Commercial Skills Test Information Management System (CSTIMS) Final Report and Self-Sustainability Plan

U.S. Department of Transportation

Federal Motor Carrier Safety Administration

March 2014

FOREWORD

The Commercial Skills Test Information Management System (CSTIMS) was developed as a result of the Federal Motor Carrier Safety Administration's (FMCSA's) response to a 2002 report from the U.S. Department of Transportation (USDOT) Office of the Inspector General (OIG) on large-scale fraud in the issuance of commercial driver's licenses (CDLs) across the United States. CSTIMS was developed as a Web-based, software-as-a-service system to prevent and deter fraud perpetrated by third-party CDL examiners in the portion of the CDL licensing process involving the skills test. A survey of States revealed a reluctance or inability to pay for CSTIMS fees beyond the development stage of the project and a difficulty in raising revenue. These issues present challenges for the transition to and fulfillment of CSTIMS self-sustainability for States.

This Final Report and Self-Sustainability Plan was developed to fulfill the Cooperative Agreement DTMC75-08-H-00003, specifically, to "assess the self-sustainability of CSTIMS and create a transition plan to determine what fees should be charged to the States to make CSTIMS self-sustaining." It was developed to clearly document and depict the overall objectives and scope of the project. The main focus of this Final Report and Self-Sustainability Plan is to provide a recommendation for maintaining the system once the development stage of the project is completed.

NOTICE

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16. Abstract

The Commercial Skills Test Information Management System (CSTIMS) was developed as a Web-based, software-as-a-service system to prevent and deter fraud perpetrated by third-party commercial driver's license (CDL) examiners in the portion of the CDL licensing process involving the skills test. This Final Report and Self-Sustainability Plan were developed to fulfill the Cooperative Agreement DTMC75-08-H-00003, specifically, to "assess the self-sustainability of CSTIMS and create a transition plan to determine what fees should be charged to the States to make CSTIMS self-sustaining." It was also developed to clearly document and depict the overall objectives and scope of the project. Summarized are all enhancements and improvements made between pilot testing in 2008 and 2012, including those relating to the CDL Testing and Commercial Driver's Permit Test Standards of May 2011. The main focus of this Self-Sustainability Plan is to provide a recommendation for maintaining the system once the development stage of the project is completed.

Three fee allocation approaches were considered based on the number of 1) CSTIMS users in a State, 2) CDL applicants in a State, and 3) commercial drivers in a State. The most practical fee allocation approach to implement is one based on the number of commercial drivers in a State because it is the number that: 1) is most easily obtainable, 2) is known to all States before deciding to participate in CSTIMS, 3) does not require a separate audit, and 4) introduces the least error in a calculation of fee allocation.

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SI* (MODERN METRIC) CONVERSION FACTORS

TABLE OF APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply y	To Find	Symbol
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
AREA				
in²	square inches	645.2	square millimeters	mm²
ft²	square feet	0.093	square meters	m²
yd²	square yards	0.836	square meters	m²
ac	acres	0.405	hectares	ha
mi²	square miles	2.59	square kilometers	km²
VOLUME			1,000 L shall be shown in m³	
fl oz	fluid ounces	29.57	milliliters	ml
gal	gallons	3.785	liters	L
ft³	cubic feet	0.028	cubic meters	m³
yd³	cubic yards	0.765	cubic meters	m³
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2,000 lb)	0.907	megagrams (or "metric ton")	mg (or "t")
TEMPERATURE			Temperature is in exact degrees	
°F	Fahrenheit	5 × (F-32) ÷ 9 or (F-32) ÷ 1.8	Celsius	°C
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m²	cd/m²
Force and Pressure or Stress				
lbf	poundforce	4.45	newtons	N
lbf/in²	poundforce per square inch	6.89	kilopascals	kPa

TABLE OF APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
AREA				
mm²	square millimeters	0.0016	square inches	in²
m²	square meters	10.764	square feet	ft²
m²	square meters	1.195	square yards	yd²
ha	hectares	2.47	acres	ac
km²	square kilometers	0.386	square miles	mi²
VOLUME				
ml	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m³	cubic meters	35.314	cubic feet	ft³
m³	cubic meters	1.307	cubic yards	yd³
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2,000 lb)	T
TEMPERATURE			Temperature is in exact degrees	
°C	Celsius	1.8C + 32	Fahrenheit	°F
ILLUMINATION				
lx	lux	0.0929	foot-candles	fc
cd/m²	candela/m²	0.2919	foot-Lamberts	fl
Force & Pressure Or Stress				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in²

* SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003, Section 508-accessible version September 2009.)

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ABBREVIATIONS AND ACRONYMS

Acronym	Definition
AAMVA	American Association of Motor Vehicle Administrators
BCS	basic controls skills
CCD	Certification Control Document
CDL	commercial driver's license
CDLIS	Commercial Driver's License Information System
CLP	commercial learner's permit
CSTIMS	Commercial Skills Test Information Management System
DMV	Department of Motor Vehicles
eCDL	Electronic Commercial Driver's License System
FDLIS	Florida Driver's License Information System
FMCSA	Federal Motor Carrier Safety Administration
GPS	global positioning system
MPR	Master Pointer Record
RTI	Rahall Transportation Institute
VI	vehicle inspection

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EXECUTIVE SUMMARY

The Commercial Skills Test Information Management System (CSTIMS) was developed as the result of the Federal Motor Carrier Safety Administration's (FMCSA) response to a U.S. Department of Transportation (USDOT) Office of the Inspector General's report in 2002 on large-scale fraud in the issuance of commercial driver's licenses (CDL) across the United States. CSTIMS was developed as a Web-based, software-as-a-service system to prevent and deter fraud perpetrated by third-party CDL examiners in the portion of the CDL licensing process involving the skills test.

The CSTIMS development project was initiated in 2004, and it consisted of two phases. In Phase I, business requirements were defined, technology was assessed, and design specifications were developed. In Phase II, a prototype was developed, pilot testing of the prototype was conducted in four States, and a final evaluation was completed.

At the end of the pilot testing in April 2006, CSTIMS became operational. However, no enhancements or improvements were made until 2008 when funding was made available. The final evaluation from pilot testing had documented and rank-ordered recommendations for enhancements and improvements. The process of re-engineering CSTIMS started in October 2009 and resulted in versions 2.0, 2.1, 2.2, and 2.3. These versions were released between January and September 2011.

FMCSA promulgated its CDL Testing and Commercial Learner's Permit (CLP) Rule in May 2011. To accommodate the requirements of this new rule, versions 3.1, 3.2, 3.3, and 3.4 were released between December 2011 and September 2012.

At the end of September 2012, CSTIMS was also successfully integrated with the Electronic Commercial Driver's License System (eCDL), which was designed for use with global positioning system (GPS) technology to record the real-time results (i.e., pass or fail) of each maneuver, along with time and location during CDL skills testing. States have expressed interest in integrating CSTIMS with other commercial off-the-shelf software similar to eCDL.

The issue of the self-sustainability of CSTIMS was raised once the development stage of this project was completed. Three approaches to allocating fees were considered based on the number of CSTIMS users in a State, the number of CDL applicants in a State, and the number of CDL holders in a State. The most practical fee allocation approach is one based on the number of CDL holders in a State because it is the number that is most easily obtainable, is known to all States before deciding to participate in CSTIMS, does not require a separate audit, and introduces the least error in a calculation of fee allocation.

The transition to self-sustainability will be challenging because a survey of States showed a reluctance or inability to pay fees and the difficulty to raise revenue to pay for fees. Most States would have to rely on FMCSA CDL grants to pay those fees.

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1. BACKGROUND

1.1 OVERVIEW

The Commercial Skills Test Information Management System (CSTIMS) is a Web-based software-as-a-service system that States and other jurisdictions may use to manage the skills test portion of their Commercial Driver's License (CDL) licensing process, which consists of the basic vehicle control skills, on-road driving, and pre-trip vehicle inspection subtests. The system provides the ability to register State and third-party testers, record information for CDL skills test examiners, schedule CDL skills tests, and record the results of the tests. Based on parameters set up by a State, the system prevents prohibited actions and sends alerts when discrepancies or inconsistencies could indicate potential fraud. The system strengthens the oversight of the CDL program by the States and the Federal Motor Carrier Safety Administration (FMCSA). Some of the CSTIMS benefits include increased efficiency in managing CDL skills testing and a decrease in fraud associated with CDL skills testing.

1.2 ORIGINAL PILOT

Issuance of fraudulent CDLs is a nationwide problem. The United States Department of Transportation (USDOT) Office of Inspector General released a report in May 2002 stating that suspected criminal activity had been identified in CDL programs for at least 16 jurisdictions. Large-scale fraud had been identified in the CDL programs in Florida, Georgia, Illinois, and North Carolina. In each of these jurisdictions, hundreds of CDLs were issued fraudulently. Nationwide, thousands of CDL holders had to be retested due to suspicion concerning the issuance of their CDLs. In Illinois alone, nine deaths could be directly traced to crashes involving commercial drivers who fraudulently received their CDLs.

To address these issues, FMCSA initiated the CSTIMS project with funding from the USDOT Intelligent Transportation Systems (ITS) Joint Program Office (JPO) for Phases I and II. Subsequent to Phase II, FMCSA supported the CSTIMS project with its own Research and Technology funds authorized under 49 USC 31108. This statute allows the use of such funds to develop technology for means of reducing the number and severity of accidents, injuries, and fatalities involving commercial motor vehicles (CMVs).

