Feasibility Study Report

ON

Automated Knowledge Testing Expansion

AKTE

DMV # 2010-012

Licensing Operations Division

June 20, 2011

Version
1.0

Technology Agency Revision Date: August 2, 2011

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1.0 EXECUTIVE PROJECT APPROVAL TRANSMITTAL

Information Technology Project Request
External/Reportable
Feasibility Study Report
Executive Approval Transmittal

Department Name	Department Priority	Agency Priority
Department of Motor Vehicles (DMV)		

Project Title (maximum of 75 characters)
Automated Knowledge Testing Expansion

Project Acronym	Technology Agency Project Number	FSR Approval Date
AKTE		

I am submitting the attached Feasibility Study Report (FSR) in support of our request for the California Technology Agency Secretary's approval to undertake this project.

I certify that the FSR was prepared in accordance with State Administrative Manual Sections 4920-4930.1 and that the proposed project is consistent with our information technology strategy as expressed in our current Agency Information Management Strategy (AIMS).

I have reviewed and agree with the information in the attached Feasibility Study Report.
I also certify that the acquisition of the applicable information technology (IT) product(s) or service(s) required by my department that are subject to Government Code 11135 applying Section 508 of the Rehabilitation Act of 1973 as amended meets the requirements or qualifies for one or more exceptions (see following page).

APPROVAL SIGNATURES

Department Chief Information Officer	Date Signed
Printed Name: Bernard C. Soriano	6/23/11
Department Budget Officer	**Date Signed**
Printed Name: Robert Crockett	7/1/11
Department Director	**Date Signed**
Printed Name: George Valverde	07/06/11
Agency Chief Information Officer	**Date Signed**
Printed Name: Robert Glazier (Acting)	7/13/2011
Agency Secretary	**Date Signed**
Printed Name: Traci Stevens (Acting)	7/13/11

1.1 IT Accessibility Certification

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IT Accessibility Certification

Yes or No

YES	**The Proposed Project Meets Government Code 11135 / Section 508 Requirements and no exceptions apply.**

Exceptions Not Requiring Alternative Means of Access

Yes or No	Accessibility Exception Justification
	The IT project meets the definition of a national security system.
	The IT project will be located in spaces frequented only by service personnel for maintenance, repair, or occasional monitoring of equipment (i.e., "Back Office" Exception.)
	The IT acquisition is acquired by a contractor incidental to a contract.

Exceptions Requiring Alternative Means of Access for Persons with Disabilities

Yes or No	Accessibility Exception Justification
	Meeting the accessibility requirements would constitute an "undue burden" (i.e., a significant difficulty or expense considering all agency resources). Explain: Describe the alternative means of access that will be provided that will allow individuals with disabilities to obtain the information or access the technology.

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IT Accessibility Certification (continued)

Exceptions Requiring Alternative Means of Access for Persons with Disabilities

Yes or No	Accessibility Exception Justification
	No commercial solution is available to meet the requirements for the IT project that provides for accessibility. Explain: Describe the alternative means of access that will be provided that will allow individuals with disabilities to obtain the information or access the technology.
	No solution is available to meet the requirements for the IT project that does not require a fundamental alteration in the nature of the product or its components. Explain: Describe the alternative means of access that will be provided that will allow individuals with disabilities to obtain the information or access the technology.

2.0 INFORMATION TECHNOLOGY (IT): PROJECT SUMMARY PACKAGE

2.1 Section A: Executive Summary

1.	**Submittal Date**	July 18, 2011		
2.	**Type of Document**	Feasibility Study Report		
	Project Number	DMV # 2010-012	Technology Agency #	
3.	**Project Title**	Automated Knowledge Testing Expansion	**Estimated Project Dates**	
	Project Acronym	AKTE	**Start**	July 2, 2012
4.	**Submitting Department**	Department of Motor Vehicles	**End/Implementation**	March 11, 2015
5.	**Reporting Agency**	Business, Transportation and Housing	**PIER/Closure**	September 12, 2016

6.	**Project Objectives**
	1. The project will reduce wait times at DMV FOs by the year 2015. 2. The project will reduce by approximately 95% the opportunity for cheating and fraud on system generated tests by the year 2015. 3. Comply with the Federal Motor Carrier Safety Administration (FMCSA) regulations by 2015. 4. Establish automated data collection of testing statistics and provide statistical reports, such as applicant and field office statistics, traffic volumes, audit trail, and statistical reports required by FMCSA by 2015. 5. Reduce the amount of written tests printed from approximately 8.9 million to 200,000, resulting in a savings of 231,400 lbs of paper per year. 6. Provide the ability to allow the system to be used by external business partners to conduct testing on behalf of DMV.

7.	**Proposed Solution**
	Expand the DMV's browser-based, automated knowledge testing system to DMV field offices not currently utilizing the system, and adding seven (7) terminals in headquarters. The system will: • Interface with DMV network connections to allow for real time test result updates to DMV database • Interface with other vendor systems to verify fingerprints; • Utilize a queuing system to direct applicants to testing terminals; • Utilize barcoded applicant receipt to bring up applicant and test information; • Provide for randomized test questions in English and 31 foreign languages; • Record and store test data and meet other functional requirements.

8.	Project Schedule Summary	
	Major Milestones	**Estimated Completion Date**
	Automated Knowledge Testing Expansion	
	Initiation	7/13/2012
	Planning	9/14/2012
	Execution and Control	1/23/2015
	Close-out	9/12/2016
	PIER	9/12/2016
	Key Deliverables	
	Project Approval	7/1/2012
	Contract Award	9/14/2012
	Requirements Finalized	3/1/2013
	Design Finalized	4/5/2013
	Installation and Programming Completed	7/12/2013
	Test Results Approved	9/13/2013
	Implementation	3/11/2015

2.2 Section B: Project Contacts

Executive Contacts								
	First Name	Last Name	Area Code	Phone #	Ext.	Area Code	Fax #	E-Mail
Agency Secretary	Traci	Stevens	(916)	323- 5400		(916)	323- 5440	tstevens@bth.ca.gov
Dept. Director	George	Valverde	(916)	657- 6940		(916)	657- 7393	gvalverde@dmv.ca.gov
Budget Officer	Robert	Crockett	(916)	657- 7034		(916)	657- 6851	rcrockett@dmv.ca.gov
Chief Information Officer	Bernard C.	Soriano	(916)	657- 7626		(916)	657- 8044	bsoriano@dmv.ca.gov
Project Sponsor	Shamim	Khan	(916)	657- 6534		(916)	657- 6261	skhan@dmv.ca.gov

Direct Contacts								
	First Name	Last Name	Area Code	Phone #	Ext.	Area Code	Fax #	E-Mail
Doc. Prepared By	Ajit Glenis	Jagir Baysinger	(916) (916)	657- 0354 657- 9747		(916)	657- 8136	ajagir@dmv.ca.gov gbaysinger@dmv.ca.gov
Primary Contact	Ajit	Jagir	(916)	657- 0354		(916)	657- 8136	ajagir@dmv.ca.gov
Project Manager	TBD		(916)	657-		(916)	657-	
Project Mgnt. Office Contact	Diane	Larsen-Brown	(916)	657- 2878		(916)	657- 7370	dlarsen-brown@dmv.ca.gov
Technical Manager	TBD		(916)	657-		(916)	657-	
Business Manager	Rhonda	Craft	(916)	657- 7023		(916)	657- 6261	rcraft@dmv.ca.gov

2.3 Section C: Project Relevance to State and/or Department/Agency Plans

1.	What is the date of your current Operational Recovery Plan (ORP) which is the DMV Disaster Recovery Plan?	Date	10/7/2010
2.	What is the date of your current Agency Information Management Strategy (AIMS) which is the DMV Information Technology Strategic Plan (ITSP)?	Date	12/2010
3.	For the proposed project, provide the page reference in your current AIMS/ITSP and/or Strategic Business Plan (SBP).	Doc.	ITSP
		Page #	10-14

4.	Is the project reportable to control agencies?		Yes
	If YES, CHECK all that apply:		
X	a)	The project involves a budget action.	
	b)	The new system development or acquisition that is specifically required by legislative mandate or is subject to special legislative review as specified in budget control language or other legislation.	
X	c)	The estimated total development and acquisition cost exceed the departmental cost threshold and the project does not meet the criteria of a desktop and mobile computing commodity expenditure (see State Administrative Manual (SAM) 4989 - 4989.3).	
	d)	The project meets a condition previously imposed by Finance.	

2.4 Section D: Budget Information

Budget Augmentation Required?	Yes	If YES, indicate fiscal year(s) and associated amount:											
		FY	2012/13	FY	2013/14	FY	2014/15	FY	2015/16	FY	2016/17	FY	
			$4,182,997		$2,246,166		$1,201,003		$0		$0		$0

PROJECT COSTS

1.	Fiscal Year (FY)	2012/13	2013/14	2014/15	2015/16	2016/17		TOTAL
2.	One-Time Cost	4,677,581	2,424,247	1,606,806	0	0	0	**$8,708,634**
3.	Continuing Costs	0	33,600	222,450	365,632	438,279	0	**$1,059,961**
4.	TOTAL PROJECT BUDGET	**$4,677,581**	**$2,457,847**	**$1,829,256**	**$365,632**	**$438,279**	**$0**	**$9,768,595**

PROJECT FINANCIAL BENEFITS

5.	Cost Savings/Avoidances	$0	$0	$0	$0	$0	$0	**$0**
6.	Revenue Increase	$0	$0	$0	$0	$0	$0	**$0**

2.5 Section E: Vendor Project Budget

Vendor Cost for FSR Development (if applicable)	**$**
Vendor Name	

VENDOR PROJECT BUDGET

1.	Fiscal Year	2012/13	2013/14	2014/15	2015/16	2016/17		TOTAL
2.	**Primary Vendor Budget**	350,000	0	0	0	0	0	**$350,000**
3.	**Independent Oversight Budget**	0	0	0	0	0	0	**$0**
4.	**IV&V Budget**	0	0	0	0	0	0	**$0**
5.	**Other Budget**	920,400	0	0	0	0	0	**$920,400**
6.	**TOTAL VENDOR BUDGET**	**$1,270,400**	**$0**	**$0**	**$0**	**$0**	**$0**	**$1,270,400**

2.6 Section F: Risk Assessment Information

Has a Risk Management Plan been developed for this project?	No

General Comment(s)
The Risk Management Plan will be developed during the project planning phase in accordance with DMV standards created by the Enterprise Project Management (EPM) Office, the Technology Agency California Project Management Methodology (CA-PMM), and the Technology Agency IT Project Oversight Framework. Identification of risks and development of mitigation plans for individual risk will be developed by the Project Manager and the Project Team. In addition, a completed Office of Information Security and Privacy Protection (OISPP) Questionnaire will be included in this document as Attachment #2.

3.0 BUSINESS CASE

3.1 Business Program Background

California has over 23 million licensed drivers, over 5 million identification card holders, and more than 31 million registered vehicles, with these numbers increasing annually as the population grows.[1] Every year, approximately 8.25 million driver licenses (DLs) and Identification (ID) cards are issued[2] by the Department of Motor Vehicles (DMV).

DMV administers the DL written knowledge test in 168 field offices (FOs) and 15 Driver Safety FOs that provide services for all classes of DLs; 4 FOs that exclusively provide commercial DL services; and 17 Occupational Licensing FOs that provide services and written tests specifically for a wide range of vehicle related business individuals including vehicle salespersons, driving school instructors and participants of the Empolyer Testing Program for commercial drivers. DMV develops and prints 8.9 million paper tests annually in English and 31 foreign languages.

First-time DL applicants, and some DL renewal applicants, are required to complete and pass a written knowledge test of the rules of the road. Applicants taking tests in a foreign language must also pass a separate road-signs test. Audio, video, and person-to-person tests are available to assist applicants with special needs. Those applying for commercial DLs (CDL) and/or ambulance driver certificates must take additional written knowledge tests, specific to the type of license or endorsements requested, which are administered in English and Spanish only. The hazardous material endorsement test is only administered in English due to federal requirements.[3]

In 2005, DMV conducted a study on automated knowledge testing allowing several vendors to participate in a Proof-of-Concept demonstration conducted at no cost to the State.

The demonstration's objectives were as follows:

- Evaluate the impact and the public's acceptance of using touch-screen terminals for automated knowledge testing, applicant surveys and education, and the Perceptual Response Time (PRT) test.[4]
- Reduce applicant and employee DL fraud related to test administration.
- Evaluate potential for reduction in FO demand and applicant wait times in the FOs.
- Obtain information to estimate and plan for statewide implementation.

Two vendors successfully completed the Proof-of-Concept demonstration for an automated knowledge test system. The Oppenshaw Media Group (OMG)/Viisage

[1] DMV Statistics for Publication
[2] DMV Driver License Issuance Activities Report
[3] Motor Carrier Safety Improvement Act of 1999
[4] If the applicant did not pass the knowledge test, the system automatically administered the PRT.

conducted the testing at the Sacramento Broadway FO from November 9, 2005, to May 12, 2006; and Q-Matic conducted the testing at the Hollywood FO between January 17, 2006, and May 12, 2006. A total of 31,919[5] tests were administered in both offices. There were 15,977 (50.0%) applicants that passed the tests and 15,942 (49.9%) applicants that failed. Although detailed statistics were not kept for the written knowledge tests administered during the demonstration, information from a separate office survey conducted by the Department's Research and Development Unit indicated that 45.8%[6] of original applicants for a DL failed the written knowledge test the first time.

Of the 9,300 applicants who completed the surveys during the Proof-of-Concept about the effectiveness of the automated testing methodology, 91.5% stated that the instructions were easy to understand and 73.0% preferred an automated testing versus the written testing[7].

DMV is currently in the process of creating an automated multiple choice knowledge testing system that includes a custom-built testing application and integration into the DMV Automation system. This new system will be installed and operational in one (1) field office and two (2) Headquarters units by the end of FY 11/12.

3.2 Business Problem or Opportunity

1. Unable to Meet Legislative Mandate of Wait-Time of 30 minutes or Less

California Vehicle Code Section 1669 requires that the Department implement procedures to ensure customer wait times are 30 minutes or less. With the current process the average wait time is 43 minutes[8].

Based on data collected during the Proof-of-Concept demonstration[9], it takes an applicant approximately 30 minutes for an original DL test, and up to 2 hours to complete the commercial DL testing process, depending on the class type and number of endorsements. The time is calculated from the point the technician hands the written test to the applicant, to when the applicant completes the test and returns to the service window.

The Proof-of-Concept demonstration showed original DL applicants saved 13 minutes taking their DL tests, while commercial DL applicants saved up to 34 minutes completing the testing process. Based on the time savings realized during the demonstration, overall customer time spent in the Sacramento office between November 9, 2005 and December 30, 2005, was reduced by over 56,662 minutes. Applying these statistics statewide, the amount of time saved by customers equates to 1.2 hours annually, or 28 hrs per day per FO.

[5] 2006 Proof-of-Concept Test Statistics.
[6] Evaluation of Class C Driver License Written Knowledge Tests, 2006
[7] Automated Knowledge Testing, Proof-of-Concept Survey Statistics v3 8/8/06.
[8] DMV September 2010 Queuing System Weekly Category Report
[9] Automated Knowledge Testing Proof-of-Concept results from participating vendor, OMG/Viisage.

Under the current process, the technician checks the DMV system to determine the appropriate tests(s) for the applicant; hands the paper test(s) to the applicant, directs the applicant to the test area; monitors the applicant; manually grades the test(s) and informs the applicant of the results; responds to questions and answers being challenged by directing applicant to specific sections of the handbooks, and updates the DMV driver record system with the test results.

Based on an average 30 seconds[10] to manually score each written test, using an estimated 3.8 million annual tests, the current written test process takes approximately 17.8 personnel years (PYs) throughout 204 FOs.

2. **Issuance of Driver Licenses to Unqualified Individuals**

The current process provides opportunity for fraud and licensing of applicants that do not meet the knowledge requirements for the following reasons:

- **Limited number of knowledge test versions leads to cheating instead of learning the rules of the road**

  The current manual process to create paper knowledge tests restricts the number of driver knowledge test versions that are administered. Based on Driver Safety statistics, those applicants who successfully obtain a DL through cheating have not independently proven that they have the required knowledge of California driving laws and rules of the road to safely operate a motor vehicle. DMV's existing driver knowledge testing methods consist of labor intensive manual processes that do not allow the flexibility to administer a unique knowledge test to each individual applicant.

  Except for the commercial driver tests, written tests may be returned to the applicant if they fail the test. Many applicants collect copies of the tests to develop "crib sheets" which hold monetary value on the streets. These "crib sheets" are used to memorize the correct question and answer combinations instead of studying the California Driver Handbook(s). FO personnel have confiscated dictionaries marked with the questions and answers to specific tests, pencils and pens with hash marks that correspond to the answers to certain test versions, and observed various other cheating methods.

- **Minimal verification that the person taking the test is the true applicant**

  Under the current process in most FOs, applicants are handed a paper test and directed to the testing area, which in some FOs is not conducive to proper monitoring by the FO technician. Although, the applicant has a photo receipt that is verified by the FO technician, in some situations, a substitute person (known as a "ringer") has successfully taken the test for the applicant, as there is no identity verification during the written testing process.

[10] Time to correct written test estimated based on FO observation.

- **Erroneous or Fraudulent test results**

  After the applicant completes the test, they return to the FO technician's window where the test is manually corrected and results are manually keyed into the DMV Automation systems. This allows the opportunity for DMV employees to erroneously or fraudulently record inaccurate knowledge test results.

  The American Association of Motor Vehicle Administrators (AAMVA) *Best Practices for CDL* shows that in recent years, CDL fraud has surfaced as a significant problem.

  As a consequence of the fraudulent testing and licensing of drivers, highway safety has been compromised and states have incurred additional expense. For example, one commercial driver who fraudulently obtained his CDL from an Illinois state inspection station was involved in an accident that killed six children.

  AAMVA indicates that it is quite clear that state DMVs must, on their own accord, immediately take steps to increase uniformity and enhance integrity in the commercial driver licensing system. They recommend that states fully computerize and secure CDL knowledge testing systems where questions are randomly generated and scores are automatically recorded.

3. **Non-compliance with proposed Federal Motor Carrier Safety Administration (FMCSA) regulations**

   The FMCSA recently amended the commercial driver license (CDL) knowledge and skills testing standards to prescribe new minimum federal standards for all states to issue commercial learner's permits, requiring that applicants meet the same requirements as for a CDL holder.

   The ruling[11] ensures that drivers who operate commercial motor vehicles are licensed to do so and that they do not operate commercial motor vehicles without having passed the requisite tests. The ruling requires that states use FMCSA pre-approved testing material and methodologies. State testing systems must be comparable to AAMVA's CDL test system for knowledge and skills standards. The tests must be unique and randomized so that no two tests are alike, and CDL test scores must be retained in the driver record history. The use of foreign language interpreters in the administration of the CDL knowledge and skills tests is prohibited, and drivers must have certain minimum English language skills.

   Under the current process law enforcement officials often encounter individuals that do not have sufficient English language skills, suggesting that the driver was not qualified for the license that was issued.

[11] DOT, FMCSA, 49 CFR Parts 383, 384 and 385; Docket No. FMCSA-2007-27659; Commercial Driver's License Testing and Commercial Learner's Permit Standards.

The ruling will enhance safety by ensuring that only qualified drivers are allowed to operate commercial motor vehicles on our nation's highways. This final rule became effective on July 8, 2011. States must be in compliance with the requirements by July 8, 2014. States found in substantial non-compliance of the ruling may be subject to the loss of Federal-Aid Highway Funds.

4. **Inconsistent Data Collection for statistics and analysis**

   The current process does not provide for automated collection of testing data that can be used for purposes of auditing, research, responding to media, determining pass/fail rates and other important information that can be used for program enhancements or the development of policies and legislative proposals to improve traffic safety. Statistical data is collected by manual surveys over lengthy periods of time, and requires the manual collection of information by field office personnel, resulting in loss productivity from the daily activities. This process is costly, inefficient and labor intensive.

5. **Waste of Natural Resources Caused by Excessive Printing**

   DMV develops and prints 8.9 million paper tests annually (utilizing approximately 2.5 PYs redirected from other duties). Printed tests include 23 types of knowledge tests, in English and 31 foreign languages, with multiple versions of each test. The basic knowledge tests and CDL tests, including foreign language tests and audio-visual versions, are revised and rearranged annually. All tests including foreign language tests are manually updated as new laws and regulations are implemented. As tests are revised, estimated remaining quantities of 2.1 million[12] tests are confidentially destroyed by an external vendor. This equates to 24% of the total number of tests printed each year.

