1 Capability

The **Better E-Credentialing** capability is:

> Reduce complexity and redundancy for users by offering access to multiple credentials from a single source. Users enter information once instead of multiple times. Increase the kinds of e-credentials that are available [e.g., add oversize/overweight (OS/OW) permitting, Hazardous Materials (HazMat)].

2 Working Group Recommendations

The Expanded E-Credentialing Working Group offers these summary recommendations related to this capability:

- There are a number of items originally listed as Expanded Commercial Vehicle Information Systems and Networks (CVISN) in e-credentialing that are, in fact, prerequisites for successful e-credentialing and, therefore, are not part of Expanded CVISN. For CVISN to achieve the original core capabilities, these issues must be successfully addressed.
  - The Federal Motor Carrier Safety Administration (FMCSA) must take the lead in coordinating with the entities charged with International Registration Plan (IRP) and International Fuel Tax Agreement (IFTA) registration and permitting to enable near real-time availability of data. Absent the availability of current data across the country, the use of these data in any screening operation will be counterproductive.
  - A single and unique number must be assigned to every carrier, and this must be a required field for all credentials. If this is to be the US Department of Transportation (USDOT) number, then the database of these numbers must be thoroughly cleansed to eliminate any multiple entries for single carriers.
  - A number of states will never succeed in deploying Core CVISN if they aren't provided the technical support needed to successfully implement CVISN-compliant e-credentialing. FMCSA should establish a technical support team, either internally or through a vendor with access to various technologies, that could be made available to states requiring this assistance.
  - States must be encouraged to fill the credentials-related fields in Safety and Fitness Electronic Records (SAFER) snapshots to enable credentials data sharing across jurisdictions.
  - States need to share Single State Registration System (SSRS) information. Consideration should be given to sharing SSRS data (or its replacement) via SAFER.
- We are concerned that the approach being taken by Expanded CVISN may not meet the needs of a changing environment. While the different working groups may be able to focus on a few key issues that exist today, these may not be the issues of highest priority

a year from now or at any point in the future. As such, the Expanded E-Credentialing working group recommends that some portion of available funds be set aside to address emerging issues. We further recommend that either this working group or some similarly-constructed group of representatives of CVISN-affected entities be reconstituted annually to review issues and develop priorities for e-credentialing.

- The working group recommends three options in this report:
  - Gather best practices and share lessons learned
  - Explore electronic payment mechanisms
  - Develop benefit-cost framework
- Three activities related to this capability are proposed for near-term funding, each tied to one of the recommended options:
  - Initiate an effort to capture and share e-credentialing best practices
  - Research e-payment mechanisms in relation to e-credentialing
  - Develop a benefit-cost framework for e-credentialing; include relationships among safety, security, productivity, and credentialing
- The working group is also concerned about the apparent intent of FMCSA to concentrate available funds on two or three projects for development. It is our opinion that the activities needed to ensure that CVISN e-credentialing is a success require leadership and/or a commitment of administrative and technical support resources by FMCSA to achieve, and that the activities will not require a significant expenditure of Expanded CVISN resources. Therefore we urge FMCSA not to limit the number of Expanded CVISN initiatives to be undertaken.

3 Concept of Operations

The term concept of operations (ConOps) means operational attributes of the system from the operators' and users' views. The ConOps allows for the use of a variety of technologies. There may be potential benefits to be gained by using some sophisticated technologies, but only if the technologies are part of a well-conceived and vetted set of practices, are thoroughly understood and tested, and are implemented and used correctly. This section summarizes the proposed concept of operations.