This project was segmented into two phases with five distinct tasks. These included:

Phase I—Requirements, Specifications, and Design

- Task 1: Business Requirements Definition. This task required the project team to document the business and technical requirements for a CDL anti-fraud system, including the identification of known vulnerabilities in the current CDL system(s). This task was completed in February 2004.
    - The team conducted a literature review to determine vulnerabilities in CDL testing associated with the use of third-party testers. The goal was to identify both the key functionality of an anti-fraud system and any best practices with the motor vehicle

agency community to address such fraud through the proper administration of a CDL third-party tester program at the State level.

- Task 2: Technology Baseline Assessment. The team assessed the current level of automation in State CDL systems and documented specific State CDL systems. This task was completed in February 2004.

    – The team surveyed States to determine how technology was currently deployed in support of CDL third-party tester programs. The team also performed an end-to-end review of State processes for the establishment, administration, and monitoring of third-party testers. The American Association of Motor Vehicle Administrators (AAMVA) completed site visits to three States: Florida, South Carolina, and Wisconsin. AAMVA also formed a working group to approve the interview guides and validate the recommendations from these visits. These States volunteered time and staff to participate in this effort—as did FMCSA staff, and, in some instances, third-party testers within the State. Prior to the site visits, States were supplied with a set of questions to be covered in discussions during their site visit. Each meeting began with the State motor vehicle agency giving a presentation of their current approach to CDL third-party testing. Following that presentation, a question and answer exchange took place as their processes were further reviewed. The sessions concluded with specific discussions of instances of fraud within the State.

    – All visited States had well-defined processes in place to ensure that third-party testers and all examiners were properly trained and audited. However, every State could have benefited from additional automation to improve oversight of the third-party testing program.

    – AAMVA prepared and delivered a technical memorandum to FMCSA, which documented the findings of Task 1: Business Requirements Definition and Task 2: Technology Baseline Assessment, both of which were conducted in parallel from December 2003 through February 2004.

- Task 3: Specifications, Development, and Design. The team developed functional and performance specifications and a detailed design for a prototype and pilot system to address the vulnerabilities and meet the business requirements identified in Task 1. This task was completed in December 2004.

    – The team held bi-weekly meetings with representatives that administered, conducted, and monitored CDL third-party tester programs. This forum determined the business rules and policies and made the final decisions that were incorporated into the system design. The resulting system design dealt with the events that occurred within the scope of CDL third-party testing and described the system responses to each of those events. The events and the system responses were described in terms of information flows. These information flows were subsequently used in Phase II to produce a prototype system that was piloted by States and third-party testers.

Phase II—Prototype, Pilot Testing, and Evaluation

- Task 4: Prototype and Pilot Testing. This task required the team to develop a prototype anti-fraud system and test the system in at least three pilot States. This task was completed in December 2006.

    – During the pilot testing and evaluation period, a prototype CSTIMS was deployed in four States (Alaska, Arizona, New Mexico, and South Dakota) and was used to schedule, administer, evaluate, and conduct oversight for CDL skills testing. In addition to the 4 States, a total of 34 third-party CDL test organizations and 117 CDL testing examiners (from both State and third-party CDL testing organizations) participated in the pilot testing and evaluation. As of December 31, 2006, the 4 participating pilot States collectively used CSTIMS to schedule 9,246 CDL skills tests for 2,619 CDL applicants and provide real-time and historical oversight. During this period, CSTIMS reported an overall test pass rate of 94 percent for the four participating States.

- Task 5: Final Evaluation. This last task required the assessment of the ability of the prototype system to combat CDL fraud and estimate the safety and security benefits offered by the prototype system. This task was completed in December 2006.

    – During the evaluation period, the pilot States, FMCSA, and AAMVA identified and documented 112 issues, areas for enhancement, and recommendations for improvement. Of these items, 28 were designated "critical." There were 19 funding, functionality, and deployment recommendations offered to address these items. Estimates for the cost and effort to modify CSTIMS, complete CSTIMS deployment and training for all States, and to provide ongoing operational support were formulated.

1.3 POST-PILOT ENHANCEMENTS

The pilot test ended and CSTIMS became operational in April 2006. AAMVA maintained the system but did not make any enhancements until funding was received in 2008.

In December 2008, AAMVA formed a "Stakeholder Forum" with three of the four original pilot States and other interested jurisdictions.

1.3.1 Release 2.0 (January 2011)

CSTIMS was re-engineered starting in October 2009 and an updated version was released in January 2011. This effort took advantage of more recent technologies (e.g., .NET framework) and provided for a more consistent "look and feel" across AAMVA applications. The re-engineering also included these new functionalities:

- A "Calendar Tool" that provides a weekly view of scheduled tests and reduces the amount of time required to locate a particular test (for either a specific applicant or examiner).

- The 2005 CDL Test Scoring Model was incorporated. The original CSTIMS supported AAMVA's 2.0 Scoring Model. Incorporation of the 2005 Scoring Model allowed States to migrate to the most current standard. AAMVA continued to support both scoring models for those States that had not yet migrated.

- A streamlined navigation screen. The original CSTIMS required the user to go through multiple screens to find the test for which results were to be entered. The calendar tool provides a right-click option, which is much more efficient.

- The ability to select the same vehicle for the Basic Controls Skills (BCS) Test and Road Test as was used on the Vehicle Inspection (VI) was added. One of the major complaints during the pilot test of CSTIMS was the re-entry of vehicle characteristics on each segment of the skills test. Adding the "Same as VI" checkbox reduced the time to populate the vehicle characteristics and reduced errors.

- New business rules were added to require CDL monitor approval on all scheduled tests.

Since the rollout of the new Web site, AAMVA has been making functional enhancements. Releases have occurred quarterly since January 2011.

1.3.2 Release 2.1 (March 2011)

Calendar tool improvements:

- Provided an option for a "daily" calendar view in addition to the current "weekly" calendar view. Some States have enough schedules that the calendar is difficult to read using the weekly display.

- Enhanced the calendar tool to allow optional display of actual tests and to allow printing of test results directly from the calendar. A filter was added to display scheduled, completed, or canceled tests with a right-click option to print completed tests.

- Enabled tests to be moved to a different date and/or time (within the same week) by using the mouse drag-and-drop capability, and reduced the time necessary to reschedule a test. Previously, a user could right click and view the schedule, change the date and/or time, and save; however, drag-and-drop speeds up the process and reduces errors.

- Provided an automatic failure functionality directly from the calendar, similar to the current test cancellation capabilities.

Alert Improvements:

Enabled a CDL monitor to refine the conditions under which he/she would be notified. Some CDL monitors do not want to be alerted about differences between scheduled and actual information. Before this enhancement, CDL monitors were notified if there was a difference between the scheduled and actual data—even if the test time changed by just 1 minute. CDL monitors can now specify the situations under which they want to be notified (date change, time change by more than "x" minutes, examiner change, test site change, and/or test route change).

Test Scheduling:

- Corrected vehicle failures as not being the fault of the CDL applicant. A correction was made to the previous functionality where *any* failure was taken into account when notifying the CDL monitor of the minimum wait time required before an applicant could be rescheduled following a failure. Vehicle failures are different from applicant failures and are not considered when checking the jurisdiction business rule for minimum waiting time after a failed exam. Now only failures based on the applicant's actions are subject to the minimum waiting time restriction.

- Provided State Responsible Parties (defined as users with a responsible party role) with access to scheduling information for multiple State (but not third-party) organizations. This feature includes the ability to view and enter schedules, and it allows States with a multi-tiered organization structure to have oversight over all testing organizations in the structure.

Test Results:

- Enhanced the display of test completion information. To ensure the appropriate CDL is issued (class, endorsement, air brakes, and transmission), the "Test Completion Confirmation" screen must prominently display the actual test parameters in one area. If the test was accomplished without air brakes and/or with an automatic transmission, this is further highlighted because these conditions result in restrictions on the CDL.

Bug Fixes:

- Corrected the unexpected error received when making an edit to an individual schedule.

- Corrected the unexpected error received when a trailing space would appear in the Applicant Name field.

- Corrected the situation where an applicant with an apostrophe in his/her name could not be found during the applicant search. The search algorithm was modified to allow searching for names such as "O'Connor" with or without the wild card character.

- Enabled sending an alert for "Examiner at Different Test Site on Same Day." A request for this alert was received from FMCSA during the pilot. If two sites are in close proximity, this might not be a problem. However, if they are at opposite ends of the State, there may be fraudulent activity. The alert notifies the CDL monitor, and he/she must determine any fraudulent activity.

- Corrected alert for "Scheduling Change Due to Date or Time Change" in order to provide notification to ensure that CDL monitors and/or auditors were alerted of schedule changes to allow accurate, covert monitoring.

1.3.3 Release 2.2 (June 2011)

Test Scheduling:

- Provided the generation of an email alert if test results are entered for a pending scheduled test. This enhancement is a followup to the business rule for requiring CDL monitor approval of all tests. If a test is administered before CDL monitor approval, notification is sent to the CDL monitor.

- Created an option to allow entry/display of test schedule times in either 24-hour or 12-hour modes. Because many users are not familiar with the 24-hour time format (e.g., 1500 for 3 p.m.), this option provides individuals the ability to specify a preferred time format to use for all screens and reports that indicate a time.