6. **Provide the Ability to Business Partners to Administer DL Knowledge Tests on Behalf of DMV to Redirect FO Flow**

   Currently the California Highway Patrol administers the following endorsement written exams for certification: school bus driver, school pupil activity bus driver, youth bus driver, farm labor vehicles driver, general public Para-Transit vehicle, and tow truck driver in 103 locations throughout the State. This system would lay the foundation for expanding to not only this business partner, but could also include other business partners.

3.3 Business Objectives

1. The project will reduce wait times at DMV FOs by the year 2015:

- The project will reduce the average time it takes to take an original DL test and get results from 30 minutes to 17 minutes.

[12] Based on DMV Warehouse production worksheet for 2009.

- The project will reduce the average time it takes to take a commercial DL test and get results from up to 2 hours to 1 hour and 26 minutes.
- The project is expected to save 17.9 PYs used in the DL business function. These PYs will be redirected to other public serving business functions in the DMV FOs resulting in the ability to process approximately 452,000[13] transactions per year in a more timely manner by the year 2015.
- The project will reduce the need for manual test scoring by approximately 95% due to projected 5% exception processing.

2. The project will reduce by approximately 95% the opportunity for cheating and fraud on system generated tests by the year 2015, and:
   - Produce a fully randomized and unique test consisting of approximately 18 to 36 questions for each applicant selected from a pool of over 1,100 questions, resulting in the elimination of "crib sheets".
   - Require identity verification of the applicant using fingerprint biometrics for each testing station.
   - Require system to automatically score and update test results to the DL database.
3. Comply with the FMCSA regulations.
4. Establish automated data collection of testing statistics and provide statistical reports, such as applicant and field office statistics, traffic volumes, audit trail, and statistical reports required by FMCSA by 2015.
5. Reduce the amount of written tests printed from approximately 8.9 million to 200,000, resulting in a savings of 231,400 lbs of paper per year.
6. Provide the ability to allow the system to be used by external business partners to conduct testing on behalf of DMV.

3.4 Business Functional Requirements

1. Randomize test questions.
2. Provide test questions in English and allow for a minimum of 31 additional languages (including Spanish) with capability to expand to other languages.
3. Store test questions on a database in a centralized location.
4. Allow remote administration of knowledge test questions and answers on the database.
5. Utilize barcoded application receipt to allow applicant to log on to testing system and identify which test to take.

[13] Based on 2009 FO Transactions - Production Statistics Detail Report

6. Verify identity of applicant taking the knowledge test as the same person photographed and fingerprinted[14] at the camera station.
7. Provide applicant with knowledge test and/or signs test as appropriate.
8. Assess each knowledge test immediately after the test is taken.
9. Notify the applicant of his/her test results.
10. Allow applicant to review the correct answer(s) and receive feedback.
11. Instruct applicant to return to the FO technician at the service window.
12. Transfer the data from the results of the test directly to the DL database without manual input.
13. Automatically terminate the test after the required number of questions is answered correctly and/or the maximum allowed failed questions are reached (quick pass/fail).
14. Allow direct updates to test questions pool.
15. Allow for storage of pass/fail information for a specified period of time.
16. Allow for 'timeout' after the system is idle for a specified amount of time.
17. Track time taken to complete each test.
18. Generate reports and statistics by type of test, test volumes, pass/fail rate, and other data for any given time period.
19. Control flow of applicants using testing terminals.
20. Allow for printing of randomized test questions and answer keys.

TRACEABILITY MATRIX		
Business Problem or Opportunity	**Business Objectives**	**Business Functional Requirements**
1.0 **Unable to Meet Legislative Mandate of Wait-Time of 30 minutes or Less.**	**1.1** The project will reduce wait times at DMV FOs by the year 2015.	**1.1.1** 2, 7, 8, 9, 10, 11, 12, 13, 16, 17, 19
2.0 **Issuance of Driver Licenses**	**2.1** The project will reduce by approximately 95% the opportunity for cheating and fraud	**2.1.1** 1, 2, 3, 5, 6, 7, 8, 12, 13, 14,

[14] The term "fingerprint" includes thumbprint.

TRACEABILITY MATRIX		
Business Problem or Opportunity	**Business Objectives**	**Business Functional Requirements**
to Unqualified Individuals	on system generated tests by the year 2015.	16, 19, 20
3.0 **Non-compliance with proposed FMCSA regulations**	**3.1** Comply with the FMCSA regulations.	**3.1.1** 1, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 17, 18
4.0 **Inconsistent Data Collection for statistics and analysis**	**4.1** Establish automated data collection of testing statistics and provide statistical reports, such as applicant and field office statistics, traffic volumes, audit trail, and statistical reports required by FMCSA by 2015.	**4.1.1** 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 15, 17, 18
5.0 **Waste of Natural Resources Caused by Excessive Printing.**	**5.1** Reduce the amount of written tests printed from approximately 8.9 million to 200,000, resulting in a savings of 231,400 lbs of paper per year.	**5.1.1** 2, 4, 7, 14
6.0 **Provide the Ability to Business Partners to Administer DL Knowledge Tests on Behalf of DMV to Redirect FO Flow**	**6.1** Provide the ability to allow the system to be used by external business partners to conduct testing on behalf of DMV.	**6.1.1** 4, 5, 7, 8, 10, 12, 13, 16

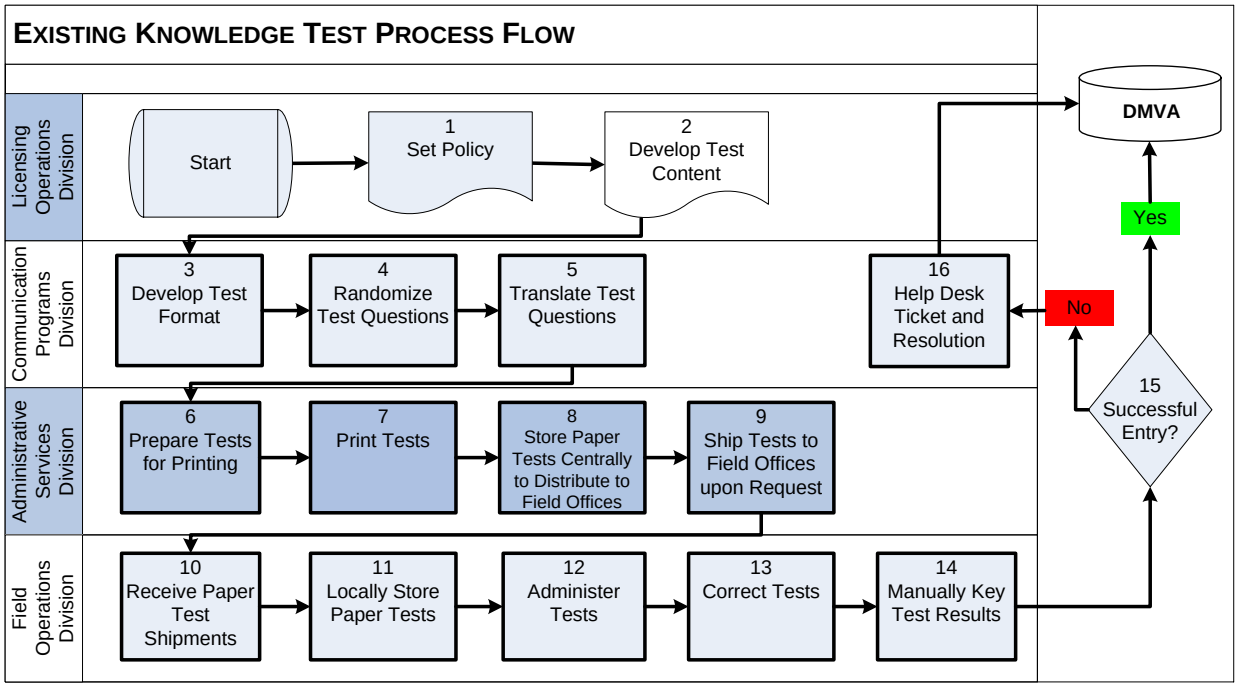
4.0 BASELINE ANALYSIS

4.1 Current Method

One of DMV's primary responsibilities is to grant driving privileges to California residents by issuing a DL card to individuals who demonstrate the ability to operate a motor vehicle safely by meeting the licensing requirements. A key component of this assessment process is the written driver knowledge test. However, before a paper test can be administered, it must first be:

- Developed, proofed, rearranged (includes incorporation of AAMVA-supplied CDL questions and developing of Signs Charts).
- Translated and proofed (the Spanish versions are translated, recorded and edited at DMV. The foreign language versions are outsourced to a vendor for interpreting.)
- Recorded, duplicated and edited for audio visual (outsourced to a vendor; requires DMV coordination with vendor for edits, proofing, etc.).
- Printed by DMV
- Shipped and stored at the DMV warehouse
- Shipped to all FOs upon request.

A high-level business process flow diagram is illustrated and described below.



As depicted in the process flow, the knowledge testing process involves four divisions within the DMV.

Licensing Operations Division (LOD)

1. Sets policy for driver license, driver safety, financial responsibility, and occupational licensing.
2. Develops content of test questions and answers when new legislation or federal mandates are chaptered. Reviews AAMVA-supplied testing information for commercial DL applicants.

Communication Programs Division (CPD)

3. Develops test formatting and layout.
4. Incorporates AAMVA-supplied CDL questions and answers and rearranges test questions using a random question generator for each driver knowledge test area.
5. Translates test questions from English to Spanish and records audio visual Spanish version. Coordinates with vendors for translation in 31 foreign languages (includes Spanish), audio recording, and sign language.

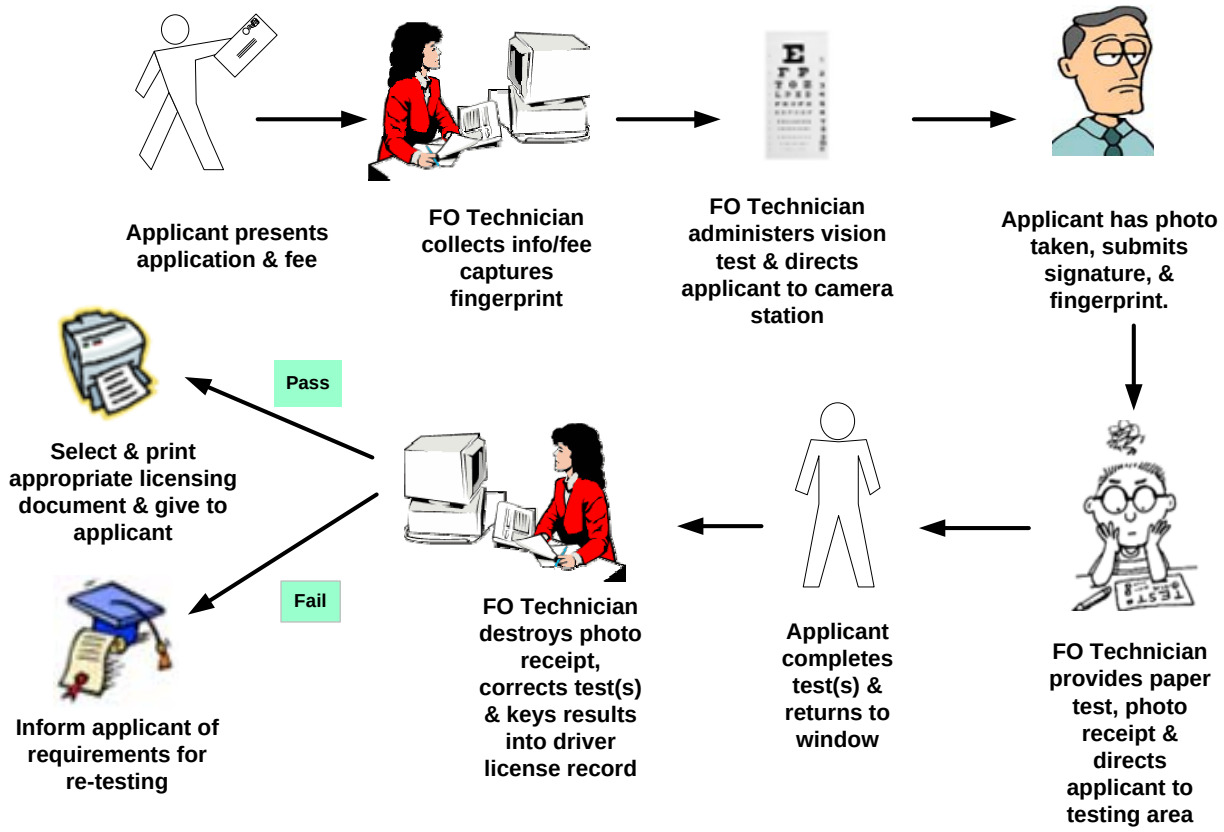
Administrative Services Division (ASD)

6. Prepares test sheets for each type of knowledge test for printing.
7. Prints all test sheets in mass quantities.
8. Stores test sheets in a centralized location.
9. Prepares test sheets for shipping and sends to FOs.

Field Operations Division (FOD)

10. Receives test-sheet shipment at FOs.
11. Inventory and store test sheets on site.
12. Administers knowledge tests.
13. Manually corrects all knowledge tests at the office where test is taken.
14. Manually enters the data from the results of the test.
15. If the data was successfully entered, the knowledge test results are processed by the DMV Automation (DMVA) system.
16. If the data was not successfully entered, a Help Desk Ticket is issued, and problem is resolved by CPD Help Desk, updating results to the DMVA.

Applicants are required to complete a number of steps in order to receive a driver license. This applies for first-time applicants and renewals that require some form of knowledge testing. The following high-level process flow and description of the DL application and testing process is from an applicant's perspective [15]



1. The applicant completes an application for a DL, signs the application in front of the FO technician, and pays the fee for the DL.
2. The FO technician reviews the application, collects the fee, cashiers the transaction, takes a fingerprint and issues a receipt. The FO technician administers a vision test and records the vision test results, and then directs the applicant to the camera station.
3. The applicant has a picture taken, is fingerprinted, provides an electronic signature at the camera station, and returns to the previous window with the photo receipt.
4. The FO technician hands the applicant the knowledge test sheet and directs the applicant to the designated testing area.

[15] This process does not describe the changes made as a result of the DL/ID/Salesperson (SP) card project, which has not been implemented as of this date.

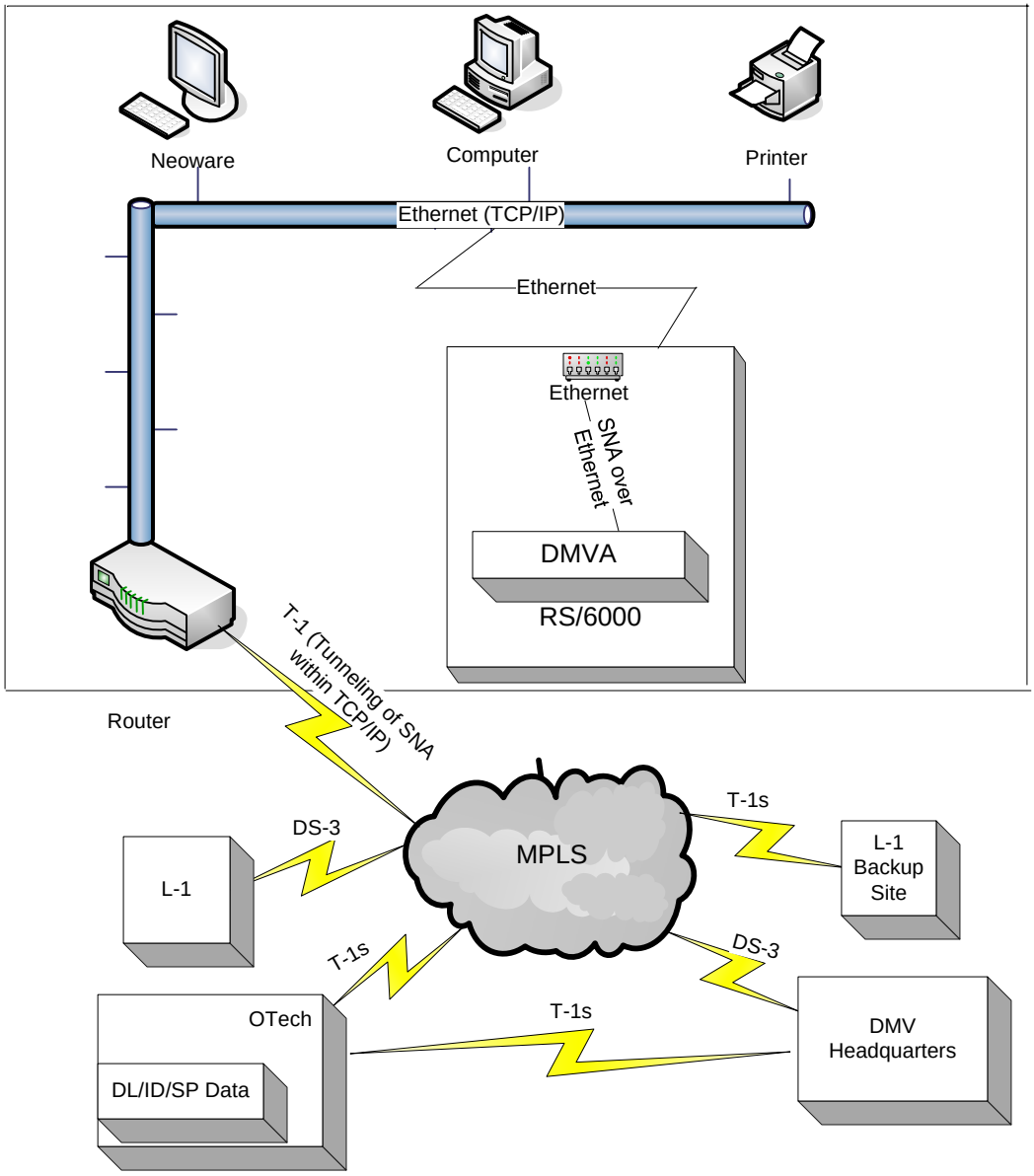
5. The applicant completes the test and returns to the FO technician at the service window.
6. The FO technician corrects the test and destroys photo receipt if the applicant successfully passes the test. If the applicant is not successful, the photo receipt is given back to the applicant for repeat knowledge testing.
7. If the applicant passed the test the FO technician issues the appropriate licensing document.
8. If the applicant failed the test, the FO technician provides instructions for retesting and then hands the hardcopy paper examination to the applicant.

4.2 Technical Environment

4.2.11 Existing Infrastructure

DMVA is the application used primarily by DMV FOs to communicate with DMV databases and to obtain data from external entities. The DMVA is installed at 215 sites throughout the State in FOs, satellite offices, business partner locations, and Headquarters. There are 325 RS/6000 processors at DMV with over 5,775 thin-client terminals. The RS/6000 processors are currently being converted by the ITM project to utilize centralized processors in Headquarters. DMVA is written in Event Drive Language (EDL) for the IBM Series/1 computer environment. These EDL programs now operate under emulation on the RS/6000 using the Unix Advanced Interactive eXecutive (AIX) operating system. The DMVA communicates with a contracted-vendor (L-1) database to retrieve applicant photos and verify fingerprints during the DL application process for identification purposes.

In most FOs, knowledge test administration is entirely on paper, without any automated interfaces. A FO technician corrects the written knowledge test sheet and then enters the pass/fail result into the DMVA system. The applicant is then given the hardcopy paper examination.



5.0 PROPOSED SOLUTION

Expand the Automated Multiple Choice Knowledge Testing System to all DMV FOs.