Existing systems contain much of the information needed to achieve the goals of the Expanded CVISN initiative. To increase information sharing, expand, merge, establish interfaces between, or enhance existing **information management systems** [e.g., Motor Carrier Management Information System (MCMIS), Commercial Driver's License Information System (CDLIS), SAFER, Commercial Vehicle Information Exchange Window (CVIEW), Performance and Registration Information Systems Management (PRISM), IRP and IFTA clearinghouses] to include:

- Role-based access to services using single sign-on
- Open standards for information sharing

- Improved and flexible user interfaces (e.g., provide default look and feel based on user's role; allow user to tailor)
- Standardization around a small number of standards. This gives each state the flexibility to work within its overall statewide architecture, but still encourages commonality among states' systems and approaches.
- Collection of data once and frequent reuse (e.g., collect census data from a carrier and re-use that data from a single source whenever it's needed)
- Consistent level of service regardless of time-of-day or day-of-year
- Improved access to data about all commercial drivers
- More timely and complete IRP and IFTA data in snapshots
- Consistent identification of carrier, driver, vehicle, and cargo
- Association of entities that are related during a trip (e.g., John Driver working for Carrier XYZ driving vehicle with plate 1234567 registered in Maryland hauling trailer with plate 8901234 registered in Delaware)
- Electronic security device event data (to track the status of and activities related to a security device attached to the container and/or trailer)
- Integrate with or link to asset tracking, arrival scheduling, and other vehicle, port and freight information systems [e.g., Freight Information Real-Time Systems for Transport (FIRST), electronic freight manifest, State On-Line Enforcement System (STOLEN)].
- Access to up-to-date credentialing information (e.g., OS/OW permits).

To improve the quality of information and to improve access, develop, expand, merge, or enhance **data collection and reporting systems** [e.g., ASPEN, Carrier Automated Performance Review Information (CAPRI)] to include:

- Open standards for data collection and reporting
- Access to driver snapshots
- Out-of-service (OOS) processing, to include automatically purging/updating expired OOS indicators
- Hours of service compliance evaluation
- Wireless technology.

Look for successes within innovative programs and build on or adapt their business models for broader use. Categories of programs/systems to review include:

- Electronic toll collection systems (e.g., E-ZPass)
- Electronic credentialing systems for multiple credentials [e.g., One-Stop Credentialing and Registration (OSCAR)]

- Regional data-sharing systems [e.g., Extensible CVIEW (xCVIEW)]
- Roadside information reporting systems (e.g., ASPEN)
- Port scheduling/access programs (e.g., PierPass)
- Freight security improvement programs [e.g., Operation Safe Commerce (OSC)]
- Cross-program technical interchange (e.g., CVISN/PRISM)
- Border-crossing improvement programs [e.g., Free and Secure Trade (FAST)]
- Data challenge and correction (e.g., DataQs)
- OS/OW regulations and permitting [e.g., Western Association of State Highway and Transportation Officials (WASHTO) Resolutions and Western Regional Permitting].

Review and build on technology lessons learned. Categories of programs/initiatives to review include:

- Recent operational tests (e.g., FMCSA's HazMat Op Test)
- Intelligent Transportation Systems (ITS) initiatives [e.g., Vehicle Infrastructure Integration (VII)]
- Applications and uses of standards [e.g., Dedicated Short Range Communication (DSRC standards)]
- Technology transfer opportunities [e.g., Federal Rail Administration's (FRA's) railroad track status reporting]
- Commercial Vehicle Operations (CVO) infrastructure deployments (e.g., e-screening)
- E-credentialing deployments (e.g., Core CVISN Web credentialing)
- Broader transportation infrastructure deployments (e.g., e-toll collection)
- Data sharing models (e.g., CDLIS)
- Border technologies and information flows [e.g., Automated Commercial Environment (ACE), International Trade Data System (ITDS)].

4 Requirements

Discussions with the members of the Expanded E-Credentialing Working Group established by FMCSA via the ITS/CVO 2005 Deployment Showcase seeded the requirements stated in this section. The group agrees that the **Better E-Credentialing** capability is mostly an issue for states to work towards on their own, rather than a problem requiring a national solution with FMCSA investment to upgrade its own information systems. The group also notes that sharing credentials data among jurisdictions is a concern for all states, and that FMCSA plays an important role in facilitating credentials information sharing.

These "requirements" reflect the consensus of the group about common requirements related to e-credentialing. State-specific requirements are left to each jurisdiction.