Test Results:

- Created a notification that tells the user if he/she tries to leave the page without saving changes while entering test result information. Sometimes users were entering all the information for the VI and clicking on the "Basic Controls Skills" link without saving.

- Enabled a warning to users if vehicle type, class, air brakes, or transmission are different between different test segments. If the "Same as VI" option is not used, it is possible to have different vehicle characteristics for each segment of the skills test. This warning allows the user to correct entries while still on the test results entry form.

- Enabled applicant to easily print test results.

- Added additional reasons for road test failure based on the CDL 2005 Scoring Model.

Reports:

- Included State totals on Test Count and Pass/Fail report.

Cosmetic/Appearance/Usability:

- Enhanced visibility of State-specific messages. Any specific message (as entered by the State administrator) appears above the main menu bar for all users in that State. The font size and color were modified to make this more apparent.

Bug Fixes

- Enhanced test history to show correct scheduled date if scheduled test data are modified by CDL monitor (after entry of test results).

- Ensured that scheduled information versus actual information is displayed correctly. "No Test Route" is displayed on VI and BCS for completed tests because the test route is applicable only to the road test segment of the skills test. "Test Route" was removed from the VI and BCS sections of the printed report. The "Print" button on the "User List" tab is clicked to generate a report.

- Enabled removal of CDL monitor role if that person also has an examiner role. This is a correction to functionality.

- Upgraded cosmetic, appearance, and usability functions. Fields are now aligned in the "Jurisdiction Business Rules." A "Prevent Operator Browser Access" feature was added so that when a user attempts to log on, a check is made on the browser being used. If the browser detected is other than Internet Explorer, Firefox, or Chrome, login is denied. "Unexpected Error" is no longer generated if trailing blanks appear in user name, and a State-specific message no longer overlaps the State flag/seal image.

1.3.4 Release 2.3 (September 2011)

Jurisdiction Business Rules:

- Added jurisdiction business rules to allow the time period between audits to be defined.

- Enhanced Existing Testing Organization audit form to include the ability to:
    – Add a "Next Audit Due" date.
    – Attach documents to "Audit Records."

- Added a new audit form for examiners. Originally, audits could be tracked only on "Testing Organizations." A working group from a subset of current users was formed to assist in developing the audit form for examiners.

- Modified available "Audit Types" to include "covert," "co-score," and "retest." These "Audit Types" are flags that the CDL monitor or auditor can set on scheduled tests. These flags notify auditors of any changes to tests to ensure that any covert monitoring can be performed successfully.

- Added a "Next Audit Due" column to audit tables for both the testing organizations and examiners.

- Implemented "Auditor Association with a Testing Organization(s)" feature to allow auditors to choose specific testing organizations for monitoring. The auditor is provided with a notification of all schedules and schedule changes for the testing organization(s) with which the auditor is affiliated.

Test Results:

- Modified the way CSTIMS computes pass (P) and fail (F) rates. Prior to Release 2.3, simple addition was used to compute the totals of all segments of the skills test (i.e., the VI, BCS, and road test). This was changed to the following:
    – Pass. All segments on a schedule that have at least one P with the remainder made up of P or cancellations (C).
    – Fail. Any segment on a schedule that has an F.
    – Incomplete. The segments on a schedule that have at least one P *and* one not administered (N) with the remainder made up of Ps, Ns, or Cs.
    – Not counted. Schedules with the results for all segments of C or N.

The focus of the 3.0 release was on satisfying the provisions of the final permit rule (CDL Testing and Commercial Learner's Permit [CLP] Standards, issued May 9, 2011) and including new functionality deemed critical for new States to consider implementing.

1.3.5 Release 3.1 (December 2011)

Jurisdiction Business Rules:

Separated "Advance Schedules" and "Time After Failure" functionalities for jurisdiction and third parties. The final permit rule requires third parties to provide schedules at least 2 days in advance. The advanced scheduling days are broken out separately for State and third-party examiners, and a similar breakout was made for waiting times after failures.

- Added the following options in accordance with the final permit rule:
    – Minimum advance days for third-party scheduling.
    – CLP information is now required on applications. Full implementation of the final permit rule requires issue date, expiration date, date of birth, class, and any endorsements.
- Added CLP "Expiration Date," "Class," and "Endorsement" fields to the "Applicant" and "Scheduling" screens.
- Added the generation of an on-screen alert if "Minimum Advance Days" business rule is violated.

1.3.6 Release 3.2 (March 2012)

Cosmetic/Appearance/Usability:

- Implemented a preliminary dashboard that will ultimately allow for the elimination of simultaneous multiple emails and, more importantly, allow a group of CDL monitors to "manage" alerts/information. The dashboard allows entry of comments while working on an issue. All comments entered are available for review.
- Added a "CDL Monitor Affiliation with Testing Organizations" feature. This feature allows a CDL monitor to be affiliated with specific testing organizations. It is likely to be of special interest or relevance to States with large geographic areas. Listed are the following functionalities:
    – On the dashboard, the CDL monitor only sees events related to organizations and/or examiners within his/her area of responsibility.
    – On the calendar view, the default view for the CDL monitor is schedules for testing organizations with which he or she is affiliated. The CDL monitor can change the default view and see all schedules for the entire State.
    – Assignments can be made by the State administrator or the CDL monitor (who can only assign to him/herself).

Jurisdiction Business Rules:

- Added final permit rule training requirement. A new jurisdiction business rule was added to allow each State to define how often examiner refresher training should be performed (maximum of 4 years). If the business rule is being enforced, then the following apply:

  – On the "Examiner Details" tab, two new fields were added: "Next Training Due" (automatically calculated based on the jurisdiction business rule) and "Last Training Completed" date entry. A "Next Training Scheduled" date can also be entered.

  – Dashboard functionality for jurisdictional administrators and CDL monitors:

    › "No Completed Training Date" shows all examiners that do not have a training date entered and allows direct entry of the training completion date. If the training date is not known, comments can be entered.

    › "Training Past Due" displays names of the examiners who are past their training due dates—which are calculated from the jurisdiction business rule—and the "Examiner Training Completion Date." The CDL monitor can enter the training scheduled date or enter comments related to their activities.

    › "Minimum Training Requirements Not Met" displays names of examiners who have not administered tests to 10 different applicants or have not completed refresher training in the year selected (previous calendar year is the default).

    › "Scheduled Training" view allows the CDL monitor to view all the names of all examiners with training scheduled in the next 3, 6, or 12 months.

- Added final permit rule test scheduling. A new jurisdiction business rule has been added to allow the ability for each State to enforce test scheduling restrictions (can only be selected if the "Require CLP Information for Applicants" is also selected). Test scheduling restrictions include the following:

  – Only allows test scheduling 14 days AFTER the CLP issuance date and BEFORE CLP expiration date.

  – Only allows test scheduling of authorized vehicle classes and endorsements based on information provided by the CLP applicant (options are restricted in the pull-down menu). NOTE: Class A authorizes an applicant for A/B/C, Class B authorizes an applicant for B/C, Class C authorizes an applicant for C and school bus endorsement.

- Implemented dashboard functionality for test results:

  – Notification to CDL monitors if a test is administered PRIOR to 14 days after the CLP issuance date.

  – Notification to CDL monitors if a test is administered AFTER the applicant CLP expiration date.

  – Notification to CDL monitors if a test is administered and the Class/Endorsement does not match CLP information.

1.3.7 Release 3.3 (July 2012)

- Added "Surety Bond" feature to enable the motor vehicle administrator (consistent with an option in the final permit rule) to track whether a third-party tester has sufficient bond to pay for re-testing if a third-party examiner employed by the tester was found to engage in fraud during testing. If the business rule is being enforced, then the following apply:
    – Require jurisdiction administrator to enter surety bond requirement at the State level.
    – Require CDL monitor to enter surety bond information for each third-party tester.
    – Implement the dashboard option to track missing surety bond information.

- Added "Minimum Training Requirements Not Met" feature to comply with the final permit rule requirement related to State examiners co-scoring another examiner.

- Upgraded dashboard to include the following functions:
    – Notification is now provided to CDL monitors if the BCS and/or road test is administered (and if there is any test result other than a cancellation) after failure of the VI segment of the skills test.
    – Notification is now provided to CDL monitors if the road test is administered (and if there is any result other than a cancellation) after failure of the BCS segment of the skills test.

1.3.8 Release 3.4 (September 2012)

- Added fifth-wheel restriction element to "Test Vehicle Type" pull-down menu. The "Combination Vehicle" entry in the "Test Vehicle Type" pull-down menu on the test results entry has been replaced with the following:
    – Combo—Truck/Trailer.
    – Combo—Tractor/Semi-Trailer.
    – If the "Combo—Truck/Trailer" is selected, the "O" restriction (no tractor-trailer commercial motor vehicle) was noted.

- Enhanced test completion confirmation. The display of test completion information was enhanced to include the standardized restrictions in the final permit rule. To ensure the appropriate CDL is issued (class, endorsement, and restrictions [e.g., air brakes and transmission]), the "Test Completion Confirmation" screen prominently displays the actual test parameters in the appropriate area. For example, if the test was accomplished without air brakes and/or with an automatic transmission, this information is further highlighted because the omission of these parameters could result in restrictions on the CDL.