5.1 Solution Description

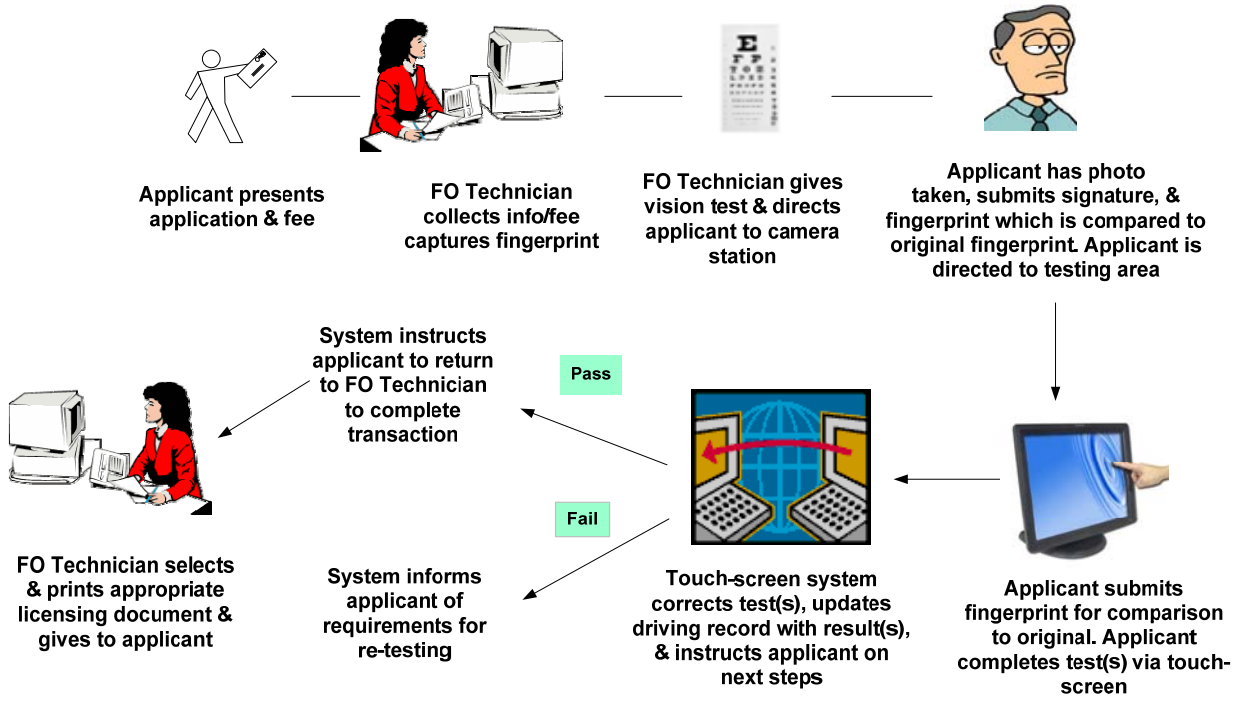
Implement an integrated automated driver license knowledge testing system in DMV FOs that do not currently utilize the system, and provide additional testing terminals in headquarters, by expanding the current Automated Multiple Choice Knowledge Testing System. Biometrics will be added to field offices already utilizing the automated knowledge testing system. The system will:

- Interface with DMV network connections to allow for real time test results updates to DMV database
- Interface with other vendor systems to verify fingerprints;
- Utilize a vendor solution to manage the applicant flow to direct applicants to testing terminals;
- Utilize barcoded applicant receipt to bring up applicant and test information;
- Provide for randomized test questions in English and 31 foreign languages;
- Record and store test data and meet other functional requirements.

The solution must consist of the following:

- Automate all hard copy, driver license knowledge tests which are available in various languages (depending upon the DL classification).
- Utilize flat-panel, touch-screen, tamper-proof terminals.
- Fingerprint biometrics for each testing station, verifying the identity of the applicant.
- Barcode readers for each testing station which retrieves the applicant information (name, DL #, etc.) and test type.
- Interface with DL Database to maintain all applicants test information (i.e.: location, pass/fail, test type, etc).
- Must allow for expansion due to development and/or growth of field offices in the future.
- Must be scalable to allow the addition of new types of knowledge tests requiring separate question pools and alternative methods of transmitting data and test results.
- Statistical reporting:
  - Testing information – date, office location, application type (new/renewal DL), pass/fail, test type, how long to take test, language, etc.
- Software capability:
  - Browser based with multiple interface.
  - Image and audio recordings/display.
  - Randomizes test question and answer combinations so no two test are alike.
  - Provides immediate feedback to applicants for correct/incorrect answers.
  - Quick pass/fail indicators (minimum correct/maximum failed).

A high-level proposed testing system process flow diagram is illustrated and described below.



The above workflow shows the proposed solution.

1. The DL applicant enters a FO and presents a completed driver license application and appropriate fee to the FO technician.
2. The FO technician takes the fee and enters the application data into the DMVA/Enterprise Applications Services Environment (EASE) system, and captures a fingerprint of the applicant. The FO technician issues a receipt.
3. The FO technician administers a vision test. The applicant is then directed to the camera station.
4. The applicant has a photograph taken at the camera station. Another fingerprint is captured and compared to the fingerprint captured at the initial window. An electronic signature is also captured before the applicant can proceed to the testing station. The system will use a secure method to generate a randomized test and answer key for exception processing.
5. The applicant is directed to the testing area to take the appropriate automated knowledge test via a flat-panel, touch-screen terminal. The system utilizes the barcode on the applicant's receipt to validate his/her identity and bring up his/her unique driver knowledge test. The applicant's fingerprint is compared to the fingerprint captured at the camera station. If the fingerprint does not match, the applicant is directed to the FO technician's window.

6. The automated testing system scores the test after the applicant has completed the minimum correct answers required to pass, or exceeds the maximum number of allowable incorrect answers. The applicant is notified on the screen of a pass or fail and allowed to review the questions he/she missed. The applicant is directed on-screen to return to the service window.
    a. If the applicant has successfully passed the knowledge test he/she is instructed by the system to return to the technician for the appropriate licensing document.
    b. If the applicant has failed the knowledge test, the system informs the applicant of the re-testing requirements and timeframes.
7. When the applicant returns to the service window, the FO technician prints the appropriate licensing documents.

The proposed solution would minimize the following:

- Manual randomization of test questions & answers
- Volume of paper tests printed
- Storing of paper tests at DMV Warehouse
- Volume of paper tests shipped to FOs
- Re-ordering and storage of tests by FOs
- Manual test scoring by FOs
- Potential for cheating and using substitute test takers by applicants
- The number of fraudulent updates of test results to driver records
- The number of applicant questions, complaints, and challenges regarding tests
- Time spent by FOs to review tests with applicants

The proposed business solution is expected to:

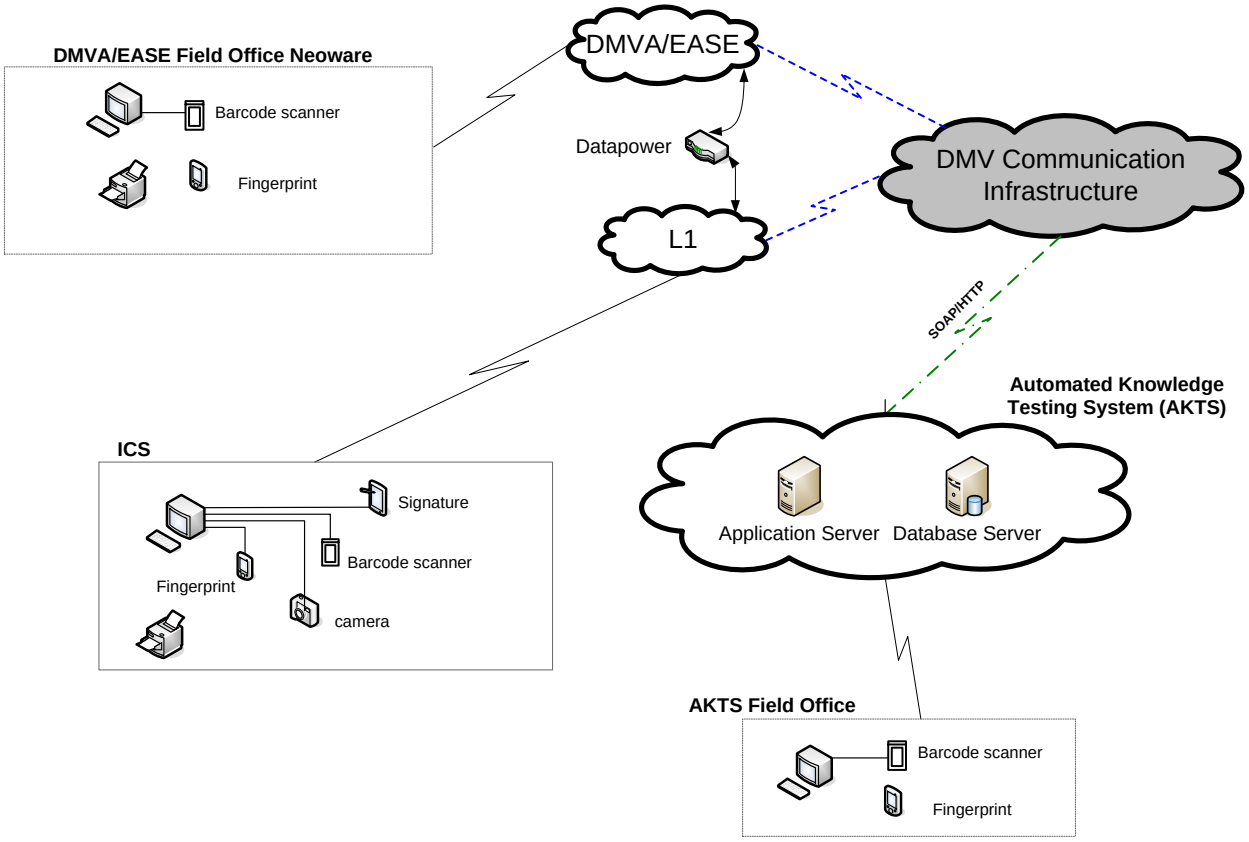
- Eliminate a labor-intensive process required to rearrange English written tests on a quarterly basis, and foreign language tests on a yearly basis;
- Remove current tests in use from circulation among the public for months at a time. These tests are often used to develop 'crib sheets' which also hold monetary value on the streets and result in the issuance of driver licenses to unqualified individuals.
- Improve applicant knowledge base by removing a perception that the applicant can predict which questions may be asked on the test. This currently results in applicants studying missed questions on tests rather than acquiring more broad based knowledge gained by studying the driver handbook. If applicants understand that any question on any topic in the driver handbook could be asked then they will better prepare. This would result in more informed drivers being issued a driver license, which would promote traffic safety.

- Significantly improve the department's ability to make corrections to test questions and add test questions resulting from recommendations from AAMVA and FMCSA. These modifications are currently incorporated into the department's limited randomization schedule, which results in an untimely update of tests.
- Ensure that the true applicant is taking the test. Identification of the person taking the test by utilizing a one-to-one comparison of the person's fingerprint will eliminate the use of substitute test takers or "ringers".
- Reduce and/or eliminate opportunities for employee fraud by removing the ability to manipulate test data. The proposed solution would transmit the test result to the pending driver license application and disallow any modification without a manager's approval.
- Preserve federal highway funds by complying with national testing standards required by FMCSA. The proposed solution would enable California to meet federal regulations.
- Allow for the collection and storage of reliable test data that can be used for statistical purposes, auditing, research, determining pass/fail rates and test question difficulty. The proposed solution would replace a very labor-intensive data collection process, provide needed data to ensure test questions are adequate, and properly assess the driver's knowledge.
- Ultimately lowering the failure rate will reduce the number of return visits to the FO by the applicant to retake the test.

DMV FOs are classified by 'grade size' based on applicant volume, with 'Grade V' as the office that serves the largest population. However, some offices have capacity for larger testing areas; therefore the number of terminals for those offices will be larger. It is anticipated that the implementation of the solution will roll out in three stages as follows:

Stage 1 Offices	Terminals	Stage 2 Offices	Terminals	Stage 3 Offices	Terminals
Headquarters - 1	7	Grade IV - 7	98	Grade II - 32	192
Commercial Only- 4	68	Grade III - 49	490	Grade I - 26	52
Grade V - 23	391			Driver Safety- 15	15
Grade IV - 30	389			**Occupational Licensing** – 9	36
Totals 58	**855**	**56**	**588**	**82**	**295**

Below is a diagram of the Proposed Solution Infrastructure:



The infrastructure (terminals, servers, etc.) will comply with the Department's and State's security requirements and policies (i.e., the State Administrative Manual and the Office of Information Security). The system will be integrated into DMV's automation system for updating test results, authenticating an applicant's fingerprint and utilizing barcoded documents for logging on and off the testing terminal, applicant traffic flow control, printer connection, and/or connectivity of the terminals with FO/DMV networks, and telecommunications as appropriate.

5.1.1 Hardware

The Automated Knowledge Testing hardware will be new equipment added to field office locations and connected to the existing DMV network. The test station equipment will communicate with the existing DMV Servers located at Office of Technology Services (OTech) data center. Hardware must conform to all DMV standards and policies. Hardware specifications must receive DMV approval prior to deployment.

5.1.2 Software

The web-based application will require integration with external components in order to communicate with fingerprint verification software and DMV's EASE. The application will reside in an AIX WebSphere application server. If needed, the application will utilize IBM's Message Queue (MQ) software for connectivity between the Web/Application Servers and data and/or processes on the zOS mainframe at OTech or Java Database Connectivity (JDBC) if accessing DB2 tables directly. Access programs may run within the Customer Interface Control System (CICS) environment and if so, will be coded in Common Business Oriented Language (COBOL).

5.1.3 Technical Platform

The web and application servers will reside at OTech. All system components will reside behind a firewall. In addition, a second firewall will manage traffic between the web server and the application, thus providing a De-Militarized Zone (DMZ). The web application will not be available to the general public. Tivoli Access Management for e-business (TAMe) will be leveraged for authentication for access to the question/answer repository. The technical platform will require integration into existing DMV infrastructure and applications, namely utilization of fingerprint technology currently utilized by DL/ID products supported by the DMV DL/ID vendor.

5.1.4 Development Approach

In-house, technical staff and contractors will collaborate to develop the bulk of the components that interact directly with existing programs, as well as the new web-based customer interface and business repository application(s). The assigned staff, including the Project Team, will be selected for existing expertise in critical areas.

DMV will define the business requirements for the automated knowledge testing applications:

- Question/Answer repository application
- Customer Test Interface application
- Communication interfaces (e.g., fingerprint and master file update

5.1.5 Integration Issues

The department has implemented a solution for the new DL/ID/SP Card Contract and is developing IT Modernization of antiquated systems. It is anticipated that these programming efforts, which will be in place prior to the implementation of this project, can be leveraged in the mitigation of potential problems associated with any web-based application(s). The impact of an integrated system on DMV systems cannot be accurately

assessed at this time, as the Automated Knowledge Testing System currently in development is scheduled for implementation March 2012. The Proof of Concept Pilot Study did not involve integration with DMV systems.

5.1.6 Procurement Approach

DMV will utilize a competitive bid approach by preparing a Statement of Work document to solicit Java consultants who will present their solutions and costs for building the Automated Knowledge Testing application(s). Those wishing to participate may also be called upon to partner with another vendor proficient in fingerprint technology currently used by DMV. DMV will also work with Department of General Services (DGS) in the acquisition of touch screen terminals and laser printers to be used in the Automated Knowledge Testing system.

5.1.7 Technical Interfaces

Interface communication between the web servers, web application, and EASE applications will be via DMV's network.

5.1.8 Accessibility

The system will provide acceptable accessibility and accommodate individuals as follows:

- The system will incorporate a visual component that will allow enlargement of screen content.
- The system will include an audio component.
- The testing areas in the selected FOs will have Americans with Disabilities Act (ADA)-compliant test stations.

5.1.9 Testing Plan

A Master Test Plan will be developed that describes in detail the approach for each testing component. Each major functional subsystem will follow the steps listed below:

- Unit Testing
- Regression Testing
- Integration Testing
- System Testing
- User Testing
- Security Assessment and Acceptance by IPO and ISO
- Final Promotion to Production

Information Protection Services will perform a complete security review prior to production implementation.

5.1.10 Resource Requirements

As the ITM effort is underway, and in light of the fact that the applications impacted are concurrently under development, the resource requirements for the programming of the DL application are unknown, but the Department believes that the new application will be better prepared to handle the solution.

Both DMV and consultant resources will be required during all steps of the project. Consultant resources will provide application-specific expertise. The project will also require participation from various redirected DMV staff as indicated below. The following resources will be needed during the project implementation:

DMV Resources will include: Project Manager, Project Leader and Subject Matter Expert.

5.1.11 Training Plan

A complete training plan including user instructions will be developed by DMV. A lesson plan will be developed utilizing subject matter experts from Departmental Training Branch and will be conducted through the Wednesday morning training sessions and 4-8 hour classes

5.1.12 Ongoing Maintenance

Ongoing Maintenance will be the responsibility of the DMV.

5.1.13 Information Security

DMV will comply with the State of California and the DMV's Information Security Policies and Standards.

The data transmission will be supported through data encryption using secure socket layer (SSL), authentication, and all other standards for protecting the confidentiality of data. Data at rest encryption will be a technical requirement for the automated knowledge testing system. DMV IPO and ISO completed the Office of Information Security Questionnaire for Information Security and Privacy Components requirements for this FSR.

The project team will partner with IPO and ISO teams to ensure the project risks and security management efforts are adhered to during the life of the project.

5.1.14 Confidentiality and Information Privacy

In order to maintain confidentiality, appropriate safeguards, including technical and physical access controls, will be utilized to ensure DMV is in compliance with the State of California Technology Agency, State Administrative Manual, Office of Information Security, and the Department's Information Security and Privacy Polices and Standards.

The current DMV network security provisions will be used with the proposed solution. All incoming and outgoing network traffic will continue to be monitored through firewalls at the DMV. Security disclosure agreements are required of all employees and will be requested of any vendors and sub-contractors associated with this effort.

5.1.15 Impact on End Users

The impact on end users is minimal and positive, providing an automated solution that is safe and secure, accelerates the testing process, and minimizes quality issues caused by manual evaluation of test results. FO technicians will no longer manually update the law test results to an applicant's driving record as the touch-screen testing terminals will be integrated with the DMV automation systems.

5.1.16 Impact on Existing System

The proposed process will require that the current application be modified to send and receive messages to and from the DMV systems.

5.1.17 Consistency with Overall Strategies

The proposed solution embraces web-based technologies and is consistent with DMV Strategic and IT Goals in the following manner:

DMV Strategic Plan 2010	
GOAL 1: SERVICE Enhance services to our internal and external applicants.	The proposed solution provides applicants with new, innovative and secure ways to do business with DMV. Allows disabled applicants to fully utilize the system.
GOAL 3: SAFETY Enhance traffic safety through internal programs and partnerships	Meets national testing standards for commercial drivers and for designing the "unique randomized" testing system. This will ensure drivers are qualified and competent to use the roadways by passing the required knowledge tests for the specific type of license application.
GOAL 4: SECURITY Strengthen validity, security and protection of personal information.	Minimizes fraud by providing various levels of security using a barcoded application receipt and fingerprint verification by interfacing the knowledge testing system with other systems. The testing system equipment will be tamper-proof to protect personal information under DMV

DMV Strategic Plan 2010	
	authority.
GOAL 5: PROTECTION Enhance consumer protection.	The proposed solution would enhance the current investigative process and integrate best practices that impact consumer protection as they relate to licensing and enforcement practices.
DMV IT Strategic Plan 2010	
GOAL 1: Enable DMV to Enhance Service Delivery Options	The proposed solution replaces time-consuming paper-based processes for taking written knowledge tests, scoring those tests and updating results to DMV systems. The solution would reduce average test-taking time and the opportunity for cheating and fraud.
GOAL 3: Strengthen the Security of DMV Information Assets and IT Infrastructure	The proposed solution would employ an automated testing system, built and managed in compliance with DMV's IT security and information privacy and policies. The system will require biometric identification of applicants, authorized passwords for logons and administrative functions, and provide an audit trail.
GOAL 5 Facilitate Partnerships that Result in Better Solutions	The proposed solution would serve as a foundation for expanding the use of automated testing to business partners to conduct testing on behalf of DMV and comply with AAMVA's Best Practices for the testing and issuance of commercial driver license.

5.1.18 Impact on Current Infrastructure

The proposed solution will require integration with the DMVA/EASE (Enterprise Applications Services Environment) systems for sending and receiving messages pertaining to the knowledge testing. Interfacing with ITM DMVA/EASE system and servers at FOs and headquarters will be required. There will be an increase in network traffic to and from FOs.

5.1.19 Impact on Data Center(s)

OTech has the operational capacity to accept increased data transactions and network transmissions; solution deployment impact will be minimal. The following aspects of the proposed solution may impact OTech:

- An increase in network traffic to and from the server(s)
- A slight increase in support of existing network notification and communications solutions.

5.1.20 Data Center Consolidation

Currently unknown but will be further analyzed during the analysis and design of the proposed system.

5.1.21 Backup and Operational Recovery

The DMV staff will develop backup and full recovery plans. This will be consistent with the DMV Server and Database backup strategies maintained by the ISD Server Team. DMV will involve the ISO and IPO in this analysis and approach.

5.1.22 Public Access

The public will access the automated knowledge testing system through a secured testing terminal located in FOs throughout the state. A queuing system will control the applicant flow and direct the applicant to the specific available testing terminal. ADA compliant testing terminals will be available in all FOs to meet applicant needs.

