transponder-equipped vehicles, enter or check standard identifiers for carrier, vehicle, and transponder at the start of each trip | E | |
| | **7.3.3** | Implement interoperability policies as they are developed by ITS America, the American Association of State Highway Transportation Officials, HELP, Inc., MAPS, Advantage CVO, I-95 Corridor Coalition, and the Commercial Vehicle Safety Alliance. | L1 | |
| | 1 | See AASHTO's Commercial Vehicle Electronic Screening Interoperability Policy Resolution, PR-14-97, Reference 20. | L1 | |
| | **7.3.4** | Obey pull-in signals issued by DSRC or other equipment. | L1 | |
| | **7.3.5** | For transponder-equipped vehicles, enter or check standard identifier for driver at the start of each trip | L1 | |
| | **7.3.6** | Use electronically-generated driver's daily log, as an alternative to a manually-maintained log, and provide to inspectors upon request. | C | |
| | **7.3.7** | On transponder-equipped vehicles, to assist in inspection, use DSRC to retrieve driver's daily log | C | |
| | **7.3.8** | On transponder-equipped vehicles, to assist in inspection, use DSRC to retrieve summary vehicle safety sensor data. | C | |
| | **7.3.9** | Equip all vehicles with transponders. | C | |

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