ADOA-ASET
Arizona Strategic Enterprise Technology

Project Investment Justification
(PIJ)

A Statewide Standard Document
for Information Technology Projects

Project Title: __*Facial Recognition*__

Agency Name: *Arizona Department of Transportation*
Date: *8/23/2013*
Prepared By: *Jenelle E. Nadeau*

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I. GENERAL INFORMATION

I.A General Information

Agency CIO:	Joe Throckmorton	**Contact Phone:**	
Agency Contact Name:	Jesse MacDonough	**Contact Phone:**	
Agency Contact Email:		**Prepared Date:**	8/23/2013

II. PROJECT OVERVIEW

II.A Management Summary

I.   Problem Description

Identity theft continues to be one of the fastest growing crimes in the United States. In 2011, Arizona ranked 4th among the states in the number of identity theft complaints per 100,000 population. This is a slight improvement over prior years, when Arizona consistently ranked in the top 3. The Arizona Department of Transportation (ADOT) Fraud Driver License Unit has had an increase in cases from 200 in 2011 to 842 in 2012. The Fraudulent Document Unit, which deals with both identity theft and forgery, investigates approximately 183 identity theft cases and 130 forgery cases, which result from identity theft each year. Presently, these investigations are initiated by either an alert employee who notices the potential of identity theft or from reports by victims. In the case of the latter, time has passed since the committal of the fraud and possible irreparable damage has already occurred to the victim.

II.   Solution

ADOT is seeking a solution to reduce or even eliminate Arizona's identity theft problem, via a proactive, rapid and accurate fraud detection system.

In 2012, the ADOT Motor Vehicle Division (MVD) implemented a Photo First approach to aid in the detection and prevention of both fraud and identity theft. MVD would like to springboard from this successful implementation to further enhance fraud and identity theft protection for the citizens of Arizona. The next step of this plan is to implement facial recognition software to work along with the established credential issuance process. The facial recognition software will operate in conjunction with the current customer photo database to identify possible duplicate records for fraud detection.

Facial recognition software uses mathematical algorithms to identify features of a person's face and compares them with the algorithms stored in a collection of trusted records. For example, an algorithm may take measurements of the distance between pupils, shape and position of eyes, jaw shape, nose shape, ear shape, etc. These measurements are then compared against the measurements of stored records, resulting in possible matches. Once possible matches are presented, a human must analyze these and either confirm or deny the match. This is a proven technology which has been successfully deployed in many other states, including but not limited to New York, New Mexico, Oregon, and Minnesota.

A Pre-PIJ Assessment for this project was submitted to ASET and approved on March 8, 2013, with the following condition:

> ADOT may proceed to issue a Request for Proposal (RFP) for a facial recognition solution, to include an initial scrubbing of the current MVD photo database, however ADOT may not award a contract or expend funds until an updated PIJ reflecting the selected technology approach, scope of work, costs and implementation schedule for the proposed solution has been submitted to ASET, and the Information Technology Authorization Committee (ITAC) as required, for review and approval.

III. Quantified Justification

Facial recognition software will be used to compare all new photos taken by MVD with a trusted set of records produced by an initial photo database 'scrub' to ensure detection and prevention of future fraudulent activities. By comparing these photos prior to credential issuance, investigation can begin in a timely manner rather than having to wait for an after-the-fact detection by a victim. To highlight its effectiveness, in a six month period after implementing facial recognition technology, the New York Department of Motor Vehicles uncovered more than 1,000 cases of multiple identity fraud, leading to over 100 felony arrests. While the population of New York State is three times that of Arizona, such figures indicate the potential efficacy of such facial recognition technology for Arizona.

With this solution in place, it is estimated that within three to five years the number of new fraudulent identity cases will drop significantly, resulting in the ability to handle the current backlog of approximately 4,120 pending cases.

II.B Existing Situation and Problem, "As Is"

The ADOT Enforcement and Compliance Division (ECD) investigative personnel have limited automated abilities to aid in detecting fraudulent identification activities. They have to rely on reports from either the MVD Field Office / Authorized Third Party (ATP) employees or a victim report. This can cause significant delays between committal of the fraud to detection and investigation. These delays add cost, time, and complexity to investigations and may give the criminal ample time to relocate and victimize other individuals.