5.1.23 Cost and Benefits

Costs:

See Attachment # 1 – Economic Detail Worksheets.

Benefits:

At a cost that equates to about $0.10 per licensed driver per year, the State of California will realize the following benefits:

- Reduces the potential for mistakes from manual correction process.
- Greatly reduces the opportunity for fraudulent activity.
- May improve driver safety and road safety.
- Provides easier maintenance of test questions.
- Captures statistical information to study test reliability and to improve the tests.
- Provides reliable data for audit trails, statistical reports and program enhancements.
- Provides better uniformity of test grading practices.
- Saves labor time currently used for test question randomization.
- Reduces testing time by providing a quick pass/fail indicator. This would only be activated after all mandatory questions have been asked.
- Provides an alternative to the use of cassette tapes in administering Audio-Visual tests that are recorded and edited by a vendor.
- Positively enhances the applicants FO experience by minimizing return visits due to written test failures. This is accomplished by the increase in the pass rate on the first attempt, and utilizing the quick pass/fail feature.

- Reports and statistics can be generated by type of test; test volumes, pass/fail rate, and other specified data will be available real time under the proposed solution, allowing immediate adjustment of problematic items and form fail rates as patterns emerge.

- Reduces crowding in FO lobbies and parking lots. The Proof-of-Concept demonstration showed the approximate number of hours customers spent in the FOs would be reduced by 1.2 million hours[16] annually statewide, or 28 hours per day per FO, helping with overcrowding in FO lobbies and parking lots.

5.1.24 Sources of Funding

This solution will be funded through identified Federal Grants and redirection of DMV resources.

See Section 8.0 - Economic Analysis Worksheets –Project Funding Plan.

Note: Federal Grants are available on a yearly basis for commercial licensing enhancements and anti-fraud measures. It is anticipated that this project will be fully funded through federal grants and the redirection of DMV resources.

5.2 Rationale for Selection

➢ ***Rationale:***

Strategic Business Plan:

The solution firmly aligns with DMV's Strategic Business Plan Goals and the State of California's IT Strategic Plan as it provides the newest and best technology available to improve convenience and efficiency of the DL services, simplifying the testing process, and offering a mechanism to protect the integrity of the tests and reduce the opportunity for applicant cheating. The system will have features that would aid in assuring that the right applicant is taking the right examination. The repeated use of hardcopy tests will be largely minimized assuring the applicants pass the tests on true knowledge. Overall highway safety in California may be positively affected with the new testing method.

FMCSA Regulations and AAMVA Recommendations:

The proposed solution would allow DMV to meet FMCSA's regulations for commercial DL knowledge and skills testing standards to ensure that only qualified drivers are allowed to operate commercial motor vehicles on our nation's highways. FMCSA's regulations will require states to conform to AAMVA's testing methods for constructing skills and knowledge tests for commercial drivers. AAMVA's recommendation includes the following:

[16] Based on Sacramento FO Proof-of-Concept demonstration test volumes

> "Licensing authorities should make every effort to prevent applicants from passing the test simply by memorizing the answers to a limited number of test questions. The best means of achieving this objective is by drawing from such a large pool of test items that anything appearing in the driver manual may show up on the test. The availability of a large test item pool permits development of many alternative forms and, with computer testing, generation of a virtually unique test for each applicant. These practices prevent applicants from gaining high scores simply because they have taken the test before."[17]

It would also allow DMV the opportunity for pursuing modernization grant funding from the FMSCA for commercial licensing programs.

Going Green:

In addition, this is an opportunity for DMV to replace paper based process by the use of technology and advance California's efforts to "GO GREEN". The proposed solution relieves field office staff demand by mitigating the impact of increased workload associated with federal mandates (i.e. REAL ID Act). It would also enhance applicant experience improving service and perception of DMV.

The proposed solution satisfies all of the business objectives and functional requirements set forth in this report, would be cost-effective, and provide a number of potential advantages over written testing. DMV will be in compliance with federal regulations and its infrastructure will interface and be integrated with the existing DL programs (DMVA/EASE). The solution best meets DMV's needs for enhancing our business processes, improving our applicant service, and reducing fraud.

Advantages:

- Meets AAMVA's recommendations, as included in FMCSA's ruling, for developing and administering commercial DL knowledge testing.
- Automates the written knowledge tests and includes audio-visual capabilities.
- Uses applicant fingerprint authentication.
- Utilizes barcoded applicant receipt to populate applicant and test-type information.
- Greatly reduces the opportunity for fraudulent test results, which in turn improves driver safety and road safety.
- Utilizes enclosed flat-panel touch-screen terminals that are tamper-proof.
- Randomly generates question and answer choices from DMV's approved pool of questions/answers to create a unique test for each applicant.

[17] "AAMVA Guidelines for Knowledge and Skills Test Development", March 2007, pg. 8

- Provides capability to reduce testing time by providing a quick pass/fail indicator.
- Automatically corrects the tests and updates the results immediately to DMV's driver record master database in real time.
- Provides better uniformity of test grading practices.
- Provides for ADA compliant testing areas.
- Provides immediate answer results to applicant after each question.
- Provides platform for delivery of PRT test.
- Records and stores all testing related data for audit trails, statistical reports and program enhancements.
- Improves public perceptions of applicant service provided by the State.
- Minimizes ordering, stocking, and storage needs for paper tests.
- Provides the ability to quickly add and modify test questions as needed.
- Controls flow of applicants using testing terminals.
- Minimizes the use of paper test methods.

Disadvantages:

- Does not totally eliminate need for paper tests, although tests can be printed in the FOs.
- Applicants may have to wait in line to take their test if terminals are unavailable.
- Risk of IT problems due to other changes being made concurrently on DMV's internal systems (i.e., ITM).

➢ Market Research:

The automated, touch screen knowledge testing terminals are based on proven technology used in similar applications in other states and used in DMV's Proof-of-Concept demonstration.

Many states within the United States (US) are implementing automated driver knowledge testing systems to comply with AAMVA's "Commercial Driver License Knowledge and Skills Testing Standards". The automated knowledge testing systems are either "integrated" or "non-integrated". In an "integrated" system the tests results automatically update in real time to the DMV automated driver record databases requiring no manual input by the FO technicians, thereby eliminating the opportunity for fraud and offering a mechanism to protect the integrity of the driver knowledge tests. The "non-integrated" testing systems require printing of the driver knowledge test results from the stand-alone automated testing systems and then manually updating the information by keying the data into DMV driver record databases. The non-integrated systems allow room for manipulation of data which can result in fraudulent activity, and does not provide for the accurate statistical and audit data for measuring the effectiveness of the system.

According to the results of recent surveys[18], and contacts by DMV, the following 36 US states and 4 Canadian Provinces have implemented either an integrated or a non-integrated, computerized touch-screen knowledge testing system:

Alabama, Alaska, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Idaho, Illinois, Louisiana, Maryland, Montana, Michigan, Minnesota, Mississippi, Missouri, Nevada, Nebraska, New Jersey, New Mexico, North Carolina, South Carolina, North Dakota, South Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Washington, West Virginia, Wisconsin, and Wyoming. The Canadian Provinces include Alberta, Manitoba, Quebec and Saskatchewan.

Two states reported building their automated driver license knowledge testing systems.

- Florida's fully integrated system is owned and maintained by their agency.
- Oklahoma's non-integrated system was built by Oklahoma University utilizing federal and local funds as a 'research' project, and is maintained by the IT staff of Oklahoma DMV.

Both states have the flexibility to administratively modify all system variables in a timely manner, have greater computer system controls and oversight of the systems, and are able to correct errors and trouble shoot problems expeditiously. They also reported a reduction in paperwork and uniformity in procedures for their offices. Neither state utilizes electronic identity verification of the test taker (i.e. biometrics).

Based on market research, some states that have implemented automated systems reported higher fail rates initially for an automated system, which gradually decreases over time as applicants realize that they must study the rules of the road in order to pass the knowledge test. Below is a sample of pass/fail rates reported from some states.

State/ Providence	Pre-automation Pass Rate	Post-automation Pass Rate	Increase/ Decrease	Comments
Manitoba, Canada	56%	67%	11%	
Mississippi*	80% 60%	45% 57%	-35% -3%	General DL first attempt CDL testing first attempt
Missouri	51%	58%	7%	
Ohio	75%	64%	-11%	General DL - English only
Oregon	62%	94%	32%	General DL 2nd attempt

*Mississippi Department of Public Safety notes a dramatic level of cheating and fraud was prevalent with their paper testing process, prior to automation.

[18] AAMVA survey conducted August 13, 2009, and February 11, 2010.

5.3 Other Alternatives Considered

Alternative #1: Vendor Purchased Integrated Automated Driver Knowledge Testing System

Alternative #2: Outsource automated driver knowledge test to a qualified vendor

5.3.11 Describing Alternatives

Alternative #1: Vendor Purchased Integrated Automated Driver Knowledge Testing System

1. Description:

The solution involves implementing an integrated automated driver license testing system in 204 DMV field offices and six (7) terminals in headquarters by procuring a contract for a vendor to install, operate, and maintain a browser based, flat-panel, touch-screen, tamper proof testing system.

2. Costs:

Based on market research, total one-time and continuing costs would be approximately $20 million.

See Chapter 10 – Economic Detail Worksheets

3. Benefits:

The solution also provides the following important, but non-quantifiable benefits:

- Reduces the potential for mistakes from manual correction process.
- Greatly reduces the opportunity for fraudulent activity.
- May improve driver safety and road safety.
- Provides easier maintenance of test questions.
- Captures statistical information to study test reliability and to improve the tests.
- Provides reliable data for audit trails, statistical reports and program enhancements.
- Provides better uniformity of test grading practices.
- Saves labor time currently used for test question randomization.

- Provides capability to reduce testing time by providing a quick pass/fail indicator. This would only be activated after all mandatory questions have been asked.
- Provides an alternative to the use of cassette tapes in administering Audio-Visual tests that are recorded and edited by a vendor.

4. Advantages:

- Meets AAMVA's recommendations, as included in FMCSA's regulations, for developing and administering commercial DL knowledge testing.
- Automates the written knowledge tests and includes audio-visual capabilities.
- Uses applicant fingerprint authentication.
- Utilizes barcoded applicant receipt to populate applicant and test-type information.
- Greatly reduces the opportunity for fraudulent test results, which in turn improves driver safety and road safety.
- Utilizes enclosed flat-panel touch–screen terminals that are tamper-proof.
- Randomly generates question and answer choices from DMV's approved pool of questions/answers to create a unique test for each applicant.
- Provides capability to reduce testing time by providing a quick pass/fail indicator.
- Automatically corrects the tests and updates the results immediately to DMV's driver record master database in real time.
- Provides better uniformity of test grading practices.
- Provides for ADA compliant testing areas.
- Provides immediate answer results to applicant after each question.
- Provides platform for delivery of PRT test.
- Records and stores all testing related data for audit trails, statistical reports and program enhancements.
- Improves public perceptions of applicant service provided by the State.
- Minimizes ordering, stocking, and storage needs for paper tests.
- Provides the ability to quickly add and modify test questions as needed.
- Controls flow of applicants using testing terminals.

- Minimizes the use of paper test methods.

5. **Disadvantages:**

- Does not totally eliminate need for paper tests, although tests can be printed in the FOs.
- Applicants may have to wait in line to take their test if terminals are unavailable.
- Risk of IT problems due to other changes being made concurrently on DMV's internal systems (i.e. IT Modernization (ITM)).
- FO may not have sufficient space to accommodate the required number of testing terminals.
- High continuing costs.

This alternative is viable; however, it is cost prohibitive.

Alternative #2: Outsource automated driver knowledge test to a qualified third-party vendor.

1. **Description:**

This alternative would outsource the automated knowledge test to a qualified third-party vendor. The vendor would provide the following:

- Testing sites (service centers such as high schools, driving schools, other locations).
- Hardware, software to administer the automated test.
- Applicant scheduling services.
- Applicant security agreement signatures.
- Test results to the DMV.
- Monthly invoice for tests administered.

2. **Costs:**

Currently, the California Department of Consumer Affairs (DCA) is contracted with Psychological Services Incorporated (PSI) to conduct Computer Based Testing (CBT). Based on the time used by the applicant to take the test, and registration and scheduling fees, DCA is charged approximately $22 per test. DCA tests approximately 70,000, applicants each year. DMV administers approximately four (4) million knowledge tests per year. Based on the assumption that each test would cost the state $22, the annual fee would be $88 million. Research did not find any other states DMVs outsourcing the knowledge tests.

3. Benefits:

Reduces traffic in FOs

4. Advantages:

- Reduced traffic in FOs.
- Reduces the need for outdated paper-based knowledge tests and related revision requirements.

5. Disadvantages:

- Increases the risk for fraud and security breaches.
- Increased costs to applicants and the state
- Adequate test sites may not be available in all cities statewide, inconveniencing applicants by requiring them to driver further distances for the testing process.
- Significant public policy and labor-relations concerns regarding outsourcing work at a higher cost that could be performed within state service.
- Does not align with DMV's Strategic Plan objectives of good applicant service.
- Some applicants will not like an automated test and will insist on a paper test.
- Difficulty transitioning back to State-administered tests in the future.

This alternative is cost prohibitive and would fully remove the responsibility for administering license knowledge tests from the DMV FOs. The alternative is not viable, as it does not meet state requirements for justifying the use of contracted personnel instead of state employees as described in Government Code 19130.

6.0 PROJECT MANAGEMENT PLAN

6.1 Project Manager Qualifications

Project Manager Level: 4

Experience: 5 years working as Project Manager or Project Director on large IT projects; technical experience commensurate with the proposed technology.

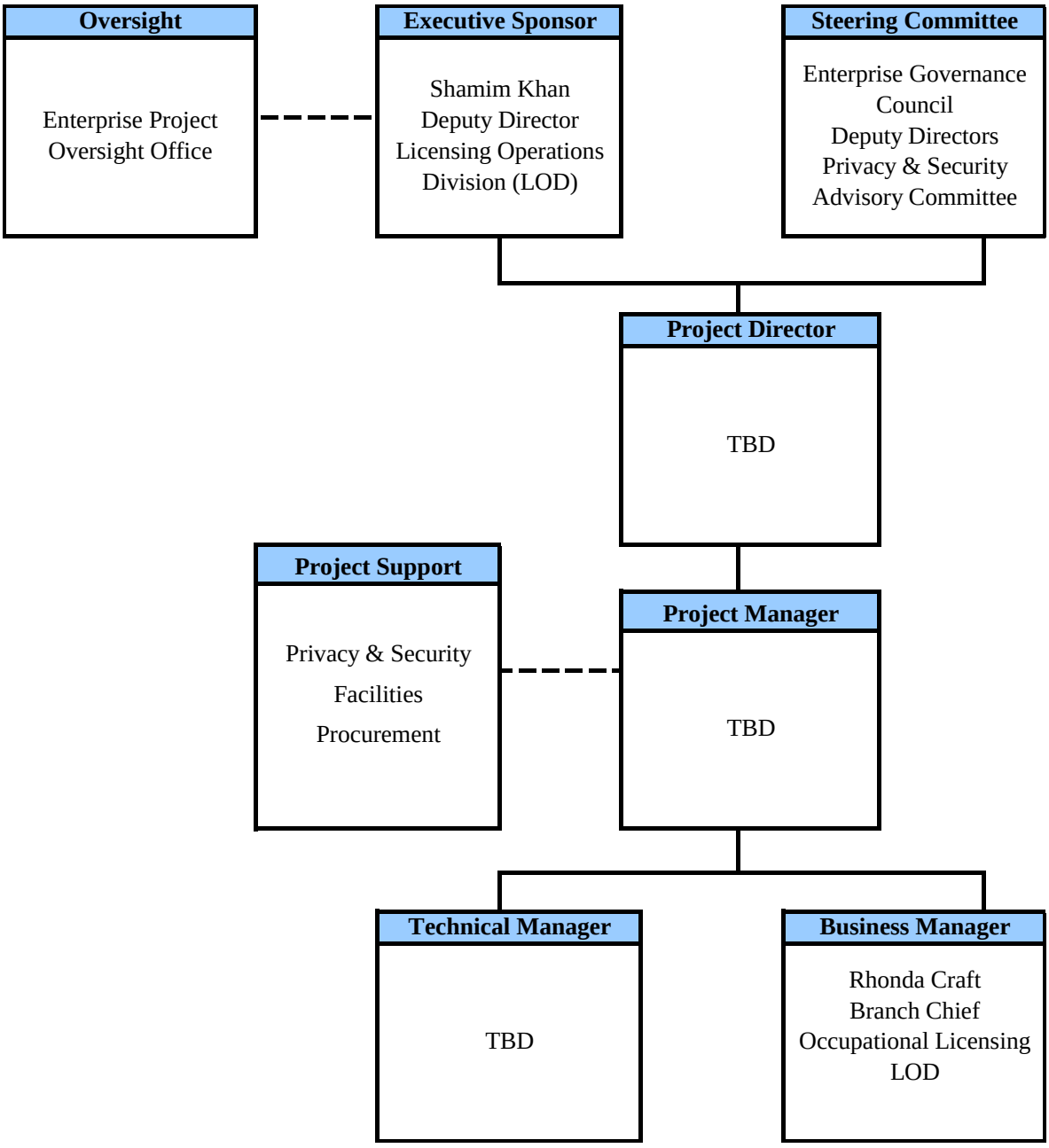
Professional Knowledge: Strong working knowledge of the California Project Management Methodology; California State Budgeting, Procurement and Contracting processes; DMV's methodology; and Software Development Life Cycle.

Note: The Project Manager must be California Qualified (Cal-Q) Certified, unless granted an exception by the Technology Agency. The Project Manager must have the required primary/secondary courses completed and/or experience documented and approved in accordance with the skill level/years of experience required by the Project Manager and the project.

6.2 California Project Management Methodology

The Project Management Methodology used by the DMV follows the Technology Agency California Project Management Methodology (CA-PMM) guidelines as stipulated in the Statewide Information Management Manual (SIMM), Section 17.

6.3 Project Organization



6.4 Project Priorities

Decisions are guided by the following project trade-off matrix:

Schedule	Scope	Resources	Quality
1	*2*	*4*	*3*

- *1 = Most important/constrained factor – the factor cannot be changed.*
- *2 = Next most important factor – the factor is somewhat flexible to the project circumstance.*
- *3 = Factor can be adjusted.*
- *4 = Most flexible of the four factors.*

6.5 Project Plan

6.5.11 Project Scope

- In Scope:

  1. Implementation of an integrated driver knowledge testing system in 203 FOs and Headquarters. The system will include a unique test for each applicant and PRT testing capability.

  2. Improved anti-fraud measures which will include biometric and barcode logon for all knowledge testing terminals, and automated driver record updating of the test results.

  3. Provide the capability to expand the knowledge testing system to allow for new examinations as needed using separate question pools, and alternative forms of electronic data transmission.

- Out of Scope:

  1. Automated knowledge testing at third party locations, such as schools, auto clubs, driving schools, etc.

  2. Eliminate all other forms of knowledge testing. Written tests will still be available in each language, audio tests, person to person tests, etc. will be available to any applicant that needs or desires a non-automated test.

6.5.2 Project Assumptions

- The project will be approved on a timely basis.
- The contract award will not be protested.

- All funding will be available to complete the planned expenditures.
- Functional requirements will not change substantially during project development.
- Higher priority issues will not impact the schedule or resource needs.
- Executive sponsorship will continue through project completion.
- Qualified DMV program and technical staff will be available as needed to support and participate in design, configuration, testing, training, and implementation of the selected solution.
- Suppliers, vendors, experts, and State staff will perform their assignments related to the project in a competent and timely manner.
- Issues will be resolved and risks mitigated on a timely basis.
- All equipment and software provided will comply with DMV standards.
- FO will be adequately staffed and trained in the use of the Automated Knowledge Testing System.
- All FOs will have integrated driver knowledge testing by January 2015.
- Testing terminals will be fully enclosed.
- Deters applicant and employee fraud.
- Each automated knowledge test will be unique and randomized.
- Minimum to moderate office modifications will be required.
- Some funding will be received from the federal government in the form of grants.

6.5.3 Project Phasing

This project will not be completed in phases.

6.5.4 Roles and Responsibilities

The Project Management Roles and Responsibilities used by the DMV follows the Technology Agency CA-PMM guidelines as stipulated in SIMM, Section 17.

6.5.5 Project Schedule

Schedule dates are predicated on what is known to date, the impact of future legislation, specifically bills with associated fees, could have a critical impact to the schedule.