The **Better E-Credentialing** capability should provide:

- Efficiency in credentialing operations
- Linkage among different legacy systems to share common information (e.g., company census data)
- The ability to electronically verify documents/conditions that currently require manual verification. For example,
  - Cross-reference to other systems, other debts owed, etc.
  - Verification of insurance
  - Verification of Heavy Vehicle Use Tax (HVUT) payment
- The potential to involve truck manufacturers in automated credentialing/titling
- Partnership opportunities for service bureaus in e-credentialing programs
- Carriers with the same access to services as service bureaus. Carriers should be held to the same accountability standards.

Based on best practices, the characteristics for a model e-credentialing system should include:

- Portability
- User authentication
- Enterprise-wide solutions (see Alaska, New York, Idaho, Indiana, and Wisconsin for examples)
- Single log-in for all credential types
- Multiple users per carrier, administered by the carrier's designated "master user"
- The ability for carriers to administer access to account privileges via user ID
- Protection of privacy
- A variety of secure electronic payment options (see National Electronic Commerce Coordinating Council's *Electronic Payments Primer*, 2002, for details about options. Available at http://www.ec3.org/Downloads/2002/epayments_primer.pdf.
  - Electronic funds transfer [e.g., Automated Clearing House (ACH) credit and debit, wire transfer]
  - Payment cards (e.g., credit, debit, stored value)
  - Virtual payment system (e.g., digital cash, electronic wallet)
  - Escrow account
  - Payment guarantee bonds
- "Shopping cart" payment processes, so that a carrier may generate several credentials and then pay for them all in a single transaction

- The ability to populate credentials applications with information from the federal MCS-150, required of all interstate operators
- Modeling workflow processes so that credential applications that require manual review flow properly around the appropriate agency/agencies
- Modeling key business rules as data-driven components of the system.

The National Electronic Commerce Coordinating Council's paper titled *Maximizing Revenues and Saving Costs Through E-Government: Success Stories in the Public Sector*, 2003, http://www.ec3.org, reported these common themes across successful e-government programs:

- Measurement is not just about how much the governmental entity saves
- Bring all the stakeholders to the table
- Consider redesigning your processes
- Focus on usability
- Today's technologies enable governments to integrate multiple legacy systems
- Consider the use of nontraditional funding models
- Use scalable hardware and software
- Plan for differing laws and regulations when implementing systems that cross government jurisdictions.

States are required to verify the HVUT has been paid at the time of IRP registration or renewal. To facilitate the verification process, states request

- Access to an on-line service that provides this information:
  - Vehicle Identification Number (VIN), date HVUT last paid
- Access for a person via query
- Access for a software application via automated mechanisms
- Download of HVUT payment status for inclusion in an FMCSA-controlled data management system like SAFER.

Please see the **Access to Credentials Data** capability report (reference 1) for more on access to HVUT information.

Because of the high priority for carriers and the high number of users, the working group recommends that efforts to expand e-credentialing include OS/OW permitting. Consideration should be given to:

- Multi-state automated permitting
- National standards for multi-state permit issuance
- Automated routing

- If automated routing is not provided, then provide "envelope permits" that allow carriers to be pre-approved on common routes of travel either through the state or to/from major cities and/or job sites.

Electronic enrollment for transponder programs was of less interest to the working group members who participated in the kick-off meeting at the ITS/CVO Deployment Showcase in Savannah.

- Some states want to ensure certain criteria met.
- Others want to "enroll and control."

5 Potential Solution Alternatives

Recognizing the link between safety and the credentialing process, FMCSA played an important role in researching and exploring options for electronic credentialing. FMCSA also supported the development of standards for credentialing and credentials information sharing. Implementing e-credentialing is a state responsibility. The working group strongly urges FMCSA to continue to help states through research and experimentation so that the benefits of e-credentialing can be realized by more carriers in more states.

In Draft 1 of this report, two potential solution options for different aspects of the **Better E-Credentialing** capability were identified. The working group decided that it would make sense to combine the original options. The group also identified one additional solution alternative:

- Recommended Option 1: Gather best practices and share lessons learned
- Recommended Option 2: Explore electronic payment mechanisms
- Recommended Option 3: Develop benefit-cost framework.