Issues with the current system include:

- Dependence on manual procedures to report possible fraudulent activities.
- Limited training of professional resources leading to varied degrees of successful fraud detection.
- Increased time between committal and detection of fraud.

II.C Proposed Changes and Objectives, "To Be"

This project will implement facial recognition software to work in conjunction with the credential issuance process. The facial recognition process will occur in two stages. Stage 1 will cross-compare all existing photos in the MVD database to identify possible duplicates. This stage will clean, or 'scrub' the database, provide a trusted record set moving forward, and identify any existing suspicious activities. Stage 2 will compare new photos taken with all photos in the customer database. This stage will result in quicker fraud detection and investigation. This will also be a great deterrent to future fraud.

Implementing facial recognition will not impact the daily processes in MVD/ATP offices or have any negative impact on customer wait times or experience. ADOT will utilize a batch process and all suspect photos will be available for review by the start of the next business day. The new process will provide a greater ability to detect, prevent, and respond to fraudulent activities. ECD Investigators will also have the ability to operate the facial recognition software in real time to assist with ongoing investigations without impacting the daily batch process.

The anticipated tasks and milestones of implementing a facial recognition software solution include:

➢ An initial scrub of the MVD Photo Database with the facial recognition software will identify existing suspect customer records for investigative review.

➢ A daily batch process which compares new photos with existing photos to detect potential fraudulent applications for investigative review.

➢ New issuance procedures, which will release a credential to a customer only after the daily batch process compares new photos with existing photos and finds no exceptions, or it passes through a Level 1 or Level 2 investigator manual review to confirm no fraudulent activity has occurred.

III. PROJECT APPROACH

III.A Proposed Technology

We propose to purchase the facial recognition software from one of the vendors who submitted a bid via the Request for Proposal (RFP) process. The selected solution will include facial recognition software with matching abilities, exception reporting and case management tools.

We evaluated two different types of COTS solutions, in-house hosted and vendor hosted. In the RFP we asked for the vendors to separate hardware and software costs regardless of where the solution was being hosted. This was done to allow an easier comparison of price and equipment across the different solutions. Five vendors submitted proposals: 3M Cogent, DataWorks Plus, ImageWare Systems, Inc., MorphoTrust USA, NEC Corp. One vendor proposal was disqualified for not meeting the minimum requirements specified. The other four submitted proposals were evaluated based on the following:

- **Facial Recognition Overall Solution** – To include but not limited to the following:
  - Functionality and reliability of proposed solution
  - Ease of use/simplicity of the overall solution
  - Technical support and availability of updates
  - Proposed method to complete a cleanse of the Department database

- **Pricing** – To include the cost of the proposed solution and any applicable internal costs directly related to the function of the solution (i.e. hardware costs, hosting fees, etc.)

- **Method of Approach**
  - Overall conformity to scope of work
  - Detailed project timeline meeting the requirements of the scope of work
  - Completeness of solution

- **Experience and Expertise of the Firm**

Along with the proposals, each vendor was asked to provide a presentation to the evaluation team. These product demonstrations were evaluated independently of the written proposals. The combined scoring of both evaluations was used to determine the vendor and software solution desired.

The solution that was decided upon by the evaluation team is a COTS software solution that will be hosted by the vendor. Along with the COTS solution, the vendor will work with ADOT to complete the initial data scrub and also customize their solution to meet the Department's specified needs. The items on page 14 (Itemized List with Costs) will be purchased at the vendor's cost to provide a platform for the software at both the vendor's primary as well as a disaster recovery site. A total of 55 licenses are required by ADOT employees for investigative work and concurrent end-users. The third-party software is required by the vendor to work in conjunction with their proprietary solution.

Since a facial recognition implementation is new to ADOT, there are some technologies that are new to the Department. However, they are common practice in states that use facial recognition technology. Additionally, the chosen solution is proven in the field of facial recognition by independent studies, as well as other successful customers/installations.

III.B Other Alternatives Considered

There are three options considered for this project:

1. **Do nothing.** This is not acceptable, as it leaves Arizona with incomplete fraud detection capabilities.

2. **Build a solution.** Building a solution is not feasible due to the lack of expertise in facial recognition technologies and the small probability of being able to hire an experienced contract developer that is not already associated with vendor software.