Project Schedule		
Task	Estimated Start	Estimated Completion Date
Automated Knowledge Testing Expansion		
Initiation	7/2/2012	7/13/2012
Project Approval	7/1/2012	7/1/2012
Planning	7/2/2012	9/14/2012
Award Contract	7/23/2012	9/14/2012
Execution and Control	9/17/2012	1/23/2015
Analysis	9/17/2012	3/1/2013
Compile and Document Requirements	9/17/2012	3/1/2013
Design	11/26/2012	4/5/2013
Create System Design Documents	11/26/2012	4/5/2013
Build	4/8/2013	7/12/2013
Build Solution	4/8/2013	7/12/2013
Test	7/15/2013	9/13/2013
Test Results Approved	7/15/2013	9/13/2013
Implementation	9/16/2013	3/11/2015
Training	9/16/2013	3/2/2015
Stage 1 Rollout	11/12/2013	5/26/2014
Stage 2 Rollout	5/27/2014	10/20/2014
Stage 3 Rollout	10/21/2014	3/11/2015
Close-out	3/12/2015	9/12/2016
Conduct Post-Implementation Lessons Learned	3/12/2015	3/26/2015
Conduct Evaluation & Write Post-Implementation Evaluation Report (PIER)	3/12/2015	3/11/2016
Finalize PIER	3/14/2016	9/12/2016

6.6 Project Monitoring and Oversight

6.6.1 Project Monitoring

DMV follows the standard requirements and CA-PMM status tracking and reporting requirements for project deliverables, schedule and budget.

Based on the Criticality/Risk Rating, the project is considered high and the project status reports will be submitted to Technology Agency monthly.

6.6.2 Oversight

An independent review and analysis will be conducted to determine if the project is on track to be completed within the estimated schedule and cost, and compliance with the Technology Agency CA-PMM and other industry standard project management practices, such as Institute of Electrical and Electronics Engineers (IEEE) and the Project Management Body of Knowledge (PMBOK). Project oversight will identify and quantify any issues and risks affecting these project components.

Submission of the Independent Project Oversight Report (IPOR) will be on a monthly basis for a project classified by the Technology Agency as high criticality and on a quarterly basis for a project classified as medium criticality. Independent Validation and Verification (IV&V) Reports may be submitted in addition to the IPOR.

IT project oversight is assessed on a project-by-project basis by the Technology Agency's Project Management Office to determine the oversight resources required for each IT project. Delegated projects are assessed on a project-by-project basis by the Department's Chief Information Officer (CIO).

6.7 Project Quality

In conjunction with the steps outlined in the Project Monitoring section above, the Project Team will:

1. Review the status of tasks, milestones, and deliverables at status meetings. In the event of unanticipated tasks or delays in return of required information from outside groups or agencies, outline contingency plan will be done to keep project on track.

2. Following completion of a milestone or deliverable, conduct a review to assure adherence to the identified business needs, objectives, and scope, including meeting any measurable requirements.

6.8 Change Management

Each significant change that impacts the scope, project definition, or specifications will be identified, evaluated, and tracked throughout closure of the project.

6.9 Authorization Required

The project requires the following to review and approve this FSR:

1. DMV Project Sponsor (initial)

2. DMV Assistant CIO (initial)

3. DMV CIO (signature)

4. DMV Budget Officer (signature)

5. DMV Director (signature)

6. Business, Transportation, & Housing Chief Information Officer (signature)

7. Business, Transportation, & Housing Secretary (signature)
8. California Technology Agency (approval memo)

7.0 RISK MANAGEMENT PLAN

The Risk Management Plan will adhere to the DMV standards created by the EPPM Office, the CA-PMM, and the Technology Agency IT Project Oversight Framework.

The Risk Management Plan includes:

- Risk Identification Process
- Risk Escalation Process
- Probability and Impact Identification
- Plans for monitoring high and medium level risks
- Approach to measuring the effectiveness of the risk response plans

7.1 Risk Register

#	Risks	Probability (1-5)	Potential Impact (1-5)	Risk Management Action Must Begin…	Risk Level (1-25)*	
1	Procurement documents may not contain enough details.	1	3	Within the next six months	3	Green
2	Vendor may not be adequately qualified or prepared for the project	1	3	Within the next six months	3	Green
3	Integration of the AMCKTS product with the EASE product may be delayed if the EASE implementation is delayed.	5	3	Within the next six months	15	Yellow
4	Audit and Control Needs	1	2	Within the next six months	2	Green
5	Budget	5	3	Within the next six months	15	Yellow
6	Customer Sophistication	1	1	Over a year from now	0	Green
7	Fingerpriny Image	3	5	Six months to a year from now	10	Green
8	Languages - Cost	1	1	Within the next six months	1	Green
9	Languages - Complexity	3	2	Six months to a year from now	4	Green
10	Build and Implementation	2	5	Within the next six months	10	Yellow
11	Development Environment	1	2	Within the next six months	2	Green
12	External Environment	1	1	Within the next six months	1	Green
13	Facilities	5	3	Six months to a year from now	10	Green
14	Human Resources: Skills	3	5	Within the next six months	15	Yellow
15	Human Resources: Availability	4	4	Within the next six months	16	Red
16	Infrastructure - Increased Traffic	3	5	Within the next six months	15	Yellow
17	Infrastructure - Increased Cost	2	3	Within the next six months	6	Green
18	Legislation	1	1	Six months to a year from now	1	Green
19	Litigation	1	1	Over a year from now	0	Green
20	Management Processes	3	3	Within the next six months	9	Green
21	Other Projects	3	3	Six months to a year from now	6	Green
22	Paradigm Shift	2	1	Six months to a year from now	1	Green
23	Regulations	1	1	Over a year from now	0	Green
24	Requirements Management	3	4	Within the next six months	12	Yellow
25	Schedule	3	3	Six months to a year from now	6	Green
26	Supplier/Vendor Capability/ Capacity	1	1	Within the next six months	1	Green

* 1-9 = Low Risk Level (Green), 10-15 = Medium Risk Level (Yellow), 16-25 = High Risk Level (Red)

	Probability Scale
1	<20%
2	21 - 40%
3	41 - 60%
4	61 - 80%
5	>80%

	Impact Scale
1	Less than a 5% change to schedule, scope, budget, or quality
2	5 - 10% change to schedule, scope, budget, or quality
3	11 - 15% change to schedule, scope, budget, or quality
4	16 - 24% change to schedule, scope, budget, or quality
5	25% or greater change to schedule, scope, budget, or quality

What process(es) will be used to identify risks?

The following process(es) will be used to identify risks
Through the use of risk identification methods and the application of industry standards (e.g., Technology Agency, IEEE, PMI), the Risk/Project Manager will search for and identify potential issues and concerns which could impact the overall success of the project. Methods to identify risks may include: monitoring project activities, examining artifacts and documentation, observing, interviewing, polling, surveying, brainstorming, participating in discussions and meetings, conducting focus sessions, and applying the Technology Agency Oversight guidelines. These potential issues and concerns result in candidate risks. Risk identification methods will collect candidate risk inputs from the Project participants. Project participants include the Project team, stakeholders, and the Contractor.

Describe the process to be used to escalate risks the resolutions of which are beyond the project manager's level of authority?

The process used to escalate risks beyond the PM's level of authority is
Risk escalation is determined by analyzing a risk and calculating the Risk Level (impact on the project, the probability it will occur, and the timing of when it would occur.) The Project will use the following table as a guide in determining the escalation of individual risks.

What are your plans for monitoring the high and medium level risks?

The plans for monitoring the high and medium level risks are
The Risk/Project Manager will review the medium and high risks at the weekly Project Team Meeting. The information presented will include the status of risk mitigation and contingency action plans, changes in risk level (probability, impact, and risk management timing), triggers, and review timeframe. All Risk updates will be recorded in the Department of Motor Vehicles Enterprise Project Management Risk Management Database.

What is your approach to measuring the effectiveness of the risk response plans?

The approach to measuring the effectiveness of the plan is
The Risk Management processes will be monitored throughout the project lifecycle phases to ensure the Risk Management approach is effective and in accordance with the California Technology Agency CA-PMM guidelines. Any changes identified will be updated in the Risk Management Plan and communicated with the Project Team.

#	Risks	Cause	Consequences	Avoidance Plan	Mitigation Plan	Transference	Acceptance	Contingency Plan
1	Procurement documents may not contain enough details.	SOW is unclear or incomplete.	Delays in vendor deliverables. Substandard quality of deliverables.	Ensure SOW is complete with requirements listed in the Mitigation Plan	Ensure knowledge transfer to DMV staff is included in SOW. Require minimum skill sets of technical staff in the procurement documentation. Require that the vendor promptly replace personnel on DMV demand, allowing vendor personnel to be quickly removed from the project if necessary. Contractually provide the means for DMV to be compensated for costs incurred and lost opportunity costs if the vendor is unable to provide ongoing support. Incorporate financial penalties into the contract for failure of the vendor to perform. Clearly identify requirements, expectations and success criteria in vendor procurement documents.			
2	Vendor may not be able to deliver required performance.	Vendor is not performing to the agreed upon deliverables, or quality	Delays in vendor deliverables. Substandard quality of deliverables.	N/A	Ensure vendor performance reviews throughout the SDLC.	N/A	TBD	Replace contractor, augment with DMV staff, enforce contractual penalties.
3	Integration of the AMCKTS product with the EASE product may be delayed if the EASE implementation is delayed.	EASE deployment is delayed	Delays in AMCKTS implementation may delay AKTE implementation	Monitor EASE impact on AMCKTS	Involve technical leads from the EASE project throughout the SDLC	N/A	TBD	Adjust Schedule, possible SPR
4	Audit and Control Needs	Requirements are not clearly understood	Inability to monitor and secure application	Ensure requirements are identified and included in design and build	Involve IPO, ISO, Enterprise Architecture and Internal Audits early in project	N/A	TBD	Adjust Schedule, possible SPR
5	Budget	FSR not approved timely may delay implementation. State Budget not approved will delay the start date for the consultant.	For FSR not approved timely, the start of the project is delayed. For delays in State Budget, delay in project start date.	Unable to avoid.	For FSR not approved, no mitigation plan to implement. For delays in State Budget, adjust schedule.	N/A	TBD	Adjust Schedule, possible SPR
6	Customer Sophistication	Customer needs assistance with using the automated test touch screen.	Potential negative publicity.	Common technology utilized in current culture.	Provide orientation to the customer regarding the use of the automated testing device. Or, provide a paper test.	N/A	TBD	Assess whether additional communication to the public or at test stations is required.
7	Fingerprint Image	Customer is unable to get an adequate fingerprint image at the test station to log in to the automated test. Cusomer requires assistance from the Test Administrator.	Test Administrator has a line of customers waiting for assistance with fingerprinting	N/A	If fingerprint is not successful after multiple attempts, provide alternative methods for log in and authentication: barcode, photo. Or, provide a paper test.	N/A	TBD	

#	Risks	Cause	Consequences	Avoidance Plan	Mitigation Plan	Transference	Acceptance	Contingency Plan
8	Languages - Cost	Cost of contracting of language translators and testing in 30 languages, written and audio. Possible BCP.	Delays in obtaining funding. Or delays in obtaining qualified consultants for translation and testing. Possible delay in implementation.	N/A	Begin contract negotiations for language translators, testing of the questions in 30 languages, audio and online test.	N/A	TBD	
9	Languages - Complexity	Synchronizing tests with 30 languages, audio and written, and then randomizing them is complex and lengthy.	Delays in implementation	N/A	Begin contract negotiations for language translator consultants early, before project begins. Outsource the testing of languages. Defer some languages to post-implementation.	N/A	TBD	
10	Build and Implementation	Build, testing, implementation, integration with the EASE product is insufficient.	Delay in implementation	Ensure architecture entity is aware of requirements	Identify all requirements, ensure all SMEs are involved, include roles and responsibilities in PM plans	N/A	TBD	Adjust Schedule, possible SPR
11	Development Environment	Software will not install	Delay in implementation	Ensure architecture entity is aware of requirements	Identify all requirements, ensure all SMEs are involved, include roles and responsibilities in PM plans	N/A	TBD	Adjust Schedule, possible SPR
12	External Environment	Communication and connectivity via OTech server	N/A	Identify all requirements, ensure ISD and OTech are involved. Include roles and responsibilities in PM plans.	Identify all requirements, ensure ISD and OTech are involved. Include roles and responsibilities in PM plans.	N/A	TBD	Corrective action. Adjust requirements for OTech.
13	Facilities	FO limited space or space layout prevents installation of test stations. Cannot provide adequate power or network and other facilities issues.	Delay in implementation	Ensure Facilities entity is aware of requirements.	Identify all requirements, ensure Facilities is involved, include roles and responsibilities in PM plans. Develop Facilities Assessment. Develop a list of FOs unable to accommodate test stations due to space limitations and defer implementation to future date.	N/A	TBD	Corrective action. Adjust requirements for OTech.
14	Human Resources: Skills	Lack of IT knowledge	Delay in implementation	Assign resources with the most knowledge to complete the task	Be aware and proactive in requesting resources with the correct knowledge level	N/A	TBD	Adjust Schedule, possible SPR
15	Human Resources: Availability	Resource contention with FODI, EASE projects and potentially other projects.	Delay in implementation	Monitor EASE and FODI projects and their implact on resource needs for this project.	Assign backups early in the process and obtain management commitment. Ensure knowledge transfer between team members, SMEs and backups. Management support due to importance of AKTE and compliance with legislation.	N/A	TBD	Adjust Schedule, possible SPR
16	Infrastructure - Increased Traffic	Increase in network traffic of approx 25-30% due to transmitting test data to central server requires infrastructure upgrades.	Increase in cost	Ensure infrastructure entity is aware of requirements	Identify all requirements, ensure Enterprise Architecture and ISD are involved, include roles and responsibilities in PM plans	N/A	TBD	Corrective action. Adjust schedule, possible SPR..
17	Infrastructure - Increased Cost	Increased cost, possible BCP. Amend L-1 contract for fingerprint software to verify fingerprint at the local SQL server at each FO. Increased cost for development effort. Possible increase in licensing costs.	Increase in cost, development time and testing time.	N/A	Early coordination with sponsor for increased cost. Process BCP timely. Early contract negotiations with L-1, pre-project. Add development time for L-1 fingerprint software/server modifications concurrent with procurement phase.	N/A	TBD	Corrective action if delays. Adjust Schedule, possible SPR.
18	Legislation	Executive Order B-06-11	Tavel not permitted	Minimize need to travel	Utilize local resources	N/A	TBD	Adjust Schedule, possible SPR
19	Litigation	Potential litigation from customers needing ADA requirements	Legal fees and potential negative publicity	ADA policies and facilities are in place.	Awareness of ADA requirements and customer satisfaction.	N/A	TBD	N/A

#	Risks	Cause	Consequences	Avoidance Plan	Mitigation Plan	Transference	Acceptance	Contingency Plan
20	Management Processes	Establishing priorities	Delay in implementation	Upper management commitment to the project	Awareness of competing priorities, changes in priorities and adjust priorities accordingly	N/A	TBD	Reassess current status and mitigate
21	Other Projects	Higher level projects are identified	Delays in implementation	Upper management commitment to the project	Awareness of competing priorities, changes in priorities and adjust priorities accordingly	N/A	TBD	Reassess current status and mitigate
22	Paradigm Shift	Move to Automated Testing	Union resistance to changes in Field Office Staff resistance to change in Field Office	Communicate upcoming change and benefits to the union and staff in Field Office	Communication with Union and Field Office staff and Labor Relations.	N/A	TBD	Continue communicating the changes and offer additional training
23	Regulations	Non-compliance with the FMCSA Regulations by 2014. Ruling Title 49, Part 383, Section 383.133(b)(2)(ii).	California will be out of compliance with Federal regulations.	N/A	Ensure all requirements are met for FMCSA regulations. Establish automated data collection of testing statistics and provide statistical reports, such as applicant and field office statistics, traffic volume audit trail, and statistical reports required by FMCSA.	N/A	TBD	Amend requirements as necessary to comply with regulations.
24	Requirements Management	Not all SMEs involved in identification of requirements	Delay in implementation	Ensure all SMEs are identified	Work with Department to have SMEs assigned to project. Ensure Traceability Matrix is used to trace requirements throughout the SDLC.	N/A	TBD	Identify missed requirements, Change request / SPR
25	Schedule	Schedule too aggressive	Project will not start and finish on time	Adjust Schedule	Perform concurrently and add resources to meet schedule dates	N/A	TBD	Compress schedule where possible. Add more resources. Adjust schedule, possible SPR.
26	Supplier/Vendor Capability/Capacity	Vendor financial capability	Delay in completing assigned deliverables. Possible delay in implementation.	N/A	Review financial viability with vendor via periodic performance reviews throughout the SDLC.	N/A	TBD	Adjust Schedule, possible SPR. Replace vendor, if unable to complete assigned deliverables.

#	Risks	Trigger Event	Owner	Response Plan Effectiveness	Residual Risks	Secondary Risks	Risk Status	Closure Date
1	Procurement documents may not contain enough details.	Procurement Phase, SOW Preparation, Legal Review	Business Lead, Technical Lead	TBD	TBD	TBD	Open at Start of Project	TBD
2	Vendor may not be adequately qualified or prepared for the project	Procurement Phase, Vendor Selection Process, Periodic Performance Reviews	Business Lead, Technical Lead	TBD	TBD	TBD	Open at Start of Project	TBD
3	Integration of the AMCKTS product with the EASE product may be delayed if the EASE implementation is delayed.	Analysis, Design, Build, Test, Implementation	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
4	Audit and Control Needs	Missing requirements	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
5	Budget	FSR not approved timely may delay implementation. State Budget not approved will delay the start date for the consultant.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
6	Customer Sophistication	Customer unable to perform automated test	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
7	Fingerprint Image	Testing and User Acceptance Testing Customers unable to get clear fingerprint and complain about waiting in line for the Test Administrator's assistance.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
8	Languages - Cost	Pre-project: Discussions with sponsor to secure funding for Translation services. Possible BCP.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
9	Languages - Complexity	pre-project: Discussions with sponsor to secure funding for Translation services. Procurement, Analysis, Design, Build, Testing.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD

#	Risks	Trigger Event	Owner	Response Plan Effectiveness	Residual Risks	Secondary Risks	Risk Status	Closure Date
10	Build and Implementation	Integration testing	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
11	Development Environment	Integration testing	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
12	External Environment	Customer complaints	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
13	Facilities	Pre-Project: Facilities Assessment Procurement, Analysis phases.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
14	Human Resources: Skills	Resources delayed in performing tasks	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
15	Human Resources: Availability	Resources assigned to other competing priorities	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
16	Infrastructure - Increased Traffic	Pre-project: Infrastructure Assessment. Slow access to network	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
17	Infrastructure - Increased Cost	Pre-project BCP. Procurement phase.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
18	Legislation	Travel for FO training, implementation, facilities preparation	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
19	Litigation		TBD	TBD	TBD	TBD	Open at Start of Project	TBD
20	Management Processes	Delays in project activities	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
21	Other Projects	Delays in project activities	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
22	Paradigm Shift	Communications to FO, Implementation Planning, Training	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
23	Regulations	Non-compliance with the FMCSA Regulations.	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
24	Requirements Management	Design Reviews, Code Reviews, and test	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
25	Schedule	Delays in project activities	TBD	TBD	TBD	TBD	Open at Start of Project	TBD
26	Supplier/Vendor Capability/Capacity	Procurement, SDLC Phase Checkpoints, Periodic Vendor Performance Reviews	TBD	TBD	TBD	TBD	Open at Start of Project	TBD

8.0 ECONOMIC ANALYSIS WORKSHEETS (EAWs)

EXISTING SYSTEM/BASELINE COST WORKSHEET

All costs shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Continuing Information Technology Costs														
Staff (salaries & benefits)	0.0	$0	0.0	$0	0.0	$0	0.0	$0	0.0	$0	0.0	$0	**0.0**	**$0**
Hardware Lease/Maintenance		$0		$0		$0		$0		$0		$0		**$0**
Software Maintenance/Licenses		$0		$0		$0		$0		$0		$0		**$0**
Contract Services		$0		$0		$0		$0		$0		$0		**$0**
Data Center Services		$0		$0		$0		$0		$0		$0		**$0**
Agency Facilities		$0		$0		$0		$0		$0		$0		**$0**
Other		$0		$0		$0		$0		$0		$0		**$0**
Total IT Costs	**0.0**	**$0**	**0.0**	**$0**	**0.0**	**$0**	**0.0**	**$0**	**0.0**	**$0**	**0.0**	**$0**	**0.0**	**$0**
Continuing Program Costs:														
Staff	205.0	$9,763,353	205.0	$9,763,353	205.0	$9,763,353	205.0	$9,763,353	205.0	$9,763,353	0.0	$0	**1025.0**	**$48,816,765**
Other		$606,817		$606,817		$606,817		$606,817		$606,817		$0		**$3,034,085**
Total Program Costs	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**0.0**	**$0**	**1025.0**	**$51,850,850**
TOTAL EXISTING SYSTEM COSTS	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**205.0**	**$10,370,170**	**0.0**	**$0**	**1025.0**	**$51,850,850**

CONTINUING EXISTING SYSTEM COST WORKSHEET

All Costs Should be shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Continuing Existing Costs														
Information Technology Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Other IT Costs		0		0		0		0		0		0		0
Total Continuing Existing IT Costs	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Program Staff	205.0	9,763,353	205.0	9,763,353	205.0	9,763,353	194.7	9,200,942	184.3	8,638,531			994.0	47,129,532
Other Program Costs*		606,817		606,817		606,817		458,869		310,921				2,590,241
Total Continuing Existing Program Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
Total Continuing Existing Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**

*ASD had total cost reductions in the amount of $295,896 including distribution/storage and printing 8,914,700 exams @ $0.02525 per exam.