1.4 ELECTRONIC COMMERCIAL DRIVER'S LICENSE SYSTEM INTEGRATION

To enhance CSTIMS and to identify potential fraud, AAMVA worked with the West Virginia DMV and Rahall Transportation Institute (RTI) to integrate the Electronic Commercial Driver's License System (eCDL). The eCDL program is designed for use with global positioning system

(GPS) technology to monitor location and time during skills testing and to allow immediate observation for detecting fraud. The integration reduces paperwork and typographical errors by third-party clerks or examiners. The eCDL integration project was completed by September 2012. There may be unresolved issues because RTI was not able to complete its portion on time.

Many States have shown interest in eCDL or a similar application. In an attempt to generate more interest and participation in CSTIMS, AAMVA is initiating discussions with an existing producer of an application similar to eCDL for potential integration of CSTIMS with its road test application in the near future.

1.5   CSTIMS SYSTEM SECURITY

In order to protect confidentiality, integrity, and availability of information, AAMVA has applied its security lifecycle management. Development of the security lifecycle was based on official directives, including the National Institute of Standards and Technology Federal Information Processing Standards Publications and Special Publications Series 800.

AAMVA has conducted a business impact analysis and assessed the system availability and recovery requirements for CSTIMS. AAMVA is also implementing the capability to meet the necessary system availability requirements. In order to mitigate potential privacy risks, AAMVA has conducted a privacy impact analysis and evaluated processes for handling personally identifiable information. AAMVA also is planning to create and deliver security awareness training for all CSTIMS users.

To improve protection of information technology (IT) resources, a system security plan has been created for CSTIMS. The purpose of this plan is to provide an overview of the security of CSTIMS and describe the controls and critical elements that are in place or being planned for, based on National Institute of Standards and Technology Special Publication 800-53 Revision 3, Recommended Security Controls for Federal Information Systems and Organizations.

Currently, CSTIMS is operational in nine States. In order to ensure uninterrupted operation of CSTIMS, AAMVA is working on a disaster recovery plan for the system, which will have provisions for annual testing to ensure the effectiveness of implementing the plan.

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2. STATE PARTICIPATION

2.1   CURRENT USAGE AND USAGE MAP

There are currently nine States using CSTIMS:

- Iowa (as of September 2010).

- Kansas (as of April 2010).

- Kentucky (as of March 2012).

- New Mexico (as of July 2006)—pilot jurisdiction.

- Oklahoma (as of January 2011).

- Oregon (as of April 2010).

- South Dakota (as of June 2006)—pilot jurisdiction.

- Tennessee (as of September 2010).

- Wisconsin (as of May 2011).

States currently using CSTIMS are shown in Figure 1 (as of September 30, 2012). AAMVA has also been in contact with a number of jurisdictions which are in various stages of consideration for implementation. These States are shown in Figure 1, as well.
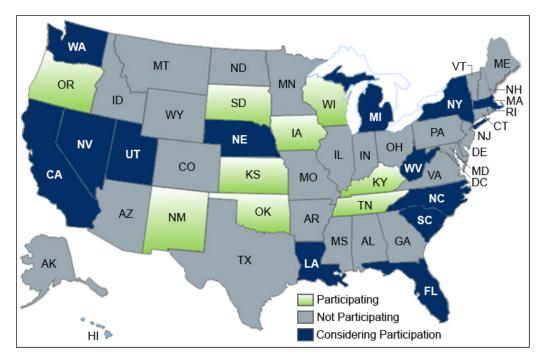

Figure 1. Map. States participating in or considering the use of CSTIMS as of September 30, 2012.

NOTE: Alaska (pilot jurisdiction) ended its operational CSTIMS pilot participation in August 2006. Due to economic reasons and lack of staffing, Arizona (pilot jurisdiction) ceased participation in December 2009.

2.2   WORKING GROUP

The CSTIMS working group of States met for the first time in December 2003. Over the course of the next 3 years, the group determined the business rules and policies and made the final decisions that were incorporated into the system design. Since the beginning of 2007, there has been no formal working group. Suggested enhancements and improvements come from the participating States, usually via email. If there is a proposal that could affect other States, a notification is sent out for comment.

In December 2008, AAMVA formed a stakeholder forum with the pilot States (without Alaska) and other interested jurisdictions to provide guidance to the CSTIMS program.

After 2010, AAMVA presented its suggested enhancements and updates to current and potential users for their feedback prior to finalizing requirements for each release. More weight is given to the opinions of States currently using CSTIMS or States that are willing to use CSTIMS after the enhancements. AAMVA also maintains a log of enhancements suggested by States for future development and implementation.

2.3   BENEFITS

Participating States continue to enjoy the benefits of CSTIMS. CSTIMS:

- Is a Web-based (no development cost for States) software-as-a-service. No adaptations are required for legacy systems.

- Is applicable to all examiners (both State and third-party).

- Is capable of tracking examiners who work for multiple testing organizations.

- Can accommodate Certification Control Documents (CCD).

- Enables scheduling in advance, which facilitates oversight and covert monitoring.

- Enables calendar viewing of all schedules in one place (can be filtered to reduce clutter).

- Generates automatic alerts for events out of the norm.

- Generates reports (e.g., pass/fail reports which can be viewed at the State, testing organization, or examiner level).

2.4   FUTURE ENHANCEMENTS

AAMVA continues to gather information from CSTIMS stakeholders about improvements and potential enhancements that could be made to the system. AAMVA maintains these requests in the Team Foundation Server ticketing system (see Appendix A).

3. OUTREACH

3.1 ACCOMPLISHMENTS TO DATE

AAMVA has presented information about CSTIMS at a number of venues. The benefits of the system were presented at the CDL/IT Workshop in September 2011 by representatives from Kansas and Tennessee (the two most recent States to deploy CSTIMS at the time). At the workshop, AAMVA provided self-produced brochures for every attendee's welcome packet. After the workshop, AAMVA contacted participants from each attending State to gauge their interest in or ability to begin using CSTIMS. This generated responses from a few States. Additionally, when a new State deploys CSTIMS, the news is included in AAMVA's *The Week in Review* (an electronic publication that contains current news briefs on topics affecting chief administrators and law enforcement officials).

AAMVA provides an overview of CSTIMS and training to various audiences upon request. A description of all enhancements is provided to current users as well as to those who have shown interest prior to each release.

AAMVA aggressively markets CSTIMS to encourage States to join the program. In an attempt to generate more interest and participation in CSTIMS, AAMVA has scheduled webinars to highlight what CSTIMS does, discuss the benefits of CSTIMS, and explain how CSTIMS can help satisfy some provisions of the final permit rule which went into effect on July 8, 2011.

In June 2012, two webinars were conducted, resulting in encouraging responses from the States. The two webinars attracted 50 attendees from the following jurisdictions:

- Non-CSTIMS participants: Arkansas, Arizona, California, Florida, Hawaii, Georgia, Idaho, Illinois, Maryland, Michigan, Minnesota, Missouri, Montana, North Carolina, North Dakota, Nebraska, Nevada, New York, Rhode Island, South Carolina, Virginia, Vermont, and FMCSA.

- Current users: Iowa, Kansas, Kentucky, Oregon, South Dakota, and Wisconsin.

Current users also provided feedback on the benefits of using CSTIMS:

- South Dakota:
    - There is no longer a need to give the score sheet to the applicant, thereby reducing the possibility of fraud.
    - Right clicking on the calendar allows entry of test results in a few minutes.
    - The fleet vehicle option reduces time and the possibility of keying errors.
    - There have been no complaints from third-party examiners.

- Wisconsin:
    - The calendar view is extremely helpful in scheduling covert audits; one audit resulted in the removal of an examiner from the CDL program.

- The ability to monitor the number of tests scheduled and administered by specific examiners has been beneficial.

- Oregon:
    - CSTIMS is a very user-friendly application.
    - Although many of the users are not particularly computer savvy, CSTIMS is working for them. After 2 years of operation, the number of phone calls has been significantly reduced.
    - Reduction in the amount of paperwork required has helped mitigate the potential for fraud.
    - Tracking of CCDs by CSTIMS has been as asset when performing audits.

3.2 THE PLAN AHEAD

AAMVA will use different marketing media (e.g., Chief Executive Officer's monthly letter and CDL Coordinators' email distribution list, etc.) to encourage States to sign up for the webinars. AAMVA will continue to use AAMVA's regional conferences to promote CSTIMS.

AAMVA will produce a "2-minute sales pitch" video to attract higher-ranking State personnel.

AAMVA is in discussions with Florida to encourage the State to transition to CSTIMS and do away with their "Paperless Waiver System" (developed by Florida in 2004). While sufficient for 2004, this system has not evolved to keep up with FMCSA's changing requirements. AAMVA is considering the following enhancements to CSTIMS to satisfy their business requirements, which will also benefit other States participating in CSTIMS. AAMVA anticipates the addition of Florida to be a huge benefit to the system. Some of the requirements under consideration are:

- The ability to interface with the Florida Driver's License Information System (FDLIS)— the driver record—via a Web service, which could be an interface to the Paperless Waiver System. FDLIS would pass information such as driver's license number to CSTIMS, and CSTIMS would need to share information regarding test results.

- The ability to track test results in order to determine real-time entry of test results versus the date/time on the form. This feature is used heavily for auditing purposes and court cases.

- The restriction on applicants in a responsible party role from entering/updating test results—responsible parties should only view test results. In Florida, examiners are required to manage the test results.

- The enhancement of the "Test Completion Confirmation" page information display, especially in terms of restrictions or endorsements.

- The ability to convert data from their existing system.

AAMVA attended the CDL Coordinator's meeting in January 2013 and enlisted user States to present their experience with CSTIMS. AAMVA will continue to talk about CSTIMS at its regional conferences.