3. **Acquire a solution.** This is the best option. This solution will advance the strategic steps that are in process (Photo First, Central Credential Issuance, stepped up detection and enforcement, etc.). Facial recognition software is available from various vendors and many states already use this software to issue their driver license and identification card credentials.

III.c Major Deliverables and Outcomes

The major deliverables of this project are:

- A database cleanse that will result in a trusted set of identification records
- A set of records identified by the cleanse as suspect for MVD/OIG to review
- A customized, vendor-hosted, COTS facial recognition software package along with the hardware infrastructure needed to support the software
- A vendor-hosted disaster recovery solution for data backup and redundancy

Expected outcomes:

- Improved detection of, and faster reaction to, fraudulent activity
- Increased credential issuance security
- Enhanced identity security for Arizona citizens
- Greater deterrence to future fraudulent identity activity

IV. POLICIES, STANDARDS, & PROCEDURES

IV.A Enterprise Architecture

☒Yes ☐No - Does this project meet all standards and policies for Network, Security, Platform, Software/Application, and/or Data/Information as defined in http://aset.azdoa.gov/security/policies-standards-and-procedures as applicable for this project?

> If **NO** please describe **NEW** or **EXCEPTIONS** to Standards {Network, Security, Platform, Software/Application, and/or Data/Information}:

IV.B Service Oriented Architecture Planning and Implementation

☒Yes ☐No - Does this project qualify as an SOA application by improving application delivery for technology reuse and/or application reuse and/or services reuse?

IV.c Disaster Recovery Plan and Business Continuity Plan

☒Yes ☐No - Does this project require a Disaster Recovery Plan and Business Continuity Plan?

IV.D Project Operations

☐Yes ☒No - Is there a written assessment of short-term and long-term effects the project will have on operations?

IV.E Web Development Initiative

☐Yes ☒No - Is this a Web Development initiative? If **YES**, a Notice of Intent (**NOI**) must be provided. Link: http://aset.azdoa.gov/node/15

IV.F IT State Goals

Please check which goal the project is in support of; if more than one, indicate only the primary goal.

- ☐ Accelerate Statewide Enterprise Architecture Adoption
- ☐ Champion Governance, Transparency, and Communication
- ☐ Invest in Core Enterprise Capabilities
- ☐ Proactively Manage Enterprise Risk
- ☐ Implement a Continuous Improvement Culture
- ☐ Adopt Innovative Sustainability Models
- ☐ Reduce Total Cost of Ownership

☒ Improve Quality, Capacity and Velocity of Business Services
☐ Strengthen Statewide Program and Project Management
☐ Build Innovative and Engaged Teams
☐ Other:

V. ROLES AND RESPONSIBILITIES

V.A Project Roles & Responsibilities

Please Identify Project Roles & Responsibilities:

NAME	TITLE	ROLE
Charles Saillant	MVD Operations Director	Project Sponsor
John Carlson	ADOT Efficiency Analyst	Stakeholder
Dave Jackson	MVD Regional Manager	Subject Matter Expert
Faith Contreras	Law Enforcement Coordinator	Subject Matter Expert
Paul Deem Jr.	Detective Supervisor	Subject Matter Expert
Rita Skiye	ITG Business Analyst	Project Manager
Josh Brown / TJ Swanson	ITG Security Analysts	Infrastructure Protection

Please indicate Project Manager Certification:

The **project manager** assigned to the project is:

☒ Project Management Professional (PMP) Certified
☐ State of Arizona Certified
☐ PM Certification not required

VI. PROJECT BENEFITS

VI.A Benefits to the State

Score: 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive

Description	Score
Agency Performance: The extent to which duties and processes will improve or positively affect business functions. Consider reduced redundancy and improved consistency for the agency.	5
Productivity Increase: The improvements in quantity or timeliness of services or deliverables. Consider improved turnaround time or expanded capacity of key processes.	3
Operational Efficiency: Efficiencies based on improved use of resources, greater flexibility in agency responses to stakeholder requests, reduction or elimination of paperwork, legacy systems, or manual tasks.	0
Accomplishment Probability: The extent to which this project is expected to have a high level of success in completing all requirements for the division or agency.	5
Functional Integration: The impact the project will have in eliminating redundancy or improve consistency. Consider the impact of information sharing between departments, divisions, or agencies in the State.	0
Technology Sensitive: The implementation of the right types of technology to meet clear and defined goals and to support key functions. Consider technologies and systems already proven within the agency, division, or other similar organizations.	3
Total	16

Additional Information (provide details on Benefits that score > 3)

Agency Performance: The addition of facial recognition software will allow the agency to identify fraudulent identification activities in a much timelier manner. This will improve the ability to investigate cases and act before further damage is done. The identification of fraudulent activities will now be done in a consistent manner rather than relying on inconsistent means of detection.