Following are staff cost reductions of $1,124,822, totaling 20.68 PYs:
ASD - 2.71 PYs includes randomizing/proofing process FAIS; distribution/storage DMV warehouse; preparing and printing DL paper tests.
CPD - 0.05 PYs for randomizing tests.
FOD - 17.92 PYs for test scoring, Field Office paper test supply restocking and recycling.

ALL STAFF COST REDUCTIONS IDENTIFIED FROM THE EXISTING SYSTEM WILL BE REDIRECTED TO OTHER DUTIES UPON VERIFICATION OF PY SAVINGS.

ALTERNATIVE 1 CONTINUING EXISTING COSTS

All Costs Should be shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
Continuing Existing Costs														
Information Technology Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0
Other IT Costs		0		0		0		0		0		0		0
Total Continuing Existing IT Costs	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Program Staff	205.0	9,763,353	205.0	9,763,353	205.0	9,763,353	194.7	9,200,942	184.3	8,638,531	0.0	0	994.0	47,129,532
Other Program Costs		606,817		606,817		606,817		458,869		310,921		0		2,590,241
Total Continuing Existing Program Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
Total Continuing Existing Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**

PROPOSED ALTERNATIVE: Expand the Automated Multiple Choice Knowledge Testing System to all Field Offices

All costs shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-Time IT Project Costs														
Staff (Salaries & Benefits)	2.2	266,225	1.1	150,130	1.2	151,721	0.0	0	0.0	0	0.0	0	**4.5**	**568,076**
Hardware Purchase		2,464,997		1,769,966		1,044,520		0		0		0		**5,279,483**
Software Purchase/License		21,750		0		0		0		0		0		**21,750**
Telecommunications		314,750		259,000		250,750		0		0		0		**824,500**
Contract Services														
Software Customization		350,000		0		0		0		0		0		**350,000**
Project Management		0		0		0		0		0		0		**0**
Project Oversight		0		0		0		0		0		0		**0**
IV&V Services		0		0		0		0		0		0		**0**
Other Contract Services		920,400		0		0		0		0		0		**920,400**
TOTAL Contract Services		1,270,400		0		0		0		0		0		**1,270,400**
Data Center Services		5,000		0		0		0		0		0		**5,000**
Agency Facilities		306,100		217,200		145,500		0		0		0		**668,800**
Other		28,359		27,951		14,315		0		0		0		**70,625**
Total One-time IT Costs	**2.2**	**4,677,581**	**1.1**	**2,424,247**	**1.2**	**1,606,806**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	4.5	**8,708,634**
Continuing IT Project Costs														
Staff (Salaries & Benefits)	0.0	0	0.0	0	1.0	109,219	1.0	109,219	1.0	109,219	0.0	0	**3.0**	**327,657**
Hardware Lease/Maintenance		0		0		79,631		222,813		295,460		0		**597,904**
Software Maintenance/Licenses		0		0		0		0		0		0		**0**
Telecommunications		0		0		0		0		0		0		**0**
Contract Services		0		0		0		0		0		0		**0**
Data Center Services		0		33,600		33,600		33,600		33,600		0		**134,400**
Agency Facilities		0		0		0		0		0		0		**0**
Other		0		0		0		0		0		0		**0**
Total Continuing IT Costs	**0.0**	**0**	**0.0**	**33,600**	**1.0**	**222,450**	**1.0**	**365,632**	**1.0**	**438,279**	**0.0**	**0**	**3.0**	**1,059,961**
Total Project Costs	**2.2**	**4,677,581**	**1.1**	**2,457,847**	**2.2**	**1,829,256**	**1.0**	**365,632**	**1.0**	**438,279**	**0.0**	**0**	**7.5**	**9,768,595**
Continuing Existing Costs														
Information Technology Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Other IT Costs		0		0		0		0		0		0		**0**
Total Continuing Existing IT Costs	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Program Staff	205.0	9,763,353	205.0	9,763,353	205.0	9,763,353	194.7	9,200,942	184.3	8,638,531	0.0	0	**994.0**	**47,129,532**
Other Program Costs		606,817		606,817		606,817		458,869		310,921		0		**2,590,241**
Total Continuing Existing Program Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
Total Continuing Existing Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
TOTAL ALTERNATIVE COSTS	**207.2**	**15,047,751**	**206.1**	**12,828,017**	**207.2**	**12,199,426**	**195.7**	**10,025,443**	**185.3**	**9,387,731**	**0.0**	**0**	**1001.5**	**59,488,368**
INCREASED REVENUES		0		0		0		0		0		0		**0**

ALTERNATIVE #1: Vendor Purchased Integrated Automated Knowledge Testing System

All costs shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-Time IT Project Costs														
Staff (Salaries & Benefits)	2.2	258,396	1.2	157,114	1.3	163,732	0.0	0	0.0	0	0.0	0	**4.7**	**579,242**
Hardware Purchase		5,346,764		3,880,151		2,289,817		0		0		0		**11,516,732**
Software Purchase/License		1,928,682		1,431,150		912,413		0		0		0		**4,272,245**
Telecommunications		314,750		259,000		250,750		0		0		0		**824,500**
Contract Services														
Software Customization		75,000		0		0		0		0		0		**75,000**
Project Management		0		0		0		0		0		0		**0**
Project Oversight		0		0		0		0		0		0		**0**
IV&V Services		0		0		0		0		0		0		**0**
Other Contract Services		454,000		0		0		0		0		0		**454,000**
TOTAL Contract Services		529,000		0		0		0		0		0		**529,000**
Data Center Services		5,000		0		0		0		0		0		**5,000**
Agency Facilities		306,100		217,200		145,500		0		0		0		**668,800**
Other		28,359		27,951		14,315		0		0		0		**70,625**
Total One-time IT Costs	**2.2**	**8,717,051**	**1.2**	**5,972,566**	**1.3**	**3,776,527**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**4.7**	**18,466,144**
Continuing IT Project Costs														
Staff (Salaries & Benefits)	0.0	0	0.0	0	1.0	109,219	1.0	109,219	1.0	109,219	0.0	0	**3.0**	**327,657**
Hardware Lease/Maintenance		0		0		79,631		222,813		295,460		0		**597,904**
Software Maintenance/Licenses		0		0		159,600		144,400		583,800		0		**887,800**
Telecommunications		0		0		0		0		0		0		**0**
Contract Services		0		0		0		0		0		0		**0**
Data Center Services		0		33,600		33,600		33,600		33,600		0		**134,400**
Agency Facilities		0		0		0		0		0		0		**0**
Other		0		0		0		0		0		0		**0**
Total Continuing IT Costs	**0.0**	**0**	**0.0**	**33,600**	**1.0**	**382,050**	**1.0**	**510,032**	**1.0**	**1,022,079**	**0.0**	**0**	**3.0**	**1,947,761**
Total Project Costs	**2.2**	**8,717,051**	**1.2**	**6,006,166**	**2.3**	**4,158,577**	**1.0**	**510,032**	**1.0**	**1,022,079**	**0.0**	**0**	**7.7**	**20,413,905**
Continuing Existing Costs														
Information Technology Staff	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Other IT Costs		0		0		0		0		0		0		**0**
Total Continuing Existing IT Costs	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**
Program Staff	205.0	9,763,353	205.0	9,763,353	205.0	9,763,353	194.7	9,200,942	184.3	8,638,531	0.0	0	**994.0**	**47,129,532**
Other Program Costs		606,817		606,817		606,817		458,869		310,921		0		**2,590,241**
Total Continuing Existing Program Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
Total Continuing Existing Costs	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**205.0**	**10,370,170**	**194.7**	**9,659,811**	**184.3**	**8,949,452**	**0.0**	**0**	**994.0**	**49,719,773**
TOTAL ALTERNATIVE COSTS	**207.2**	**19,087,221**	**206.2**	**16,376,336**	**207.3**	**14,528,747**	**195.7**	**10,169,843**	**185.3**	**9,971,531**	**0.0**	**0**	**1001.7**	**70,133,678**
INCREASED REVENUES		0		0		0		0		0		0		**0**

ECONOMIC ANALYSIS SUMMARY

All costs shown in whole (unrounded) dollars.

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTAL	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
EXISTING SYSTEM														
Total IT Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Total Program Costs	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	0.0	0	**1025.0**	**51,850,850**
Total Existing System Costs	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	0.0	0	**1025.0**	**51,850,850**
PROPOSED ALTERNATIVE	**Expand the Automated Multiple Choice Knowledge Testing System to all Field Offices**													
Total Project Costs	2.2	4,677,581	1.1	2,457,847	2.2	1,829,256	1.0	365,632	1.0	438,279	0.0	0	**7.5**	**9,768,595**
Total Cont. Exist. Costs	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	194.7	9,659,811	184.3	8,949,452	0.0	0	**994.0**	**49,719,773**
Total Alternative Costs	207.2	15,047,751	206.1	12,828,017	207.2	12,199,426	195.7	10,025,443	185.3	9,387,731	0.0	0	**1001.5**	**59,488,368**
COST SAVINGS/AVOIDANCES	(2.2)	(4,677,581)	(1.1)	(2,457,847)	(2.2)	(1,829,256)	9.3	344,727	19.7	982,439	0.0	0	**23.5**	**(7,637,518)**
Increased Revenues		0		0		0		0		0		0		**0**
Net (Cost) or Benefit	(2.2)	(4,677,581)	(1.1)	(2,457,847)	(2.2)	(1,829,256)	9.3	344,727	19.7	982,439	0.0	0	**23.5**	**(7,637,518)**
Cum. Net (Cost) or Benefit	(2.2)	(4,677,581)	(3.3)	(7,135,428)	(5.5)	(8,964,684)	3.8	(8,619,957)	23.5	(7,637,518)	23.5	(7,637,518)		
ALTERNATIVE #1	**Vendor Purchased Integrated Automated Knowledge Testing System**													
Total Project Costs	2.2	8,717,051	1.2	6,006,166	2.3	4,158,577	1.0	510,032	1.0	1,022,079	0.0	0	**7.7**	**20,413,905**
Total Cont. Exist. Costs	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	194.7	9,659,811	184.3	8,949,452	0.0	0	**994.0**	**49,719,773**
Total Alternative Costs	207.2	19,087,221	206.2	16,376,336	207.3	14,528,747	195.7	10,169,843	185.3	9,971,531	0.0	0	**1001.7**	**70,133,678**
COST SAVINGS/AVOIDANCES	(2.2)	(8,717,051)	(1.2)	(6,006,166)	(2.3)	(4,158,577)	9.3	200,327	19.7	398,639	0.0	0	**23.3**	**(18,282,828)**
Increased Revenues		0		0		0		0		0		0		**0**
Net (Cost) or Benefit	(2.2)	(8,717,051)	(1.2)	(6,006,166)	(2.3)	(4,158,577)	9.3	200,327	19.7	398,639	0.0	0	**23.3**	**(18,282,828)**
Cum. Net (Cost) or Benefit	(2.2)	(8,717,051)	(3.4)	(14,723,217)	(5.7)	(18,881,794)	3.6	(18,681,467)	23.3	(18,282,828)	23.3	(18,282,828)		
ALTERNATIVE #2														
Total Project Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Total Cont. Exist. Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Total Alternative Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
COST SAVINGS/AVOIDANCES	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	0.0	0	**1025.0**	**51,850,850**
Increased Revenues		0		0		0		0		0		0		**0**
Net (Cost) or Benefit	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	205.0	10,370,170	0.0	0	**1025.0**	**51,850,850**
Cum. Net (Cost) or Benefit	205.0	10,370,170	410.0	20,740,340	615.0	31,110,510	820.0	41,480,680	1025.0	51,850,850	1025.0	51,850,850		

PROJECT FUNDING PLAN

All costs shown in whole (unrounded) dollars

	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		TOTALS	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
TOTAL PROJECT COSTS	**2.2**	**4,677,581**	**1.1**	**2,457,847**	**2.2**	**1,829,256**	**1.0**	**365,632**	**1.0**	**438,279**	**0.0**	**0**	**7.5**	**9,768,595**
RESOURCES TO BE REDIRECTED														
Staff	2.2	266,225	1.1	150,130	2.2	260,940	1.0	109,219	1.0	109,219	0.0	0	**7.5**	**895,733**
Funds:														
Existing System		0		0		0		147,948		295,896		0		**443,844**
Other Fund Sources		228,359		61,551		367,313		108,465		33,164		0		**798,852**
TOTAL REDIRECTED RESOURCES	**2.2**	**494,584**	**1.1**	**211,681**	**2.2**	**628,253**	**1.0**	**365,632**	**1.0**	**438,279**	**0.0**	**0**	**7.5**	**2,138,429**
ADDITIONAL PROJECT FUNDING NEEDED														
One-Time Project Costs	0.0	4,182,997	0.0	2,246,166	0.0	1,201,003	0.0	0	0.0	0	0.0	0	**0.0**	**7,630,166**
Continuing Project Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
TOTAL ADDITIONAL PROJECT FUNDS NEEDED BY FISCAL YEAR	**0.0**	**4,182,997**	**0.0**	**2,246,166**	**0.0**	**1,201,003**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**7,630,166**
TOTAL PROJECT FUNDING	**2.2**	**4,677,581**	**1.1**	**2,457,847**	**2.2**	**1,829,256**	**1.0**	**365,632**	**1.0**	**438,279**	**0.0**	**0**	**7.5**	**9,768,595**
Difference: Funding - Costs	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Total Estimated Cost Savings	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**

FUNDING SOURCE*														
General Fund	0%	0	0%	0	0%	0	0%		0%	0		0	0%	0
Federal Fund	89%	4,182,997	91%	2,246,166	66%	1,201,003	0%	0	0%	0		0	78%	7,630,166
Special Fund	11%	494,584	9%	211,681	34%	628,253	100%	365,632	100%	438,279		0	22%	2,138,429
Reimbursement	0%	0	0%	0	0%	0	0%	0	0%	0		0	0%	0
TOTAL FUNDING	**100%**	**4,677,581**	**100%**	**2,457,847**	**100%**	**1,829,256**	**100%**	**365,632**	**100%**	**438,279**		**0**	**100%**	**9,768,595**

*Federal Funding from 2011 Commercial Driver License Program Improvement (CDLPI) Grant for 2 years, beginning June 2011; 2010 Driver License Security Grant Program (DLSGP) for 3 years, beginning May 2010; 2011 DLSGP for 3 years, beginning May 2011; 2012 CDLPI for 3 years, beginning March 2012; 2012 DLSGP for 3 years, beginning March 2012; 2013 CDLPI for 3 years, beginning March 2013; 2013 DLSGP for 3 years, beginning March 2013.

Note: Federal Grants are available on a yearly basis for commercial licensing enhancements and anti-fraud measures. It is anticipated that this project will be fully funded through federal grants and the redirection of DMV resources.

Additional Information: Redirected Division Funding Source

DIVISION(S) FUNDING	**FY 2012/13**	**FY 2013/14**	**FY 2014/15**	**FY 2015/16**	**FY 2016/17**	**FY**
One-Time Costs	ASD, EXE, ISD, LOD	ASD, EXE, ISD, LOD	ASD, EXE, ISD, LOD			
Continuing Costs			ISD, LOD	ASD, ISD, LOD	ASD, ISD, LOD	

ADJUSTMENTS, SAVINGS AND REVENUES WORKSHEET

(California Technology Agency Use Only)

Annual Project Adjustments	FY 2012/13		FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY		Net Adjustments	
	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts	PYs	Amts
One-time Costs														
Previous Year's Baseline	0.0	0	0.0	4,182,997	0.0	2,246,166	0.0	1,201,003	0.0	0	0.0	0		
(A) Annual Augmentation /(Reduction)	**0.0**	**4,182,997**	**0.0**	**(1,936,831)**	**0.0**	**(1,045,163)**	**0.0**	**(1,201,003)**	**0.0**	**0**	**0.0**	**0**		
(B) Total One-Time Budget Actions	0.0	4,182,997	0.0	2,246,166	0.0	1,201,003	0.0	0	0.0	0	0.0	0	**0.0**	**7,630,166**
Continuing Costs														
Previous Year's Baseline	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0		
(C) Annual Augmentation /(Reduction)	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**	**0.0**	**0**		
(D) Total Continuing Budget Actions	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	**0.0**	**0**
Total Annual Project Budget Augmentation /(Reduction) [A + C]	**0.0**	**4,182,997**	**0.0**	**(1,936,831)**	**0.0**	**(1,045,163)**	**0.0**	**(1,201,003)**	**0.0**	**0**	**0.0**	**0**		

[A, C] Excludes Redirected Resources

Total Additional Project Funds Needed [B + D]	**0.0**	**7,630,166**

Annual Savings/Revenue Adjustments

Cost Savings	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0		
Increased Program Revenues		0		0		0		0		0		0		

ATTACHMENTS

1. **Economic Detail Worksheets**
2. **OISPP Questionnaire**
3. **Complexity Assessment**

ACRONYMS

1. Economic Detail Worksheets

Proposed Solution - One-time IT Staff Costs

IT Staff (Class Title/Division/IT Duties)	Monthly Salary	Fiscal Year 2012/13				Fiscal Year 2013/14			
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Executive Division (EXE)									
Systems Software Specialist III (Supervisory) Monitor project and EA team involvement	$7,302	52		0.02	$3,942	52		0.02	$3,942
Systems Software Specialist III (Technical) Security/data elements/infrastructure guidance	$6,953	250		0.14	$18,049				
Data Processing Manager III Project Management	$7,679	889		0.50	$70,882	889		0.50	$70,882
Senior Information Systems Analyst (Specialist) Oversight Services	$6,340	630		0.35	$41,475	405		0.22	$26,662
Staff Information Systems Analyst - Specialist (IPO) Privace Assessment	$5,766	55		0.03	$3,292				
Senior Information Systems Analyst (Specialist) (ISO) Security Evaluations	$6,340	55		0.03	$3,620				
Licensing Operations Division (LOD)									
Manager III, DMV (DLAD) User Test, Priority Memo	$4,876	200		0.11	$10,126				
Manager I, DMV (DLAD) User Test, Priority Memo	$3,697	100		0.05	$3,838				
Administrative Services Division (ASD)									
Staff Information Systems Analyst - Specialist IT Acquisitions	$5,766	330		0.18	$19,756	280		0.15	$16,763
Associate Governmental Program Analyst Budgets	$4,874	15		0.00	$759	15		0.00	$759
Staff Services Manager II (Supervisory) Budgets	$6,152	10		0.00	$638	10		0.00	$638
CEA (Career Executive Assignment) Level 2 Budgets	$8,216	5		0.00	$426	5		0.00	$426
One-time IT Staff Cost Page Subtotals		**2,231**	**0**	**1.2**	**$155,224**	**1,346**	**0**	**0.7**	**$101,486**