Please see the **Access to Credentials Data** capability report (reference 1) for solution ideas related to accessing HVUT information.

The discussion of the e-credentialing solution alternatives led to the following observations by the working group:

- The three solution alternatives proposed are all relatively low cost, but high value.
- Each alternative is separate and distinct. It does not make sense to merge the options.
- The working group would like to move all three alternatives forward, with equal priority given to each option.

5.1 Recommended Option 1: Gather best practices and share lessons learned

States are currently wrestling with many of the same issues, but are analyzing them and seeking solutions independently. While these disparate efforts can lead to creative new solutions, they can also result in states spending much time reinventing the wheel. There was some discussion at the Savannah meeting about the potential value from researching best practices and developing federal guidance related to "model" system characteristics – for example, portability, authentication processes, enterprise solutions, automated system-to-system queries to accomplish verifications that are currently conducted manually, information sharing among e-credentialing systems to minimize requirements for duplicate information across credential types, etc. Under this option, best practices would be collected, lessons learned would be shared, and the information would be made available online for ongoing update and review.

As a particular example, Expanded E-Credentialing Working Group members agreed that expansion of e-credentialing to OS/OW permits is likely the highest priority credential type for motor carriers and states due to the high volume of permits issued by most states. It was suggested that the WASHTO multi-state permit program should be examined to see if it could be expanded to a national system to accommodate "envelope" permits – permits within a defined dimension / weight range – on designated routes through all states. Perhaps groups such as Southeastern Association of State Highway and Transportation Officials (SASHTO) and WASHTO could develop the allowable weight/dimension envelope definition, and each state could provide approved route information for that envelope. The working group agreed that learning more about WASHTO's experiences and potentially building on the standards used in the WASHTO multi-state permit program would be useful for other states. A similar consortium, Northeast Association of State Transportation Officials (NASTO), has been unable to come to agreement on this issue. Tennessee has identified the most common routes and acceptable vehicles to remove a large quantity of permits from their manual review process. Tennessee and other states should be contacted so that additional stakeholders can benefit from their experiences. States that have experimented with standardized reporting of work zones and highway/bridge closures for use in the permitting process should also be contacted.

Implementation of some best practices will be a state-by-state process rather than a national initiative, given that deployment requires incorporation into state-specific systems and processes. However, exploration of best practices and development of guidance regarding model system characteristics and national standards, where appropriate, could be an ongoing effort of the credentials working group or an undertaking funded by FMCSA. This option should culminate in a compendium of sample approaches, screens, and recommended designs for e-credentialing systems. The compendium should be maintained and updated for at least a few years to support states that are only at the beginning of the deployment process. The repository could also include a discussion forum to enable the free flow of ideas and a continued discussion of issues. Expertise could also be provided to states that need technical assistance.

Potential sources for best practices and lessons learned include:

- ITS experiences from states and public-private partnerships
- Transportation association experiences [e.g., WASHTO, American Association of Motor Vehicle Administrators (AAMVA), American Trucking Associations (ATA), etc.]
- Transportation research results
- National Governor's Association publications
- National Electronic Commerce Coordinating Council publications.

5.2 Recommended Option 2: Explore electronic payment mechanisms

State and federal government agencies have used a variety of mechanisms for electronic payment. Fees are charged for some e-payment options (e.g., credit card), and those fees may deter states or customers. Under this option, experts would explore possible roles for the federal government to provide/support electronic payment mechanisms related to states' e-credentialing efforts. FMCSA could act as a convener to bring interested parties and experts together.

Activities would include:

- Identify alternatives for e-payment.
- Summarize lessons learned and best practices in successful government projects that involved e-payment elements.
- Identify standards that exist, are under development, or are needed.
- Understand what states are doing outside of the transportation area with regard to electronic payment, especially the implementation of statewide all-agency standards for credit/debit card, ACH, and e-check transactions.
- Explore the commonality between credential payment and toll payment.
- Identify and explore cost-savings options for the administration of e-payment mechanisms. For instance, is there potential for a master agreement among states that would reduce merchant fees enough that the fees would be nominal for participating states? Could a national solution realize cost-savings?
- Identify and explore methods of batching transaction payments to lessen the cost to the state as well as simplify the process for the carrier.
- Clarify state and industry requirements and issues.