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4. MARKET ASSESSMENT

4.1 SURVEY OF THE CURRENT USERS

AAMVA surveyed the States currently participating in CSTIMS.[1] The purpose of the survey was to validate the benefits of using CSTIMS and assess the State's ability to fund the system. The specific questions included the following:

1. What are the cost savings associated with using CSTIMS?

2. What are the additional benefits of using CSTIMS?

3. Would the State be able to use CSTIMS if there was a fee?

4. How could CSTIMS potentially be funded by the State in the future?
   - Raise CDL fees?
   - Other State revenue sources?
   - CDL grants from the Federal Government?
   - Fees to third parties (if applicable)?

5. Other comments?

The survey was emailed to jurisdiction administrators. The role of the State administrator is to set the jurisdiction business rules and hire CDL monitors, auditors, and clerks at the motor vehicle agency. CDL monitors are responsible for oversight of the CDL program in a State and the approval of testing organizations and examiners, while motor vehicle agency clerks are responsible for issuing CDLs.

Survey results from current users are shown in Table 1. Of the nine States currently utilizing CSTIMS, AAMVA received survey responses from seven. Three States specifically cited cost savings with using CSTIMS, while two reported no savings. Each of the seven States highlighted the benefits of using CSTIMS, but only four States indicated that they may be able to continue using CSTIMS if a fee was assessed. The majority of States using CSTIMS may continue using the system with Federal assistance.

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[1] Because there were nine entities to be surveyed, the survey is exempt from the survey information collection requirements of the Paperwork Reduction Act.

Table 1. Survey results from users (as of September 30, 2012).

Survey Question	Number of Responses	Most Common Response	Second Most Common Response
1. What are the State's costs savings associated with using CSTIMS?	7	Three States specifically cited cost savings; however, overall there were no consistent responses.	
2. What are the additional benefits of using CSTIMS?	7	The majority (five States) found that CSTIMS was a good monitoring tool.	Four States cited the scheduling tool as an asset, which helps prevent double booking with different examiners.
3. Would the State be able to use CSTIMS if there was a fee?*	7	Four States may be willing or able to pay a fee.	Three States are not willing or able to pay a fee.
4. How could CSTIMS potentially be funded by the State in the future?	7	Six States could possibly be funded via CDL grants from the Federal Government.	Three States would require a legislative change.
5. Other comments	3	There were no consistent responses.	

* AAMVA developed an ongoing cost estimate to operate CSTIMS. Specific fee ranges were included to assess the reasonableness of the fees and a potential transition to a fee-based approach (see Section 4.3.1). Estimated annual fees will range from $20,000 to $72,000 for States currently utilizing CSTIMS.

AAMVA did not receive responses from New Mexico and Oklahoma.

4.2 SURVEY OF NON-USERS

In parallel, AAMVA also polled States[2] not using CSTIMS ("non-user States") to better understand the following:

1. What is each State's current solution for CDL scheduling and tracking skills test results?
   - What is the cost of the current solution?
   - How is the current solution funded?
2. Has the State been briefed on CSTIMS?
   - If yes, what is the State's reason for not utilizing CSTIMS?
   - If no, what is the State's willingness to evaluate CSTIMS?
   - What would be the State's key evaluation or buying decision for CSTIMS?
3. What plan is each State making to comply with the final permit rule?

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[2] This survey of non-users was conducted by AAMVA of its members. The members of AAMVA are motor vehicle administrators from the 50 States and the District of Columbia. AAMVA developed the questions for this survey without input from FMCSA. FMCSA neither reviewed nor had final say over the survey questions. No information was collected from the general public at large. No personal information was collected in the survey. There was no requirement in the FMCSA Statement of Work for the CSTIMS project to conduct such a survey. This survey of non-users by AAMVA is exempt from the survey information collection requirements of the Paperwork Reduction Act.

- 49 CFR §383.79(a) "… [for testing out-of-State applicants] test results must be transmitted electronically directly from the testing State to the licensing State …"
- 49 CFR §383.229(a) "… conduct unannounced, onsite inspections of third-party testers' and examiners' records …"
- 49 CFR §383.229(b) "… conduct covert and overt monitoring of examinations performed by State and third-party CDL skills test examiners …"
- 49 CFR §383.229(c) "… maintain a database to track pass/fail rates of applicants tested by each State and third-party CDL skills test examiner …"
- 49 CFR §383.229(d) "… maintain a database … [that] tracks the dates and results of audits and monitoring actions …"
- 49 CFR §383.229(e) "… maintain a database…tracks the dates and results of monitoring action by the State …"
- 49 CFR §383.229(f) "… maintain a database that tracks skills tests administered by each State and third-party CDL skills test examiner …"

4. If a State implemented CSTIMS and a fee was charged, would the State be able and willing to pay a specified dollar amount annually?

5. How could CSTIMS potentially be funded by the State in the future?
   - Raise CDL fees?
   - Other State revenue sources?
   - CDL grants from the Federal Government?
   - Fees to third parties (if applicable)?

Surveys were sent to the CDL coordinators in each non-user State. The fee varied by State according to the methodology outlined in Section 4.3.1. Of the 42 non-user States (and the District of Columbia), AAMVA received 32 responses. Not every non-user State responded to each of the five questions, so the number of responses for each question may vary (as shown in Table 2).

Table 2. Detailed summary of responses to Survey Question 1 from non-user States (as of September 30, 2012).

1. What is Your State's Current Solution for CDL Scheduling and Tracking Skills Test Results?	Responded
Number of States	32
Cost of Current Solution ($0–$50,000)	0
Cost of Current Solution ($50,001–$100,000)	1
Cost of Current Solution ($100,001–$150,000)	0
Cost of Current Solution ($150,001+)	4
Most Common Solution Funded	In-house System (18)
Second Most Common Solution Funded	Third-party/Manual (6)
Third Most Common Solution Funded	N/A

The majority (56 percent) of the 32 non-user States that responded to the AAMVA survey use an in-house system for scheduling CDL testing and tracking results (as shown in Table 2). Six non-user States (19 percent) use a third-party vendor and six non-user States still use manual processes. One non-user State reported that their current solution cost up to $50,000. Four non-user States disclosed that their current solution costs more than $150,001.

Table 3. Detailed summary of responses to Survey Question 2 from non-user States (as of September 30, 2012).

2. Has Your State Been Briefed on CSTIMS?	Responded
Number of States	27
Yes, briefed on CSTIMS	23
Willing to evaluate CSTIMS	11
Most common reason for not utilizing CSTIMS	Prefers its current system
Second most common reason for not utilizing CSTIMS	Incompatible with current system
Third most common reason for not utilizing CSTIMS	Cost
No, not briefed on CSTIMS	2
If no, how many willing to evaluate CSTIMS?	1 (maybe)
Most common reason for buying/evaluating CSTIMS	Lower cost
Second most common reason for buying/evaluating CSTIMS	Compatibility with current system
Third most common reason for buying/evaluating CSTIMS	Scheduling component

Eighty-five percent of the respondents have been briefed on CSTIMS, and almost half of those are willing to evaluate the system (Table 3). The most common response for not using CSTIMS was that the non-user State preferred its current system. The second most common response was

that CSTIMS was incompatible with their current system. Looking to lower costs is a key consideration for evaluating CSTIMS.

Table 4. Detailed summary of responses to Survey Question 3 from non-user States (as of September 30, 2012).

What Plan is Your State Making to Comply With the Following Requirements of the Final Permit Rule?	Number of States Responded	Number of States Already Implemented Provision	Planning to Implement Using Software on Own	Planning to Implement Manually	Planning to Implement Using CSTIMS	Provision Is Being or Will Be Implemented by Other or Undisclosed Means	No Response/ No Action Taken
A. Results of testing out-of-State applicants must be transmitted electronically directly from the testing State to the licensing State.	28	5	5	2	4	6	6
B. Unannounced, onsite inspections of third-party testers' and examiners' records must be conducted.	28	20	3	0	2	1	2
C. Covert and overt monitoring of examinations performed by State and third-party CDL skills test examiners must be conducted.	28	18	3	0	2	4	1
D. Database to track pass/fail rates of applicants tested by each State and third-party CDL skills test examiners must be maintained.	28	16	3	2	2	4	1
E. Database to track the dates and results of audits and monitoring actions must be maintained.	28	12	6	3	3	2	2
F. Database to track dates and results of monitoring action by the State must be maintained.	28	12	7	3	3	2	1
G. Database to track skills tests administered by each State and third-party CDL skills examiner must be maintained.	28	14	4	1	3	2	4

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Only one non-user State indicated that it was willing/able to pay if a fee were implemented for the use of CSTIMS; however, six said they may be able to pay a fee (as shown in Table 5). Eighteen of the respondents (56 percent) cannot pay a fee. AAMVA developed an ongoing cost estimate for the operation of CSTIMS. Specific fee ranges were included (see Section 4.3.1) to assess the reasonableness of the fees and a potential transition to a fee-based approach.

Table 5. Detailed summary of responses to Survey Question 4 from non-user States (as of September 30, 2012).

4. If Your State Implemented CSTIMS and a Fee Was Charged, Would Your State Be Able and Willing to Pay a Specified Dollar Amount Annually?	Responded
Responded	32
Responded "Yes"	1
Responded "No"	18
Responded "Maybe"	6
Responded "It Depends"	7
Responded "Not Likely"	N/A

A detailed summary of responses to Question 5 from non-user States is shown in Table 6. Of the 21 non-user State survey responses to Question 5, the majority (48 percent) indicated they could possibly be funded by CDL grants from the Federal Government. Only one non-user State reported potential funding via CDL fees. Again, the majority of responses reported needing additional appropriations or legislative change in order to purchase the system.