Proposed Solution - One-time IT Staff Costs

IT Staff (Class Title/Division/IT Duties)	Monthly Salary	Fiscal Year 2012/13 Continued				Fiscal Year 2013/14 Continued			
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Information Systems Division (ISD)									
Staff Programmer Analyst (Specialist) Analysis, Design, Build	$5,766	889		0.50	$53,223				
Staff Information Systems Analyst - Specialist Development	$5,766	889		0.50	$53,223				
Systems Software Specialist III (Technical) Design architecture	$6,953	889		0.50	$64,185	889		0.50	$64,185
Systems Software Specialist III (Technical) (Telecom) Firewall Development & IP Resolution	$6,953	97		0.05	$7,003	56		0.03	$4,043
Staff Information Systems Analyst - Specialist (Telecom) System Analysis & Documentation & IP Resolution	$5,766	496		0.27	$29,694	448		0.25	$26,821
Systems Software Specialist II (Technical) Use Case/Test Case Analysis, Test Plan Creation, Scenario Development, Test Preparation/Setup, Integrations & Performance Testing	$6,329	288		0.16	$18,927				
Staff Information Systems Analyst - Specialist Requirements Analysis, Test Script Design, Conversion, Static/Dynamic/Regression Testing	$5,766	288		0.16	$17,242				
Staff Programmer Analyst (Specialist) System testing, problem resolution and adjustments.	$5,766	297		0.16	$17,780	297		0.16	$17,780
Staff Programmer Analyst (Specialist) Programming and testing	$5,766	340		0.19	$20,355				
One-time IT Staff Cost Page Subtotals		**1,806**	**0**	**1.0**	**$111,001**	**801**	**0**	**0.4**	**$48,644**
One-time IT Staff Cost Fiscal Year Totals		**4,037**	**0**	**2.2**	**$266,225**	**2,147**	**0**	**1.1**	**$150,130**

Proposed Solution - One-time IT Staff Costs

IT Staff (Class Title/Division/IT Duties)	Monthly Salary	Fiscal Year 2014/15				Fiscal Year 2015/16			
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Executive Division (EXE)									
Staff Information Systems Analyst - Specialist IT Acquisitions	$5,766	280		0.15	$16,763				
Data Processing Manager III Project Management	$7,679	889		0.50	$70,882				
Senior Information Systems Analyst (Specialist) Oversight services	$6,340	190		0.10	$12,508				
Administrative Services Division (ASD)									
Associate Governmental Program Analyst Budgets	$4,874	15		0.00	$759				
Staff Services Manager II (Supervisory) Budgets	$6,152	10		0.00	$638				
CEA (Career Executive Assignment) Level 2 Budgets	$8,216	5		0.00	$426				
Information Systems Division (ISD)									
Staff Programmer Analyst (Specialist) System testing, problem resolution and adjustments.	$5,766	297		0.16	$17,780				
Systems Software Specialist III (Technical) (Telecom) Firewall Development & IP Resolution	$6,953	58		0.03	$4,187				
Staff Information Systems Analyst - Specialist (Telecom) System Analysis & Documentation & IP Resolution	$5,766	464		0.26	$27,778				
One-time IT Staff Cost Page Subtotals		**2,208**	**0**	**1.2**	**$151,721**	**0**	**0**	**0.0**	**$0**

Proposed Solution - One-time IT Hardware Purchase Costs

Hardware Purchase Description	Tax Rate %	Fiscal Year 2012/13				Fiscal Year 2013/14			
		# Items	$ Per Item	Shipping	Total Cost	# Items	$ Per Item	Shipping	Total Cost
ADA Compliant Touch-screen Terminals (1731 in field offices, 7 in HQ)	8.75%	803	$1,700.00		$1,484,546	588	$1,700.00		$1,087,065
Fingerprint Device Package (includes Ethernet version, 5 Port Network Switch, Surge Suppressing Power Strip, (2) Network Cables (10 feet), installation and configuration and 5 years of service)	8.75%	803	$1,067.95		$932,601	588	$1,067.95		$682,901
Web Servers	8.75%	2	$22,000.00		$47,850				
Total					**$2,464,997**				**$1,769,966**

Proposed Solution - One-time IT Hardware Purchase Costs

Hardware Purchase Description	Tax Rate %	Fiscal Year 2014/15				Fiscal Year 2015/16			
		# Items	$ Per Item	Shipping	Total Cost	# Items	$ Per Item	Shipping	Total Cost
ADA Compliant Touch-screen Terminals	8.75%	347	$1,700.00		$641,516				
Fingerprint Device Package (includes Ethernet version, 5 Port Network Switch, Surge Suppressing Power Strip, (2) Network Cables (10 feet), installation and configuration and 5 years of service)	8.75%	347	$1,067.95		$403,004				
Total					**$1,044,520**				**$0**

Proposed Solution - One-time IT Software Purchase/License Costs

Software Purchase/License Description	Tax Rate %	Fiscal Year 2012/13				Fiscal Year 2013/14			
		# Items	$ Per Item	Shipping	Total Cost	# Items	$ Per Item	Shipping	Total Cost
Web Server Operating System	8.75%	2	$10,000.00		$21,750				
Total					**$21,750**				**$0**

Proposed Solution - One-time IT Telecommunications Costs

Telecommunication Services	Telecommunication Service Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Costs for Telecommunication switching equipment and upgrades (195 switchs @$2000.00 per switch; 57 offices in FY 12/13; 56 offices in FY 13/14 and 82 in FY 14/15.)	$114,000	$112,000	$164,000			
Cabling for workstations at $250 per cable; (803 terminals in FY 12/13; 588 terminals in FY 13/14 and 347 terminals in FY 14/15.)	$200,750	$147,000	$86,750			
Total One-time IT Telecommunications Costs	**$314,750**	**$259,000**	**$250,750**	**$0**	**$0**	**$0**

Proposed Solution - One-time IT Contract Services Costs

Software Customization/Development	Cost Totals by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Java Consultant	$350,000					
Total Software Customization/Development	**$350,000**	**$0**	**$0**	**$0**	**$0**	**$0**
Project Management						
Total Project Management Costs	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Project Oversight						
Independent Project Oversight Consultant (IPOC)						
Total Project Oversight Costs	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Independent Verification & Validation (IV & V) Services						
IV&V Services						
Total IV&V Costs	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Other Contract Services						
DGS Administrative Charges for Request for Proposal (RFP)	$80,000					
Facilities Site Survey Consultant	$200,000					
Foreign Language Translation Consulting (30 languages @ $5,800 per language)	$174,000					
Audio Recordings for all languages (32 languages @ $14,575 per language)	$466,400					
Total Other Services Costs	**$920,400**	**$0**	**$0**	**$0**	**$0**	**$0**
Total One-time IT Contract Services Costs	**$1,270,400**	**$0**	**$0**	**$0**	**$0**	**$0**

Proposed Solution - One-time IT Data Center Services Costs

Data Center Services	Data Center Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Web Server Setup	$5,000					
Total One-time IT Data Center Services Costs	**$5,000**	**$0**	**$0**	**$0**	**$0**	**$0**

Proposed Solution - One-time IT Agency Facilities Costs

Agency Facilities Costs	Agency Facilities Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Modular System Furniture (MSF) test stations for 80 offices @ approx 16 stations each; 9 offices @ 4 stations each; and 15 offices @ 1 station each * $500 per test station)	$304,000	$216,000	$145,500			
Data and Electrical needed for 66 offices @ $50 each	$2,100	$1,200				
Total One-time IT Agency Facilities Costs	**$306,100**	**$217,200**	**$145,500**	**$0**	**$0**	**$0**

Proposed Solution - One-time IT Other Costs

Other Costs	Other Costs for Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Training Travel	$28,359	$27,951	$14,315			
Total One-time IT Other Costs	**$28,359**	**$27,951**	**$14,315**	**$0**	**$0**	**$0**

Proposed Solution - Continuing IT Staff Costs

IT Staff (Class Title/Division/IT Duties)	Monthly Salary	Fiscal Year 2012/13			Fiscal Year 2013/14			Fiscal Year 2014/15		
		Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost
Information Systems Division (ISD)										
Staff Programmer Analyst (Specialist) Ongoing problem resolution, adjustments and maintenance.	$5,766							445	0.25	$26,641
Staff Information Systems Analyst - Specialist DL Apps HQ maintenance and operations	$5,766							445	0.25	$26,641
Staff Programmer Analyst (Specialist) DL Apps HQ maintenance and operations	$5,766							445	0.25	$26,641
Senior Information Systems Analyst (Specialist) DL Apps HQ maintenance and operations	$6,340							445	0.25	$29,296
Continuing IT Staff Cost Fiscal Year Totals		**0**	**0.0**	**$0**	**0**	**0.0**	**$0**	**1,780**	**1.0**	**$109,219**

Proposed Solution - Continuing IT Staff Costs

IT Staff (Class Title/Division/IT Duties)	Monthly Salary	Fiscal Year 2015/16			Fiscal Year 2016/17			Fiscal Year		
		Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost
Information Systems Division (ISD)										
Staff Programmer Analyst (Specialist) ongoing problem resolution, adjustments and maintenance.	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Staff Information Systems Analyst - Specialist DL Apps HQ maintenance and operations	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Staff Programmer Analyst (Specialist) DL Apps HQ maintenance and operations	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Senior Information Systems Analyst (Specialist) DL Apps HQ maintenance and operations	$6,340	445	0.25	$29,296	445	0.25	$29,296			
Continuing IT Staff Cost Fiscal Year Totals		**1,780**	**1.0**	**$109,219**	**1,780**	**1.0**	**$109,219**	**0**	**0.0**	**$0**

Proposed Solution - Continuing IT Hardware Purchase Costs

Hardware Lease/ Maintenance Description	Monthly Costs	Fiscal Year 2012/13 # Months	Fiscal Year 2012/13 Total Cost	Fiscal Year 2013/14 # Months	Fiscal Year 2013/14 Total Cost	Fiscal Year 2014/15 # Months	Fiscal Year 2014/15 Total Cost
Maintenance for Stage 1 - ADA Compliant Touch-screen terminals	$11,376					7	$79,631
Total Continuing IT Hardware Lease/Maintenance Costs			**$0**		**$0**		**$79,631**

Hardware Lease/ Maintenance Description	Monthly Costs	Fiscal Year 2015/16 # Months	Fiscal Year 2015/16 Total Cost	Fiscal Year 2016/17 # Months	Fiscal Year 2016/17 Total Cost	Fiscal Year # Months	Fiscal Year Total Cost
Maintenance for Stage 1 - ADA Compliant Touch-screen terminals	$11,376	12	$136,510	12	$136,510		
Maintenance for Stage 2 - ADA Compliant Touch-screen terminals	$8,330	8	$66,640	12	$99,960		
Maintenance for Stage 3 - ADA Compliant Touch-screen terminals	$4,916	4	$19,663	12	$58,990		
Total Continuing IT Hardware Lease/Maintenance Costs			**$222,813**		**$295,460**		**$0**

Proposed Solution - Continuing IT Data Center Services Costs

Data Center Services	Data Center Cost by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Web Services		$33,600	$33,600	$33,600	$33,600	
Total Continuing IT Data Center Service Costs	**$0**	**$33,600**	**$33,600**	**$33,600**	**$33,600**	**$0**

Alternative 1 - One-time IT Staff Costs

One-time IT Staff (Class Title & IT Duties)	Monthly Salary	Fiscal Year 2012/13				Fiscal Year 2013/14			
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Executive Division (EXE)									
Systems Software Specialist III (Supervisory) Monitor project and EA team involvement	$7,302	52		0.02	$3,942	52		0.02	$3,942
Systems Software Specialist III (Technical) Security, data elements and Infrastructure guidance	$6,953	250		0.14	$18,049				
Data Processing Manager III Project Management	$7,679	889		0.50	$70,882	889		0.50	$70,882
Staff Information Systems Analyst - Specialist Oversight Services	$5,766	562		0.31	$33,646	562		0.31	$33,646
Staff Information Systems Analyst - Specialist (IPO) Privace Assessment	$5,766	55		0.03	$3,292				
Senior Information Systems Analyst (Specialist) (ISO) Security Evaluations	$6,340	55		0.03	$3,620				
Licensing Operations Division (LOD)									
Manager III, DMV (DLAD) User Test, Priority Memo	$4,876	200		0.11	$10,126				
Manager I, DMV (DLAD) User Test, Priority Memo	$3,697	100		0.05	$3,838				
Administrative Services Division (ASD)									
Staff Information Systems Analyst - Specialist IT Acquisitions	$5,766	330		0.18	$19,756	280		0.15	$16,763
Subtotal		**2,163**	**0**	**1.2**	**$147,395**	**1,503**	**0**	**0.8**	**$108,470**

Alternative 1 - One-time IT Staff Costs

IT Staff (Class Title & Duties)	Monthly Salary	Fiscal Year 2012/13			Continued	Fiscal Year 2013/14			Continued
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Information Systems Division (ISD)									
Staff Programmer Analyst (Specialist) Analysis, Design, Build	$5,766	889		0.50	$53,223				
Staff Information Systems Analyst - Specialist Development	$5,766	889		0.50	$53,223				
Systems Software Specialist III (Technical) Design architecture	$6,953	889		0.50	$64,185	889		0.50	$64,185
Systems Software Specialist III (Technical) (Telecom) Firewall Development & IP Resolution	$6,953	97		0.05	$7,003	56		0.03	$4,043
Staff Information Systems Analyst - Specialist (Telecom) System Analysis & Documentation & IP Resolution	$5,766	496		0.27	$29,694	448		0.25	$26,821
Systems Software Specialist II (Technical) Use Case/ Test Case Analysis, Test Plan Creation, Scenario Development, Test Preparation/Setup, Integrations & Performance Testing	$6,329	288		0.16	$18,927				
Staff Information Systems Analyst - Specialist Requirements Analysis, Test Script Design, Conversion, Static/Dynamic/Regression Testing	$5,766	288		0.16	$17,242				
Staff Programmer Analyst (Specialist) System testing, problem resolution and adjustments.	$5,766	297		0.16	$17,780	297		0.16	$17,780
Staff Programmer Analyst (Specialist) Programming and testing	$5,766	340		0.19	$20,355				
One-Time IT Staff Cost Page Subtotals		**1,806**	**0**	**1.0**	**$111,001**	**801**	**0**	**0.4**	**$48,644**
One-Time IT Staff Cost Fiscal Year Totals		**3,969**	**0**	**2.2**	**$258,396**	**2,304**	**0**	**1.2**	**$157,114**

Alternative 1 - One-time IT Staff Costs

One-time IT Staff (Class Title & IT Duties)	Monthly Salary	Fiscal Year 2014/15				Fiscal Year 2015/16			
		Reg Hrs	OT Hrs	PYs	Staff Cost	Reg Hrs	OT Hrs	PYs	Staff Cost
Executive Division (EXE)									
Staff Information Systems Analyst - Specialist IT Acquisitions	$5,766	280		0.15	$16,763				
Staff Programmer Analyst (Specialist) System testing, problem resolution and adjustments.	$5,766	297		0.16	$17,780				
Systems Software Specialist III (Technical) (Telecom) Firewall Development & IP Resolution	$6,953	58		0.03	$4,187				
Staff Information Systems Analyst - Specialist (Telecom) System Analysis & Documentation & IP Resolution	$5,766	464		0.26	$27,778				
Data Processing Manager III Project Management	$7,679	889		0.50	$70,882				
Staff Information Systems Analyst - Specialist Oversight services	$5,766	440		0.24	$26,342				
One-Time IT Staff Cost Page Subtotals		**2,428**	**0**	**1.3**	**$163,732**	**0**	**0**	**0.0**	**$0**
One-Time IT Staff Cost Fiscal Year Totals		**2,428**	**0**	**1.3**	**$163,732**	**0**	**0**	**0.0**	**$0**

Alternative 1 Solution - One-time IT Hardware Purchase Costs

Hardware Purchase Description	Tax Rate %	Fiscal Year 2012/13 # Items	$ Per Item	Shipping	Total Cost	Fiscal Year 2013/14 # Items	$ Per Item	Shipping	Total Cost
Purchased Vendor ADA compliant Touch-screen Terminals *(1731 in field offices, 7 in HQ @ $5000 per unit)*	8.75%	803	$5,000.00		$4,366,313	588	$5,000.00		$3,197,250
Fingerprint Device Package (includes Ethernet version, 5 Port Network Switch, Surge Suppressing Power Strip, (2) Network Cables (10 feet), installation and configuration and 5 years of service)	8.75%	803	$1,067.95		$932,601	588	$1,067.95		$682,901
Web Servers	8.75%	2	$22,000.00		$47,850				
Total					**$5,346,764**				**$3,880,151**
Hardware Purchase Description	**Tax Rate %**	**Fiscal Year 2014/15 # Items**	**$ Per Item**	**Shipping**	**Total Cost**	**Fiscal Year 2015/16 # Items**	**$ Per Item**	**Shipping**	**Total Cost**
Purchased Vendor ADA compliant Touch-screen Terminals *(1731 in field offices, 7 in HQ @ $5000 per unit)*	8.75%	347	$5,000.00		$1,886,813				
Fingerprint Device Package (includes Ethernet version, 5 Port Network Switch, Surge Suppressing Power Strip, (2) Network Cables (10 feet), installation and configuration and 5 years of service)	8.75%	347	$1,067.95		$403,004				
Total					**$2,289,817**				**$0**

Alternative 1 Solution - One-time IT Software Purchase/License Costs

Software Purchase/License Description	Tax Rate %	Fiscal Year 2012/13				Fiscal Year 2013/14			
		# Items	$ Per Item	Shipping	Total Cost	# Items	$ Per Item	Shipping	Total Cost
Web Server Operating System	8.75%	2	$10,000.00		$21,750				
Vendor Application Server License	8.75%	2	$2,500.00		$5,438				
Vendor Application Office Site License	8.75%	57	$2,500.00		$154,969	56	$2,500.00		$152,250
Vendor Application Software User License	8.75%	803	$2,000.00		$1,746,525	588	$2,000.00		$1,278,900
Total					**$1,928,682**				**$1,431,150**
Software Purchase/License Description	**Tax Rate %**	**Fiscal Year 2014/15**				**Fiscal Year 2015/16**			
		# Items	**$ Per Item**	**Shipping**	**Total Cost**	**# Items**	**$ Per Item**	**Shipping**	**Total Cost**
Vendor Office Site License	8.75%	58	$2,500.00		$157,688				
Vendor Software User License	8.75%	347	$2,000.00		$754,725				
Total					**$912,413**				**$0**

Alternative 1 Solution - One-time IT Telecommunications Costs

Telecommunication Services	Telecommunication Service Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Costs for Telecommunication switching equipment and upgrades (195 switchs @$2000.00 per switch; 57 offices in FY 12/13; 56 offices in FY 13/14 and 82 in FY 14/15.)	$114,000	$112,000	$164,000			
Cabling for workstations at $250 per cable; (800 terminals in FY 12/13; 588 terminals in FY 13/14 and 296 terminals in FY 14/15.)	$200,750	$147,000	$86,750			
Total One-time IT Telecommunications Costs	**$314,750**	**$259,000**	**$250,750**	**$0**	**$0**	**$0**

Alternative 1 Solution - One-time Contract Services Costs

Software Customization/Development	Cost Totals by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Custom Integration	$75,000					
Total Software Customization/Development	**$75,000**	**$0**	**$0**	**$0**	**$0**	**$0**
Project Management						
Total Project Management Costs	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Project Oversight						
Total Project Oversight Costs	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
IV & V Services						
	$0	**$0**	**$0**	**$0**	**$0**	**$0**
Other Contract Services						
DGS Administrative Charges for Request for Proposal (RFP)	$80,000					
Facilities Site Survey Consultant	$200,000					
Foreign Language Translation Consulting (30 languages @ $5,800 per language)	$174,000					
Audio Recordings for all languages (32 languages @ $14,575 per language)	$466,400					
Total Other Services Costs	**$454,000**	**$0**	**$0**	**$0**	**$0**	**$0**
Total One-time IT Contract Services Costs	**$529,000**	**$0**	**$0**	**$0**	**$0**	**$0**

Alternative 1 Solution - One-time Data Center Services Costs

Data Center Services	Data Center Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Web Server Setup	$5,000					
Total One-time IT Data Center Services Costs	**$5,000**	**$0**	**$0**	**$0**	**$0**	**$0**

Alternative 1 Solution - One-time IT Agency Facilities Costs

Agency Facilities Costs	Agency Facilities Costs by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
16 stations each; 9 offices @ 4 stations each; and 15 offices @ 1 station each * $500 per test station)	$304,000	$216,000	$145,500			
Data and Electrical needed for 66 offices @ $50 each	$2,100	$1,200				
Total One-time IT Agency Facilities Costs	**$306,100**	**$217,200**	**$145,500**	**$0**	**$0**	**$0**

Alternative 1 Solution - One-time IT Other Costs

Other Costs	Other Costs for Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Training Travel	$28,359	$27,951	$14,315			
Total One-time IT Other Costs	**$28,359**	**$27,951**	**$14,315**	**$0**	**$0**	**$0**