Potential participants in this study include:

- Federal agencies
- State agencies

- Financial service providers and e-credentialing vendors
- Transportation associations [e.g., American Association of State Highway and Transportation Officials (AASHTO), WASHTO, ATA]
- Industry representatives
- Credentials-related organizations (e.g., IRP, Inc., IFTA, Inc.)
- Transportation researchers
- National Governor's Association
- National Electronic Commerce Coordinating Council.

Promising references include:

- National Electronic Commerce Coordinating Council, *Electronic Payments Primer*, 2002, http://www.ec3.org.
- National Electronic Commerce Coordinating Council, *Effectiveness Through E-Payments: Current Learning and Suggested Best Practices*, 2004, http://www.ec3.org.
- National Automated Clearing House Association (NACHA), *2004 Electronic Payments Review and Buyer's Guide*, 2004, http://www.nacha.org.

5.3 Recommended Option 3: Develop benefit-cost framework

To garner funds for implementing e-credentialing, state agencies often must estimate and explain the benefits that will be realized and the costs that will be incurred. Under this option, effort would focus on developing a framework to support the funding request process.

A benefits-cost framework might involve:

- Stakeholder identification
- Needs assessment
- Current resource utilization
- Alternatives analysis
- Projected benefits to each stakeholder group
- Projected costs to each stakeholder group
- Anticipated cost savings
- Risks
- Plan to measure benefits and costs.

The Federal Chief Information Officer (CIO) Council's Capital Planning and Investment Committee provided checklists of benefits, cost savings, and information technology costs. The lists below are based on those checklists.

Benefits might typically include:

- Improves ability to deliver services
- Improves access to services
- Improves access to information
- Improves accuracy
- Improves compatibility
- Improves effectiveness and impact of information delivered
- Provides options or flexibility for customers
- Improves security
- Reduces risk
- Simplifies the credentialing process
- Improves the work environment
- Improves response rates.

Cost savings may also be realized:

- Improves the ability to maintain a system
- Eliminates duplicate assets
- Improves reliability
- Accommodates increases in workload or demand without additional costs
- Reduces manual operations
- Improves efficiency**.**

Potential sources for information about cost-benefits frameworks include:

- ITS experiences from states and public-private partnerships
- CVISN deployment evaluations
- Transportation associations (e.g., WASHTO, AAMVA, ATA, etc.)
- Transportation research
- National Governor's Association publications
- National Electronic Commerce Coordinating Council publications

- Federal CIO Council.

Promising references include:

- National Electronic Commerce Coordinating Council, *Maximizing Revenues and Saving Costs Through E-Government: Success Stories in the Public Sector*, 2003, http://www.ec3.org.
- National Electronic Commerce Coordinating Council, *Developing Justification and Support for e-Government Projects*, exposure draft, 2001, http://www.ec3.org.
- National Association of State Chief Information Officers (NASCIO), *Business Case Basics and Beyond: A Primer on State Government IT Business Cases*, March 2003, https://www.nascio.org/publications/index.cfm.
- ITS/Joint Program Office (JPO) Benefit-Cost Web site, http://www.benefitcost.its.dot.gov/its/benecost.nsf/byLink/DbDocs.

6 Cost-Benefit Analysis

The purpose of this section is to help the US DOT, states, and industry to understand the costs and benefits associated with each option. Note that the options proposed are not mutually exclusive and could all be pursued in parallel.

The table below provides a high-level cost-benefit analysis for each solution option identified in the previous section. The cost figures are rough estimates provided by working group members.

- Low means less than $100K
- High means more than $1M
- Medium is everything in between.