AAMVA did not receive responses from the following non-user jurisdictions: District of Columbia, Indiana, Louisiana, Massachusetts, Maryland, Michigan, Mississippi, Montana, New Jersey, New York, Pennsylvania, South Carolina, Texas, and Utah.

Table 6. Detailed summary of responses to Survey Question 5 from non-user States (as of September 30, 2012).

5. How Could CSTIMS Be Potentially Funded by Your State in the Future?	Responded
Responded.	21
Potentially funded by CDL fees.	1
Potentially be funded by other State revenue sources.	0
Potentially be funded by CDL grants from the Federal Government.	10
Potentially funded by fees to a third party.	0
Potentially funded by "Other," list source, and number of States listed with "Other" source.	N/A

4.3 FINANCIAL ANALYSIS

AAMVA estimates that it will cost approximately $700,000 to operate and maintain CSTIMS annually (Table 7).

Table 7. Breakdown of the annual costs of CSTIMS in September 2012.

Task	Estimated Cost
Program Oversight and Management	$260,000
Ongoing Operational Support and Enhancements	$359,000
Ongoing Security Assessment	$31,000
Data Center	$50,000
Total	**$700.000**

A fixed-fee allocation by the State may be established to encourage the use of CSTIMS. Any fee approach that establishes per-transaction-based fees may be viewed as a drawback to using the system; thus, transaction-based fees will not be considered. A fixed-fee allocation is also preferred by the States for budgeting purposes. Three approaches were considered in determining potential fixed-fee allocations to the State based on the projected number of participating States and on the following:

- Number of CSTIMS users (State and third-party) in the State.

- Number of CDL applicants in the State.

- Number of commercial drivers in State. Note that the number of current commercial drivers in a State and the number of future CDL applicants can be correlated.

Of the three approaches, the third approach is the most practical to implement because the number of commercial drivers in each State is most easily obtained. The primary limitation with the first two approaches is that AAMVA (or whoever administers CSTIMS) can only see data for those States currently utilizing CSTIMS. Some States may not collect or be able to furnish data on the number of potential CSTIMS users or the number of potential CDL applicants. In such cases, AAMVA is unable to predict the fee allocation ahead of time for a State deciding whether to use CSTIMS.

For budgeting purposes, States need to know the fees before deciding to participate in using CSTIMS. Because the number of commercial drivers in each State has been accurately represented by the number of Master Pointer Records (MPRs) in the Commercial Driver's License Information System (CDLIS) for more than 20 years of operation by AAMVA, AAMVA is able to predict a State's fee allocation for using CSTIMS. Additionally, CDLIS gives the States the ability to check a nationwide information system before issuing a CDL to an applicant. CDLIS is used by all 50 States and the District of Columbia, has an MPR for each commercial driver, and indicates the jurisdiction that issued the commercial driver's latest license. The jurisdiction that issued the most recent CDL owns the MPR until the driver moves to another State.

Also, the number of commercial drivers is the number that does not require a separate audit. Determining the accuracy of the number of CSTIMS users or the number of CDL applicants would require a State to track those numbers if the State was not already doing so, and the numbers furnished by a State would have to be subject to an audit. It would be problematic to go back and collect adjustments in CSTIMS fees charged originally to all States if an error was subsequently discovered during an audit.

Furthermore, the third approach presents the least potential for error in calculating the fee allocation to States. In the other two approaches, the fee allocation is based on either the number of CSTIMS users in a State or the number of CDL applicants in a State. Each of these numbers is far less than the number of commercial drivers in that State. This fact implies that an error in the number of CSTIMS users or in the number of CDL applicants in a State will have more impact than an error in the number of commercial drivers in that State. The reason is the error resulting from dividing the total operating expenses for CSTIMS by the number of commercial drivers will be less than dividing by the number of either CSTIMS users or CDL applicants.

Table 8 illustrates the variability in fees for the three approaches for allocating fees among those States currently using CSTIMS.

Because the approach to fee allocation based on the number of commercial drivers is the most practical to implement, AAMVA used this approach to establish potential State fees in the survey of non-user States (discussed in Section 4.2).

Table 8. Variability in fees among the three approaches for States using CSTIMS.

Participating CSTIMS States[*]	User-Based[†] Fee	Applicant-Based[‡] Fee	MPR-Based[§] Fee
Iowa	$97,382	$91,323	$90,281
Kansas	$32,461	$132,803	$64,628
Kentucky	$26,072	$90,670	$90,477
New Mexico	$108,901	$50,844	$32,559
Oklahoma	$84,293	$16,775	$87,127
Oregon	$91,099	$67,708	$65,910
South Dakota	$50,262	$45,647	$29,420
Tennessee	$81,675	$157,319	$124,473
Wisconsin	$127,225	$46,912	$115,126
Total	**$700,000**	**$700,000**	**$700,000**

* As of September 30, 2012.

† Based on CSTIMS user count by State as of May 2, 2012.

‡ Based on 2011 CDL applicant count by State (no data available for Kentucky; estimate derived from 2012 data).

§ Based on CDLIS MPRs owned by the State for March 2012.

4.3.1   Fee approach

Using the total number of commercial driver records (as determined by the number of MPRs) for the nine States participating in CSTIMS (using March 2012 data for illustration):

- Effective rate per MPR = $0.351 ($700,000/1.99 million MPRs).

- Fee for the jurisdiction with the lowest number of commercial driver records (83,798) = $2,452 monthly; $29,420 annually.

- Fee for the State with the highest number of driver records (354,541) = $10,373 monthly; $124,473 annually.

- Assuming a total of 20 participating States and applying the average number of driver records across all States to an additional 11 States:
  - Effective rate decreases to $0.136 per MPR.
  - Fee for the State with the lowest number of driver records (83,798) = $949 monthly; $11,394 annually.
  - Fee for the State with the highest number of driver records (354,541) = $4,017 monthly; $48,206 annually.

- Fixed monthly fees for an upcoming AAMVA fiscal year could be established by using the number of commercial driver records effective the end of July for participating jurisdictions. The effective rate per MPR would be used to establish fees for a State that begins using CSTIMS during a fiscal year.

4.4   TRANSITION TO SELF-SUSTAINABILITY

During the course of this assessment, several questions have been raised about how CDLIS has been very successful in operating as a self-sustaining system. The fundamental difference between the two applications is that while CDLIS is a Federally-mandated system and all States are required to use CDLIS (otherwise, they are liable for heavy penalties), CSTIMS is not covered by a similar mandate. CSTIMS is a voluntary system, and the majority of States have in-house systems that attempt to provide similar functionality. CSTIMS has to compete with such State in-house systems. In addition, States had already been charging customers applying for a CDL a fee at the time CDLIS became operational, thus making it easier for the States to pay the CDLIS fee.

Initial survey results show that CSTIMS offers a significant benefit to the States in terms of combating fraud. However, due to current economic conditions and pressure on State budgets, the States have indicated that they will not be able to pay user fees to sustain CSTIMS.

With all of the CSTIMS enhancements and improvements completed by September 30, 2012, AAMVA is using the CDL grant funding awarded from FMCSA's CDL Division to continue operating CSTIMS in fiscal year 2013.

If States are unable to contribute enough fees to sustain the system, AAMVA requests that FMCSA fund the difference between what the States are able to pay versus what it costs AAMVA to operate CSTIMS. In addition, to facilitate State participation, AAMVA would request that FMCSA continue funding one-time costs for each State to come on board with CSTIMS.

The best period of transition will initially be discussed with the AAMVA Executive Committee and Board of Directors at a date to be determined. Various transition plans will be presented to the AAMVA Board of Directors to provide guidance on implementation. Options may include:

- 100-percent fee implementation with a full-year notice to the States.

- Phased implementation over a multi-year period.

It should be noted that if the States are unable to contribute enough fees to sustain the system, and FMCSA cannot fund the difference between what the States are able to pay versus AAMVA's cost of operating the CSTIMS, then AAMVA would need to consider discontinuing its operation of CSTIMS.

Any transition plan will require establishing the required agreements and billing structure.

AAMVA can suggest various funding mechanisms to the States including:

- CDL grants to the States.

- Raising CDL and CLP application fees.

- Requesting State appropriations.

- Fees to third parties.

- Fines and penalties, etc.

However, each of these may require legislative action depending on the State.