Proposed Solution - Continuing IT Staff Costs

One-time IT Staff (Class Title & IT Duties)	Monthly Salary	Fiscal Year 2012/13			Fiscal Year 2013/14			Fiscal Year 2014/15		
		Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost	Reg Hrs	PYs	Staff Cost
Staff Programmer Analyst (Specialist) Ongoing problem resolution, adjustments and maintenance.	$5,766							445	0.25	$26,641
Staff Information Systems Analyst - Specialist DL Apps HQ maintenance and operations	$5,766							445	0.25	$26,641
Staff Programmer Analyst (Specialist) DL Apps HQ maintenance and operations	$5,766							445	0.25	$26,641
Senior Information Systems Analyst (Specialist) DL Apps HQ maintenance and operations	$6,340							445	0.25	$29,296
Total		**0**	**0.0**	**$0**	**0**	**0.0**	**$0**	**1,780**	**1.0**	**$109,219**
IT Staff (Class Title & Duties)	**Monthly Salary**	**Fiscal Year 2015/16**			**Fiscal Year 2016/17**			**Fiscal Year**		
		Reg Hrs	**PYs**	**Staff Cost**	**Reg Hrs**	**PYs**	**Staff Cost**	**Reg Hrs**	**PYs**	**Staff Cost**
Staff Programmer Analyst (Specialist) ongoing problem resolution, adjustments and maintenance.	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Staff Information Systems Analyst - Specialist DL Apps HQ maintenance and operations	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Staff Programmer Analyst (Specialist) DL Apps HQ maintenance and operations	$5,766	445	0.25	$26,641	445	0.25	$26,641			
Senior Information Systems Analyst (Specialist) DL Apps HQ maintenance and operations	$6,340	445	0.25	$29,296	445	0.25	$29,296			
Total		**1,780**	**1.0**	**$109,219**	**1,780**	**1.0**	**$109,219**	**0**	**0.0**	**$0**

Alternative 1 Solution - Continuing IT Hardware Lease/Maintenance Costs

Hardware Lease/ Maintenance Description	Monthly Costs	Fiscal Year 2012/13		Fiscal Year 2013/14		Fiscal Year 2014/15	
		# Months	Total Cost	# Months	Total Cost	# Months	Total Cost
Stage 1 - ADA Compliant Touch-screen terminals	$11,376					7	$79,631
Total Continuing IT Hardware Lease/Maintenance Costs			**$0**		**$0**		**$79,631**
Hardware Lease/ Maintenance Description	**Monthly Costs**	**Fiscal Year 2015/16**		**Fiscal Year 2016/17**		**Fiscal Year**	
		# Months	**Total Cost**	**# Months**	**Total Cost**	**# Months**	**Total Cost**
Stage 1 - ADA Compliant Touch-screen terminals	$11,376	12	$136,510	12	$136,510		
Stage 2 - ADA Compliant Touch-screen terminals	$8,330	8	$66,640	12	$99,960		
Stage 3 - ADA Compliant Touch-screen terminals	$4,916	4	$19,663	12	$58,990		
Total Continuing IT Hardware Lease/Maintenance Costs			**$222,813**		**$295,460**		**$0**

Alternative 1 Solution - Continuing IT Software Maintenance/Licenses Costs

Software Maintenance/ Licenses Description	Monthly Costs	Fiscal Year 2012/13 # Months	Fiscal Year 2012/13 Total Cost	Fiscal Year 2013/14 # Months	Fiscal Year 2013/14 Total Cost	Fiscal Year 2014/15 # Months	Fiscal Year 2014/15 Total Cost
Vendor Application Server License Maintenance - ($300 per year per license)	$50					12	$600
Vendor Application Office Site License Maintenance - ($300 per year for 57 Stage-1 Offices)	$1,425					11	$15,675
Vendor Application Office Site License Maintenance - ($300 per year for 56 Stage-2 Offices)	$1,400					2	$2,800
Vendor Application Software User License Maint - ($300 per year for each test station = 803 Stage-1)	$20,075					7	$140,525
Total Continuing IT Software Maintenance/Licenses Costs			**$0**		**$0**		**$159,600**

Software Maintenance/ Licenses Description	Monthly Costs	Fiscal Year 2015/16 # Months	Fiscal Year 2015/16 Total Cost	Fiscal Year 2016/17 # Months	Fiscal Year 2016/17 Total Cost	Fiscal Year # Months	Fiscal Year Total Cost
Vendor Application Office Site License Maintenance - ($300 per year for 113 Stage-1&2 Offices)	$2,825	12	$33,900	12	$33,900		
Vendor Application Office Site License Maintenance - ($300 per year for 95 Stage-3 Offices)	$2,375	10	$23,750	12	$28,500		
Vendor Application Software User License Maint ($300 per year for each test station = 1,391 Stage-1&2)	$34,775			12	$417,300		
Vendor Application Software User License Maint ($300 per year for each test station = 347 Stage-3)	$8,675	10	$86,750	12	$104,100		
Total Continuing IT Software Maintenance/Licenses Costs			**$144,400**		**$583,800**		**$0**

Alternative 1 Solution - Continuing IT Data Center Services

Data Center Services	Data Center Cost by Fiscal Year					
	2012/13	2013/14	2014/15	2015/16	2016/17	
Web Services		$33,600	$33,600	$33,600	$33,600	
Total Continuing IT Data Center Service Costs	**$0**	**$33,600**	**$33,600**	**$33,600**	**$33,600**	**$0**

2. OISPP Questionnaire

State of California

California Technology Agency

Questionnaire for Information Security and Privacy Components in Feasibility Study Reports and Project-Related Documents

SIMM 20D

April 2011

Questionnaire for Information Security and Privacy Components in Feasibility Study Reports and Project-Related Documents

1.0 INTRODUCTION

The following Questionnaire assists state agencies with describing the information security and privacy components associated with an IT project in its Feasibility Study Reports and other project-related documents. The Office of Information Security reviews these documents to ensure information security and privacy components are addressed by the state agency and provides its recommendations to the California Technology Agency.

If any of the answers could be considered sensitive in nature, the agency should address them in a separate addendum marked "Confidential" and included as an attachment to the document.

2.0 DMV INFORMATION PRIVACY (IPO) AND SECURITY OFFICER (ISO) ROLES AND RESPONSIBILITIES

1. What are the roles and responsibilities of the IPO and ISO in relationship to this project?

   Role of IPO

   The DMV's IPO will participate in the development of the Request for Proposal (RFP). An IPO representative will function as a subject matter expert (SME) from the planning stage through implementation of the project. The IPO requires specific documentation be created based on the input from the Project Team, including a Privacy Impact Assessment, identification of any privacy vulnerabilities and risks, a summary of mitigating actions to address any identified privacy risks to ensure safeguards are operational. Most importantly, identify as to what privacy policies must be developed to avoid, mitigate, or eliminate risk to data maintained in the system.

   Role of ISO

   The Information Security Office (ISO) of the Department of Motor Vehicles reviewed and provided input on the Feasibility Study Report (FSR) and will participate in the development of the Request for Proposal (RFO). An ISO representative will function as a SME from the planning phase through implementation of the project.

2. Will the IPO and ISO be involved in developing and reviewing the security requirements?

   IPO – Yes

   ISO – Yes

3. Will the ISO be involved in developing and reviewing the security testing efforts?

   We will rely on the security testing completed by the Office of Technology Services (OTech). However, local testing may be required. At a minimum, the ISO will ensure a local

certification process takes place in the form of a security review of documents to ensure critical safeguards are in place and operational.

4. Has the IPO and ISO participated in the response to these questions and signed off on the project-related document(s)?

   IPO – Yes

   ISO – Yes

3.0 PROPOSED SYSTEM

1. Who will be the designated owner of the proposed system (system)?

   Karryl Downing, Licensing Operations Division

2. Who will be the custodians and users of the system?

   DMV's Information Systems Division and OTech will be the custodians. Initially, the users will be staff from the Communication Programs, Field Operations, and Licensing Operations Divisions. In the future, the California Highway Patrol may also use the system.

3. Has the data for the system been classified by the owner? Explain.

   Yes.

   Disclosure Groups: Proprietary

   Sensitivity Groups: Sensitive

   Critical Groups: Important

4. Does the project require development of new application code or modification of existing code? Explain.

   Yes. This effort will include the development of new application code.

5. Will your agency share the data for the system with other entities? If so, who?

   a. Federal partners – Yes.

      Data will be shared with Federal Motor Carrier Safety Administration (FMCSA) and other jurisdictions via the Commercial Driver License Information System (CDLIS), owned by the American Association of Motor Vehicle Administrators (AAMVA), as required by Title 49, Code of Federal Regulations.

b. Local city/county partners – No

c. State agency partners – No

d. Judicial branch – No

e. Universities – No

f. Researchers – No

g. Others – No

6. If data for the system is to be shared with other entities, will your agency implement data exchange agreements with the entities? Explain.

Yes. Data will be shared with Federal Motor Carrier Safety Administration (FMCSA) and other jurisdictions via the existing Commercial Driver License Information System (CDLIS), owned by the American Association of Motor Vehicle Administrators (AAMVA), as required by Title 49, Code of Federal Regulations.

7. Are there checkpoints throughout the software development life cycle (SDLC) verifying and certifying that the security requirements are being met?

IPO – Yes

ISO – Yes

8. At what points will risk assessments be performed throughout the SDLC?

Throughout the project Software Development Lifecycle. These checkpoints will be built into the project schedule. The IPO will conduct a privacy impact assessment and recommendations.

The ISO will perform the Risk Assessment at the design phase, and implement a certification process during the test phase, to ensure critical safeguards are in place and are operational. Also, a System Security Plan will also be established in accordance with National Institute of Standards and Technology (NIST).

9. At what point will vulnerability assessments be performed once the system is put into production (e.g., ongoing risk management after implementation)?

Once the system is in the maintenance and operations phase, it will be added to the monthly vulnerability assessment process. In addition, any major upgrades will trigger a security reassessment.

IPO Response: There will be no additional privacy assessments performed unless there is a modification to the production system that affects personal information.

10. Will this system collect federal data? If so, have you yet determined the National Institute for Standards and Technology 800-53 rating (i.e., high / medium / low)?

    No.

11. Does DMV's Five Year IT Capital Plan address information security and privacy as related to this system?

    No.

3. Complexity Assessment

Project Name: Automated Knowledge Testing Expansion
DMV # 2010-012
Technology Agency #:
Department: Department of Motor Vehicles
Revision Date:

Complexity Assessment

Business Complexity

Instructions: On a scale of .5 - low to 4-high (0 = N/A), rate each applicable attribute and compute the Business Complexity by dividing the total by the number of items rated above zero. *[Notes: Business and technical complexity will be computed automatically in this worksheet, using the ratings you enter.]*

Low Complexity	**Business Attribute**	High Complexity	**Rating**
0 1	**2 3**	**4**	
Static	**Business rules** - The degree to which business rules governing the industry either are in place and constant, or are growing and changing with the demands of the business.	Changing	**3**
Static	**Current Business Systems** - The number and complexity of current business systems the project must interact with (e.g. approval processes, purchasing systems, etc.)	Changing	**4**
Known and Followed	**Decision Making Process -** A description of the authorities and individuals involved in making the decisions required by the project.	Not Known	**1**
Low	**Financial Risk to State -** The size of the money that is at stake for the State.	High	**3**
Local	**Geography** - The areas in which the project must be managed and implemented.	State Wide	**4**
Clear and Stable	**High Level Requirements** - The clarity and completeness of the functional requirements for the project.	Vague	**2**
Few & Routine	**Interaction with Other Departments and Entities** - The degree to which the team must interact with and rely on other departments to complete the work involved in the project.	Many and New	**2.5**
None	**Impact to Business Process** - The degree to which existing business processes will be impacted by the project.	High	**3**
Few & Straight Forward	**Issues** - The number and type of unanswered questions or differences of opinion that exist about the project.	Multiple & Contentious	**3**
High	**Level of Authority** - The authority that the project team has to make decisions regarding the project.	Low	**2.5**
Clear	**Objectives** - The extent to which the end goal of the project is specific, measurable, achievable, relevant to overall strategy, and time-bound.	Vague	**1**
Established	**Policies** - Organizational rules or regulations that may impact the project.	Non-existent	**1**
Minimal	**Politics** - The degree of competition between competing interest groups or individuals for power and/or leadership.	High	**2**
Familiar	**Target Users** - The individuals who are intended to use the product of the project.	Unfamiliar	**2**
Experienced	**Project Manager's Experience**	Inexperienced	**0**
Experienced	**Team** - The average level of experience possessed by the team in the business functions required by the project.	Inexperienced	**1**
Loose	**Time Scale** - The tightness of the development schedule for the project.	Tight	**3**
Low	**Visibility** - The degree that the outcome of the project is visible to upper management, stockholders, and the general public.	High	**4**
		Total:	42
		Complexity:	2.5

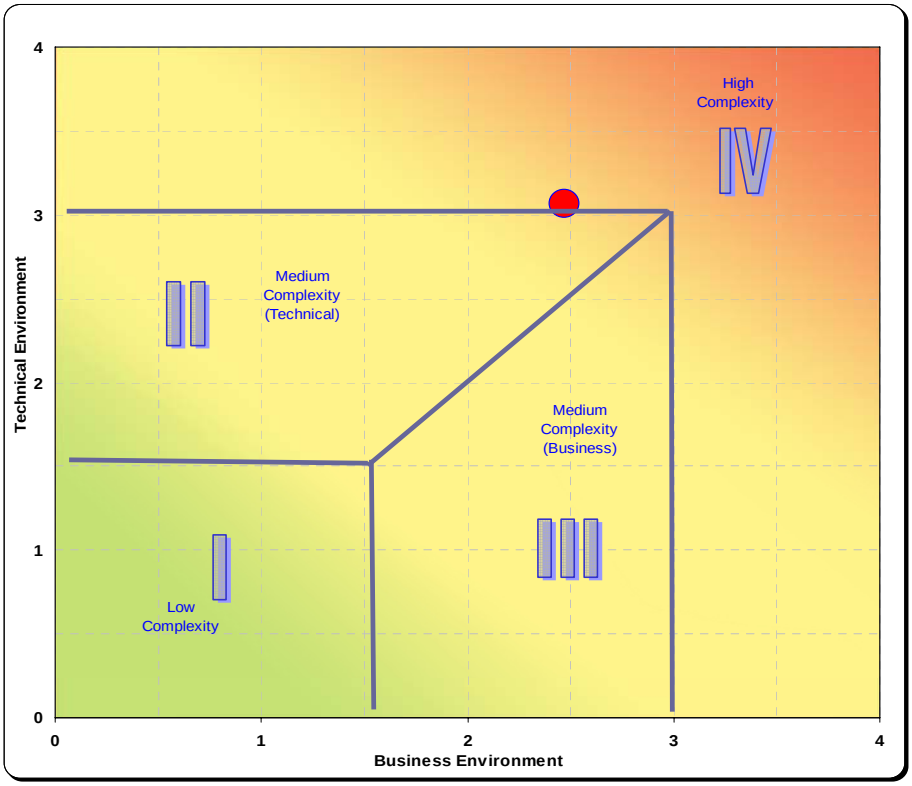
Technical Complexity

Instructions: On a scale of 0-low to 4-high, rate each applicable attribute and compute the Technical Complexity by dividing the total by the number of items rated above zero. Use the definitions in the student notebook for clarity.

Low Complexity	Technical Attribute	High Complexity	Rating
0 1	**2 3**	**4**	
Local	**Communications** - The area(s) to which communications to the project will be needed.	State wide	**4**
Established	**Delivery Mechanism** - The method by which the products of the project will be delivered to the client.	New	**4**
Local	**Geography** - The area(s) where the project will be implemented.	State wide	**4**
Proven	**Hardware** - Machinery and equipment: CPU, disks, tapes, modem, cables, printers, monitors, etc.	New	**3**
Stand-alone	**Level Of Integration** - The degree to which the project combines the activities of multiple applications or systems.	Tightly Integrated	**4**
Proven/Stable	**Networks (L/W)** - LAN: A communications network that serves users within a confined geographical area. It is made up of servers, workstations, a network operating system and a communications link. WAN: A communications network that serves a wide geographical area such as a state or a country. A WAN requires the network facilities of common carriers.	New	**1**
In place	**New Technology Architecture** - The design of a computer system setting the standard for all devices that connect to it and all the software that runs on it.	Not in place	**3**
9-5, Mon-Fri	**Operations** - The hours that the product (or the project) will be in use.	24-hour, 7-day	**1**
Expert	**PM Technical Experience -** The level of project specific technical knowledge and experience possessed by the project manager.	Novice	**0**
Established and in use	**Scope Management Process** - The process by which change to scope is evaluated and then either dropped or integrated into the project.	None	**1**
Light	**Security** - The degree to which the project needs protection from theft, copying, or corruption.	Tight	**4**
Proven	**Software** - Instructions for the computer: system software is made up of control programs, and application software is any program that processes data.	New	**4**
Established and In Use	**Standards And Methods** - The specifications and practices for either software or hardware that are widely in use that will guide us through the development of the project.	None	**3**
Experienced	**Team** - The technical experience level of the team.	Inexperienced	**2**
High	**Tolerance To Fault** - The degree to which defects can be tolerated.	Low	**4**
Low	**Transaction Volume** - Number of requests, activities, orders, etc.	High	**4**
		Total:	46
		Complexity:	3.1

Complexity Diagram

Instructions: Plot your project in the appropriate complexity zone.
[Note: Your project will be plotted automatically in this worksheet, using the values computed in the previous tables.]



Scores		
	Business Complexity	**2.5**
	Technical Complexity	**3.1**

Suggested Project Manager Skill Set Guidelines

Complexity		Duration		Budget		Resources	
☐	Zone 1	☐	< 6 months	☐	<$500K	☐	< 5
☐	Zone II, Medium Zone III, Medium	☐	< 1 year	☐	<$1M	☐	<10
☐	Zone II, High Zone III, High	☒	>1 year; < 3 years	☐	>$1M; <$5M	☒	11 – 20
☒	Zone IV	☐	>3 years; <10 years	☒	>$5M; <$100M	☐	21 – 40
		☐	>10 years	☐	>$100M	☐	40+

PM Level: 4

Experience: 5+ years working as Project Manager or Project Director on large IT projects . Technical experience commensurate with the proposed technology.

Professional Knowledge: Strong working knowledge of the CA-PMM; CA Budgeting, Procurement and Contracting processes; department's methodology; and Software Development Life Cycle.

For Oversight Purposes:
Zone I = Low Criticality/Risk
Zones II and III = Medium Criticality/Risk
Zone IV = High Criticality/Risk

Assess the complexity of the project periodically: every two - three months and/or at the conclusion of each phase

ACRONYMS

Acronyms	Description
AAMVA	American Association of Motor Vehicle Administrators
ADA	Americans with Disabilities Act
AIMS	Agency Information Management Strategy
AIX	Advanced Interactive eXecutive
AKTE	Automated Knowledge Testing Expansion
ASD	Administrative Services Division
Cal-Q	California Qualified
CA-PMM	California Project Management Methodology
CBT	Computer Based Testing
CDL	Commercial Driver License
CIO	Chief Information Officer
CPD	Communication Programs Division
CRF	Change Request Form
DCA	Department of Consumer Affairs
DGS	Department of General Services
DL	Driver License
DMV	Department of Motor Vehicles
DMVA	DMV Automation
EASE	Enterprise Applications Services Environment
EAWs	Economic Analysis Worksheet(s)
EDL	Event Driven Language
EPM	Enterprise Project Management
EPPM	Enterprise Project & Portfolio Management
EXE	Executive Division
FO	Field Office
FOD	Field Office Division
FMCSA	Federal Motor Carrier Safety Administration
FSR	Feasibility Study Report
FY	Fiscal Year
ID	Identification
IEEE	Institute of Electrical and Electronics Engineers
IPO	Information Privacy Office
IPOR	Independent Project Oversight Report
ISD	Information Systems Division

Acronyms	Description
ISO	Information Security Office
IT	Information Technology
ITM	Information Technology Modernization
IV&V	Independent Verification and Validation
NIST	National Institute of Standards and Technology
OISPP	Office of Information Security and Privacy Protection
OMG	Oppenshaw Media Group
ORP	Operational Recovery Plan
OTech	Office of Technology Services
PIER	Post Implementation Evaluation Report
PMBOK	Project Management Body of Knowledge
PRT	Perceptual Response-Time
PSI	Psychological Services Incorporated
PY	Personnel Year
SAM	State Administrative Manual
SBP	Strategic Business Plan
SDLC	Systems Development Life Cycle
SIMM	Statewide Information Management Manual
SITP	Strategic Information Technology Plan
SPR	Special Project Report
SSL	Secure Socket Layer