Option	Pro	Con	Cost
1 (Best practices and lessons learned)	All: Common understanding of best practices for e-credentialing. Resource center for capturing and researching lessons learned. Federal: --- State: --- Industry: ---	All: --- Federal: --- State: --- Industry: ---	Federal: Medium State: Low Industry: Low

Option	Pro	Con	Cost
2 (E-payment mechanisms)	All: Improved understanding of e-payment options. Federal: --- State: Potentially, reduced cost for e-payment. Potentially, more participants in e-credentialing. Industry: Potentially, more opportunity to use e-credentialing.	All: --- Federal: --- State: --- Industry: ---	Federal: Low to Medium State: Low Industry: Low
3 (Cost-benefit framework)	All: Potentially, better measures of success and more data about costs and benefits associated with e-credentialing. Federal: --- State: Tools to improve likelihood of funding e-credentialing programs. Industry: More e-credentialing programs.	All: --- Federal: --- State: --- Industry: ---	Federal: Low to Medium State: Low Industry: Low

7 Business Case

Many jurisdictions have made significant progress in providing e-credentialing services for IRP and IFTA. However, too few are providing full data sets to SAFER to support CVISN e-screening enrollment and roadside enforcement activities. The CVISN infrastructure has demonstrated the effective exchange of credentials data, with orderly and traceable change processes to accommodate discovered problems. Homeland security and productivity benefits provide a strong impetus to streamline enrollment processes to encourage participation in related screening and clearance programs. Credentialing and enrollment business rules are sometimes in conflict. Terminology and data definitions are not always consistent. E-credentialing and enrollment processes are not coordinated across jurisdictions, agencies and programs, requiring redundant data entry that is tedious and error-prone. Validation of submitted data is problematic.

Success stories in e-credentialing provide a solid foundation for providing even better e-credentialing in those states and models for other states. The federal role for better e-credentialing begins with facilitating the collection of best practices and sharing of lessons learned. States may suggest teaming arrangements to achieve cost savings across jurisdictions. For states that have already implemented e-credentialing but seek to improve service through adding e-payment options, the Option 2 (see Section 5.2) would explore the mechanisms available and might result in reduced cost to the state and/or industry. Without e-payment, CVISN doesn't work for the carriers. The third option would provide immediate support to the

process of securing funding for e-credentialing programs. All three options require little investment and offer large potential return on that investment.

8 Issues

8.1 Institutional Issues

Credentialing processes vary across states, making it impractical to imagine implementing a single e-credentialing solution. In many states, credentialing responsibilities are split across several agencies, making it difficult to unify the processes. Privacy statutes inhibit sharing some credentialing-related information. Some credentialing processes require similar information, but data definitions are not standardized. What identifies a carrier for one credential may be different from the identifier for another credential (e.g., IRP and IFTA). Route restrictions for OS/OW permitting change due to construction and environmental factors, making it difficult to coordinate routing across jurisdictions. Electronic payment usually has an associated fee for the processing; who should pay the fee? Carriers believe they should not bear the fee burden.

For OS/OW and HazMat permits, the state-specific nature of the credentials tests the ability of the existing CVISN interfaces for nationwide information sharing. Because there are so many OS/OW permits issued, carriers suggest a high priority for automating that credentialing process. State-specific CVIEWs can handle the differences in data captured by each state, but propagation of that information to the national level and back to the roadside remains problematic.
What is the role of states in helping carriers coordinate local e-credentials? For example, NY's Transportation Federation is attempting to unify the carrier experience for New York State DOT, New York State Thruway Authority, and New York State Bridge Authority permits, even though the systems are disparate and quite different in functionality and platform. The I-95 Corridor Coalition is considering the development of a regional interface that would direct carriers to the appropriate state on-line systems for credentials.

Some states lack information technology resources. This limits their ability to implement and sustain e-credentialing.

8.2 Technical Issues

The absence of common identifiers and data definitions creates technical barriers to integrating e-credentialing activities. However, some states have succeeded, so the technical challenges are not insurmountable. The technology to perform e-credentialing and collect payment electronically is readily available.