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APPENDIX A: LIST OF POTENTIAL FUTURE ENHANCEMENTS

Potential Enhancements
All: System allows saving "Test Scheduling" parameters without selecting a single day out of the 7 days.
All: New mechanism needed for data retrieval/data updating so that the forms stay clean (look at AJAX modal style dialog with progress indicator).
All: Jurisdiction business rule form layout change.
AAMVA: New user status change issue.
Washington: Need to set up default jurisdiction working hours with ability to override those hours at the "Testing Organization" level.
All: Organization and examiner linkage issues.
All: Inconsistent "Required Fields" indication.
All: City required for DC address (default to "'Washington") for DC users.
All: "Test Route Approval Date" before associated "Test Site Approval Date."
All: Phone number must be numeric.
All: Require uppercase CCD prefix and suffix.
All: FMCSA monitor able to create or modify user data.
All: Linking of sites and routes; an existing route cannot be used with another site.
All: Addition of tester without responsible party; require any new testing organization to have a responsible party.
All: Need to consider alternatives for better handling of numeric prefixes and suffixes.
All: What action should be taken when "Organizations an Examiner May Work for" parameter is changed?
All: Applicant address; functionality different from all other addresses.
All: Desire to alert user if "caps lock" is on during login process.
All: During "change password" process, notify user if old password is entered incorrectly.
All: Testers can have "active" insurance when jurisdiction does not.
All: Enable sorting on "Test Date" when viewing schedules or completions.
All: Font size in Firefox browser causes some data to not display completely.
All: Use of "enter" key to initiate search; establish a "Test Completion Confirmation" screen.
New Mexico, Arizona, Georgia, Wisconsin: Retest after "Failure Options."
All: Options for scheduling when test already scheduled.
All: Security role alerts should display differently from error messages.
All: Potential roles not aligned properly; strictly a display issue—functionality not affected.
All: For editing CCDs, proper assignment and selection by users needs to be in place.
All: "Applicant Insurance," "CDL Knowledge," and "Medical Card" require detail if these are checked.
All: Allow responsible parties to make some changes to examiner information.
All: Email address validation is needed on organization form; check on validity of extension (.com, .gov, etc.).
All: Enhance "Examiner and Testing Organization" by requiring employment start date; generate alerts if a test administered when examiner didn't work for testing organization.
All: Enable default mailing and primary contact to business address when creating new organization.
All: Limiting schedule view to user's jurisdiction.
All: Method for notifying users to enter schedule reason when "Other" is selected.

Potential Enhancements
All: Defaulting when only one vehicle type authorized during scheduling.
All: For all calendar fields, need to accept user-typed dates as well as calendar control icon.
All: Clearing "Cancel" for subsequent tests when first entered as "Fail" inadvertently.
All: Role of all responsible parties to view the parameters for their organization(s), including the information the CDL monitor enters/maintains; this is strictly a documentation issue.
All: Examiners not "active" in all organizations after sanction; update functionality surrounding examiner sanctions.
All: Considerations if examiners allowed to schedule and enter test results.
All: Vehicle fleets should be taken into consideration by allowing deactivation/deletion of fleet vehicles.
All: Examiner's "Skills Tests Authorizations" should be tied to examiner's license.
All: Auto-population of examiner after initial selection during scheduling.
Oklahoma: Class should be required when a jurisdiction does not require a CDL for examiner.
All: When a CDL monitor adds users for "hybrid" organizations, the user must consider resolution of current role hierarchy.
Arizona: Add an indication that an alert has been read in email.
All: The problem of examiner showing in some views but not others needs to be resolved by addressing "Primary Affiliation" issues.
AAMVA: Disallow a sanctioned examiner from being selected for "Initial Schedule."
Oregon: Jurisdictional administrators can add test fees as a business rule but there is no place when test results are entered to include the fee charged.
Oregon: Enable reporting of "no skills tests conducted" in a month.
All: Generate a report upon request that gives "Applicant No-Shows."
All: Add online help guide for test results. Also add flags for test scheduling, test results, and test details.
All: Add an ability to upload test route document and ability to update documentation on browser settings to allow viewing of test routes.
Oregon: Asked for a sort of organization template letter; however, more details are needed.
All: In a "Sanction Alert," add information about what changed. This would be helpful in the alert message.
Arizona: Enhance email by creating a group-like mailbox concept. This would eliminate need for all users to view all alerts.
All: Take into consideration if a fleet vehicle is deleted or its characteristics altered.
Oklahoma: Enable attaching Medical Certificate; provide upload capability on applicant screen.
All: Enable changing a testing organization to a non-testing one.
All: Show "Late Test Schedule Notification" on a scheduled job instead of at time of database change.
All: Make modifications to testing organization report.
All: Provide notification that a sanctioned examiner's earliest reinstatement date has passed.
All: Provide additional options for alert management by adding hours/days (currently minutes only).
All: Check box desired to allow selection of "All Pass" on audit form.
All: Enhance indication of sanction information for organizations.
All: Fix the apparently inconsistent dates on "Test Details Search Results."
South Dakota: Provide notification if test results are entered before current time (need to account for organizations that may be in different time zones).
All: Clarification on test pass-fail report (e.g., "None" = no endorsement).
All: Eliminate "2.0" tab if jurisdiction under CDL 2005 Scoring Model.
All: Clarify examiner multiple employment report.
Oregon: Enable a new report showing users performing excessive queries.

Potential Enhancements
All: When adding a row to CDL 2.0 BCS form, a change record gets created but entity ID in change log is null. This problem needs to be fixed.
All: Change the audit report to allow for comments to extend across the entire page.
All: CSTIMS user change log report—complete details.
South Dakota: Enable management of applicant changing his or her name.
All: There is a need to restrict scheduling a failure period. Sounds related to Team Foundation Server (TFS) 2369.
All: Enhance alerts to show all test deviance notifications on a scheduled job instead of at database update time.
All: Enable cancellation for remaining tests after cancellation on one.
All: There is a window where an alert would not be generated if actual date changed was more than one day from current day.
All: Enable "Options" to display number of records returned in grids (organization list, user list, etc.).
All: Enhance organization administration by ensuring all required testing organization data" is entered when testing organization is created.
All: Enable a check on all applicants if minimum age has changed.
All: Enable a check to determine whether date on canceled tests is same as failed test on a schedule.
All: Eliminate the generation of an alert if sanction "Save" button is used and there were no data changes.
All: Modify notification message to user when requesting new password before activation.
All: Make enhancements to scheduling report used for monthly statistics.
All: Fix the problem of scheduled tests not appearing on calendar view.
All: Change the wording about canceling tests from the calendar view.
All: Enhance the "Utilization" tab by allowing display of values rather than those values only being visible when hovering.
All: Make class and endorsement information required for all examiners if a jurisdiction business rule requires an examiner to hold a CDL.
All: Enhance the examiner report by adding "Date Range Selected" to "Output."
All: Examiner report needs to take into account employment start and end dates.
All: Allow access to usage reports by users other than System Administrators.
All: "AAMVA User Registration Information" alert needs to identify the system; modify the alert to indicate the system from which the alert originated.
All: There is a need for a way for a responsible party to see examiner details (especially the skills tests that they are authorized to perform for that testing organization.)
All: Redirect users with a role of responsible party, CDL monitor, or examiner to the calendar page when they login or when they hit the home page button.
Washington: Allow using search criteria to add new applicant.
Oregon: Address the need to communicate with groups of people within a jurisdiction by creating a messaging mechanism for jurisdictions.
All: Fix the misleading data provided on test Count or test pass-fail reports. The totals when selecting an individual examiner appear to be for the entire organization. Perhaps the label should be changed.
All: Correct "Test Completion Confirmation" so that it shows only completed tests.
Oregon: Enable responsible parties to mark CCDs that are unused with a different status ("Void," "Stolen," etc.); currently this feature only is available for CDL monitor and jurisdictional administrator.
Oregon: Generate an alert when there is an early test taken after a failed exam.
All: Remove notification if examiner is scheduled at multiple sites.
All: Check or ensure that type, class, endorsement, and transmission for all test results are the same for all tests on one schedule.
All: Enable CDL monitor to add FMCSA users.
Oregon: Auditor role has no alert management capability, which would allow them to refine the volume of alerts received.

Potential Enhancements
Oklahoma: Provide notification when an applicant is added by a third party.
Oklahoma: Provide notification of any failure by a third-party examiner.
Oklahoma: Enhance "Waiting Time to Retest" feature after multiple failures.
Oklahoma: Establish scheduling reason for "Retest."
All: Facilitate movement of data from training into production environment.
AAMVA: Date range not available on schedule graph.
All: All tests for same applicant need to be aligned in calendar view.
Oregon: Include examiner authorizations when an examiner is created.
AAMVA: Programming research is needed to identify why data binding is not operating as expected.
Oregon: The vehicle make list needs updating.
Iowa: Bugs found with deleting user; these bugs prevent a user from being read.
Tennessee: Establish a time limit on banking of test results.
Tennessee: Require written test information when scheduling.
Tennessee: Enable multiple principals for emailing audit results.
Tennessee: Enable using "Applicant Type" when scheduling.
Oregon: Generate an alert or notification if an examiner does not perform expected number of tests (jurisdiction business rule) in a yearly period.
Oregon: Allow a parent to request inclusion of child organizations in test count and pass/fail reports.
All: In examiner scheduling, if only one examiner is qualified for a test, do not make responsible party choose from a list of one.
Tennessee: Generate an alert or notification on examiner with an expired driver's license or Examiner ID.
All: Eliminate extraneous information for scheduled vs. administered test in the examiner schedule report.
All: Generate a notification to responsible parties if schedules exist for an Examiner who is no longer authorized.
All: Fix the test scoring so that it is based on jurisdiction of testing organization, not applicant's residence.
All: Limit scheduling tests to those authorized by the testing organization AND examiner.
All: Allow selection of testing organization when examiner works for multiple testing organizations.
All: Generate an alert received when a test is scheduled that violates jurisdiction business rule (e.g., minimum advance days to schedule exam = 1).
All: Fix the problem if examiner's ID is removed when changing roles on user.
All: Enable removal of jurisdictional administrator role.
Kansas, AAMVA: Limit jurisdictional administrators and CDL monitors viewing of testing organization results only to those organizations to which they are assigned.
Tennessee and Others: Allow jurisdictions to define applicant required fields for test scheduling.
Oregon: Enable viewing of the calendar view sensitive to time zone.
All: Enable responding to feedback from users without an email address.
All: Make right-click menu options available for test scheduling if user has examiner-only role.
All: Enable deleting of bad schedule information.
Tennessee: Make refinements to schedule approval confirmation dialog.
All: Provide ability to remove examiner role from a user.
Oregon: Allow only valid values in applicant suffix field.
All: Maintain vehicle characteristics after entry of test results for which fleet vehicle was used.
All: Correct the error message received when hitting "enter" rather than "tab" during schedule entry.