9 Deployment Strategy

In deploying the **Better E-Credentialing** capability, several aspects should be considered:

Improve data quality and integrity:

- Establish a consistent set of data elements that are common across information systems and analysis applications.
- Expand the use of standard identifiers for entities visible at the roadside (carrier, vehicle, driver, cargo, chassis) to link related information.
- Make information collection, access, and use consistent across interstate, foreign, and intrastate operations.
- Capture data electronically as close to the source as possible; once information is available electronically, it should be re-used instead of re-entered manually.
- Expand standard procedures and tools for reviewing, detecting problems in, and correcting errors in publicly-held data.
- Expand the use of on-line tools that provide industry with the ability to challenge and correct their own census, inspection, crash, and citation information.
- Control access to sensitive information.

Work together and share lessons learned:

- Work with stakeholders to define and deploy common data elements and interoperable business processes for all areas of CVISN expansion.
- Establish standardized terminology and common requirements for data collection, access, quality checks, and making corrections.
- Coordinate standards-related activities with appropriate standards development organizations.
- Actively solicit lessons learned from “early adopters” of CVISN and Expanded CVISN concepts, and determine how to apply those lessons more broadly.
- Actively engage stakeholders in identifying priorities, proposing solutions, and participating in prototype projects.
- Proactively reach out to stakeholders who may be affected by changes to systems or processes that are under discussion.
- Learn from other ITS activities about solutions applicable to CVO.

Deploy targeted solutions incrementally:

- Select information-sharing options based on users' needs and available technology (e.g., proactive data-provider "data push" versus user-initiated "data query").
- Prototype proposed solutions and link to existing capabilities.
- Consider small-scale solutions that can be expanded or serve as models for national deployment.
- Build in metrics to assess real improvements.
- Provide access to on-line analysis tools.
- Provide an approach that allows states to improve the quality of data sent to aggregation sources while continuing to maintain interaction with other state systems that may insist upon "lower quality" or "nonstandard" data.

The working group recommends three activities related to the Better E-Credentialing capability, one related to each solution option. The first activity involves initiating an effort to capture and share best practices. The second activity is a study to explore e-payment mechanisms. The third activity is to develop a benefit-cost framework.

9.1 Best Practices and Lessons Learned

Several states have implemented e-credentialing. Some of those experiences have been reported in documents easily accessible by other states, but others have not. The working group recommends that a concerted effort be made to collect lessons learned and document best practices for e-credentialing. The effort should include identifying existing reports, reviewing those reports and checking with authors for updates, identifying successes that are not yet documented, documenting lessons learned as needed, documenting best practices as needed, and organizing all the material into an on-line compendium of tips, approaches, and recommended designs for virtual roadside sites. The effort should also include outreach to make the existence of the site known across the stakeholder spectrum and maintenance support to allow for regular updates. Please see the description of Option 1 in Section 5.1 for a few specific examples of projects that should be reviewed in this effort. This effort should be the first step in an ongoing low-cost project to continue a dialog about e-credentialing and make resources available to states that need assistance.

Arkansas, Idaho, New York, South Dakota, and Washington expressed interest in participating in this activity.

9.2 E-Payment Mechanisms

As part of this activity, FMCSA would support research of e-payment mechanisms in relation to e-credentialing. Initial research and testing might focus on successful approaches proposed in the best practices activities. The research and test team should work with stakeholders from within

the CVO community to participate in the process and coordinate activities with other researchers supported by states, industry associations, and other branches of the Federal Government who are investigating similar questions for other e-commerce operations.

Arkansas, Idaho, Kansas, New York, South Dakota, and Washington expressed interest in participating in this activity.

9.3 Benefit-Cost Framework

A task force should be established to develop a benefit-cost framework that can be used to evaluate, estimate, and explain the benefits that will be realized and the costs that will be incurred when e-credentialing is deployed. The framework would be used by those who seek funding and legislation to support e-credentialing activities. The relationships among safety, security, productivity, and credentialing should be part of the framework.

Idaho, Kansas, New York, and Washington expressed interest in participating in this activity.

10 References

1. JHU/APL, *Expanded CVISN Expanded E-Credentialing Capability Report: Access to Credentials Data*, SSD-PL-05-0201, June 2005.

This page intentionally left blank.