Potential Enhancements
All: Enable a query of test results to find an applicant who is licensed in a jurisdiction other than that of the one who scheduled the test.
All: Allow ordering the entry of test results.
All: Enhance feedback by allowing communication to users with jurisdictional administrator/CDL monitor roles.
All: Make changes related to user being inactivated so that there is a message generated during login about "Potential Changes to Inactive" and the reason.
All: Enable automatic failure for the BCS under the 2005 Scoring Model.
All: Ensure that Form C is only valid for Class A vehicles (2005 Scoring Model).
All: Provide a MVA Manager role.
All: Include Gross Combination Weight Rating (GCWR) calculation for Class A vehicles.
All: Display applicant information if only one applicant found during search.
Indiana: Jurisdiction business rule is needed to require all three tests on all schedules.
Oregon: Allow auditors to view organization and user information (view only access).
Oregon: Allow searches by examiner number or tester ID.
Oregon, Washington, Maryland: Web service interfaces needed with jurisdiction driver licensing systems.
Washington: More robust scheduling tool is needed before the State could consider participation.
All: Enhance test scheduling related to defaults on vehicle inspection and BCS time durations.
Indiana: Need test reports to group VI/BCS/road test as a single test instead of counting as three.
All: "Utilization" tab of usage charts reports need to display correctly when jurisdiction changes.
All: Fix the "User Detail Activity Report" tab so that it provides no data.
All: Fix the inconsistency in usage reports so that they provide user activity.
Oregon: Enforce minimum waiting period after failure only for the same type of test.
All: Disallow jurisdictions using the 2005 Scoring Model to set passing scores below those in the model.
Indiana, Louisiana: Require form to be "full" on all VIs.
Oregon: Add new vehicle type for HAZMAT vehicles under the 2005 Scoring Model.
All: Provide indication of authorizations assigned to new examiners.
All: Fix the limitation of only eight CCDs displayed to facilitate assigning more CCDs to one examiner.
All: After failure of VI, the user should be asked to cancel BCS and the road test.
All: The email indicating an examiner's skills tests have changed needs to show all authorized skills tests.
All: Selection of fleet vehicle should not allow changes to vehicle characteristics.
All: Provide notification of canceled tests when VI is canceled.
AAMVA: Do not send email when a test is scheduled by examiner.
Tennessee: Provide a new applicant required field—"Employer."
All: Add print schedule info option for all roles to the calendar view. Also, add print individual schedule or print all visible schedules options.
AAMVA: Fix the "test result detail - cancel test" checkbox so that it works correctly when CCD warning is present.
Kansas: Provide ability to retire test routes.
Tennessee: Scheduling restrictions need to be implemented once schedule status is approved.
New Mexico: Show schedules as one entry (instead of the three individual pieces) on the calendar.
New Mexico: Cascade changes to scheduled tests.
AAMVA: Provide notification if examiner was under sanction when test results were entered.

Potential Enhancements
AAMVA: Refine the alert on actual versus scheduled tests.
Oregon: Include schedule comments on test results page.
AAMVA: Examiner notification of schedule change needs to indicate previous date.
New Mexico: Require comments when CCDs are deleted.
AAMVA: Restrict setting of the sanction notification requirement to the CDL monitor (not the jurisdictional administrator).
AAMVA: Set the jurisdictional administrator alert parameters default to "Null" (there should be some sort of default).
AAMVA: Require vehicle characteristics on a vehicle failure.
AAMVA: Notify the auditor when schedule is marked covert, etc., and the schedule is changed.
AAMVA: Distinguish between vehicle failure and test failure.
AAMVA: CSTIMS currently doesn't have a check that the dates entered when specifying daylight hours don't overlap.
AAMVA: Correct the organization report so that it includes all skills test information.
AAMVA: Enable an applicant merge utility.
AAMVA: System administrator can create users with roles other than system administrator, jurisdictional administrator, and FMCSA monitor roles.
Tennessee: Provide notification of schedule approval.
AAMVA: Allow the examiner options to enter tests results from elsewhere than the calendar for schedules in his/her primary affiliation.
AAMVA: Allow users affiliated with multiple organizations to show up in organizations other than their primary affiliation.
New Mexico: Modify CCD report to limit returned records based on "Used on" or "Issue" date.
AAMVA: Add "Same as VI" checkbox for CCD entry.
Tennessee, Wisconsin: The daylight hours alert needs to be calculated correctly.
AAMVA: Generate an error message when approval date is for a test route in the future.
New Mexico: Provide capability for responsible parties to assign blocks of CCDs.
AAMVA: Allow user to opt out of emails for schedule notification alert.
AAMVA: Actual times for tests need to be put in order.
AAMVA: Disallow school bus to be Class A.
AAMVA: Allow a linked responsible party to modify schedules.
AAMVA: Allow "uncanceling" a test.
AAMVA: Send "Scheduled vs. Actual Variance" message only when pertinent data is changed.
Oregon: Allow an examiner to view CCDs assigned to him/herself.
Oregon: Make CCD entry available when auto-failing from the calendar.
Wisconsin: Add scheduler on late schedule alert.
Wisconsin: Allow users to control whether they want to receive insurance notification.
AAMVA: Enhance the test results analysis report.
AAMVA: Allow identification of a primary auditor for each test organization.
AAMVA: Provide the ability to designate specific test organizations, examiners, or applicants for closer scrutiny ("of interest").
AAMVA: Provide notification for next audit of a test organization.
AAMVA: Provide tracking of covert investigation of, co-scoring of, or retest for examiners.
AAMVA: Enable upload of documents.
AAMVA: Enable calculation of CCD usage based on schedule and not test.
AAMVA: Add "Same as BCS" checkbox.

Potential Enhancements
New Mexico: Allow responsible parties to assign "Discard Reason" for CCDs.
AAMVA: Restrict CCD pull-down to CCDs assigned to the actual examiner.
AAMVA: "Daylight Hours" needs to follow the preferred time setting.
AAMVA: Correct the audit report so that it displays data (production or test environments).
AAMVA: Enable entry of proper license data for Motor Vehicle Clerk.
AAMVA: Enable sending of schedule creation events to auditors affiliated with the testing organization.
Tennessee: Enable searching of roles on "User List" tab.
South Dakota: Allow multiple attachments on test routes.
AAMVA: Generate a single alert for initial schedules.
AAMVA: Correct the time display on scheduled test details page.
AAMVA: Enable changes to passenger bus/school bus.
Oregon: Enable linking examiners to specific test routes.
AAMVA: Enable cross check between minimum advanced and minimum wait after test failure.
Tennessee: Provide auditor role read-only access to CCDs.
AAMVA: Auto-populate scheduled times.
AAMVA: Offer an option to disallow third parties from changing schedules after approval.
South Dakota: Prevent scheduling of tests that violate business rules.
AAMVA: Base early schedule alerts after failure strictly on "Failure Business Rule."
AAMVA: Provide details on inactive testing organizations and examiners.
AAMVA: Allow scheduling tests for inactive testing organizations.
AAMVA: Show examiners with no activity on reports.
AAMVA: Fix other idiosyncrasies with use of CSTIMS in Google Chrome.
Kentucky: Add filter on test site on calendar view.
AAMVA: Fix "New Examiner Created" email errors.
AAMVA: Show all examiners in examiner pull-down menu when examiner logs in; also, in calendar view.
AAMVA: Ensure consistency between permit and knowledge tests.
AAMVA: Show dashboard (examiner) results for an examiner in all testing organizations instead of the testing organization with which the CDL monitor is affiliated.
AAMVA: Provide notification of a pending schedule that violates CLP endorsement.
AAMVA: Dashboard entries should be cleared when changing CLP issue or expiration date.
Wisconsin: Provide the ability to view schedules for examiners who work in multiple testing organizations.
AAMVA: Limit organizations to CDL monitor affiliated testing organizations.
AAMVA: Provide an option for end date for test count report.
AAMVA: Allow for notification of testing organizations without being affiliated with a CDL monitor.
AAMVA: Enable linking of test routes for responsible parties to multiple testing organizations.
AAMVA: Enable entering of "undercover applicants."
AAMVA: Display all scheduled tests.
AAMVA: Provide capability to access CSTIMS information via iPhone or iPad.
AAMVA: Allow modifying test results from the calendar.
AAMVA: Incorporate new brake types in accordance with final permit rule.

Potential Enhancements
AAMVA: Disallow "Co-score Administered" on a canceled test.
AAMVA: Entry of fleet vehicle information needs to allow entry of trailer information.
AAMVA: Allow FMCSA access to schedules.
Wisconsin: Enhance search capability for email.
Oregon: Provide capability to communicate with users via CSTIMS.
Kentucky: Allow use of CSTIMS for scheduling of Transportation Security Administration applicants (HAZMAT endorsement).