Accomplishment Probability: ADOT has already implemented various security improvement measures. The addition of a facial recognition solution will augment security against fraudulent identification activities. This added function will not only deter and detect, it will also identify past occurrences of fraudulent activities. This will result in a highly accurate database for individual identities and help eliminate prior fraudulent activity perpetrators from committing the crime again.

VI.B Value to the Public

Score: 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive

Description	Score
Client Satisfaction: Rate how stakeholders may respond to anticipated improvements. This could apply to health and welfare services, quality of life or life safety functions.	5
Customer Service: Rate anticipated improvements to internal and external customer service delivery. Give consideration to faster response, greater access to information, elimination or reduction in client complaints.	4
Life Safety Functions: Applies to public protection, health, environment, and safety. Consider how this project will reduce risk in these functions.	5
Public Service Functions: Applies to licensing, maintenance, payments, and tax. Consider how this project will enhance services in these functions.	3
Legal Requirements: Consideration should be given to projects mandated by federal or state law. Other consideration could be given if there are interfaces with other federal, state, or local entities.	0
Total	17

Additional Information *(provide details on Value to the Public scores > 3)*

Client Satisfaction: The implementation of facial recognition should be seamless and transparent to everyday customers. However, the improved detection and reaction time to fraudulent activities will prevent potential identity theft victims from becoming actual victims. Such individuals may never realize they were almost victims - if they did, the satisfaction would be extensive.

Customer Service: Being able to prevent and quickly respond to fraudulent identity activities will improve customer service to individuals who are receiving credentials. Not only will it ensure their identities are safe, it will ensure they will remain safe with MVD.

Life Safety Functions: Prevention and early detection/resolution of fraudulent activities will augment public safety and identity protection.

VII. PROJECT TIMELINE

VII.A Project Schedule

Provide <u>estimated</u> schedule for the development of this project. These dates are estimates only; more detailed dates will be required at project start up once the project schedule is established.

Project Start Date: 11/1/2013 **Project End Date:** 11/21/2014

VIII. PROJECT FINANCIALS

Project Funding Details   Select One   ☐ Pre PIJ Assessment Funding Details Only
                                              ☒ Full PIJ Project Funding Details

VIII.B Detailed Project Financials

VIII.c Funding Source

(Double click on table below – add funding in **whole dollars** and then click outside the table to return to Word doc)

Funding Source Category	Name of Funding Source	Currently Available ($)		New Request ($)		Total ($)
		Development Budget	Operational Budget	Development Budget	Operational Budget	
General Fund						$ -
Federal ARRA Fund						$ -
Federal Fund	2010 DLSGP*	$ 990,474				$ 990,474
Other Appropriated Funds	State Highway Fund	$ 828,368	$ 917,802			$ 1,746,170
Other Non Appropriated Funds						$ -
TOTAL PROJECT COSTS Should = development and operational totals above		$ 1,818,842	$ 917,802	$ -	$ -	$ 2,736,644

* 2010 Department of Homeland Security – Driver License Security Grant Program

VIII.d Special Terms and Conditions (if required)

Special Terms and Conditions (if required)

The project financials are based on the vendor's initial proposal provided in response to the RFP solicitation. The contract award is pending the approval of this PIJ from both ASET and ITAC.

VIII.e Full Time Employee Project (FTE) Hours

Provide <u>estimated</u> FTE Development hours that will be utilized for the duration of the project. Include IT as well as Business Unit FTE hours, if available. Enter into Project Values table on Approvals page.

Total Full Time Employee Hours   1,812 Hours

IX. PROJECT CLASSIFICATION AND RISK ASSESSMENT

IX.a Rate each question to determine risk level at Low (0), Medium (1), High (2), Very High (3).

Enter Risk Score into Project Values table on Approvals page.

RISK EVALUATION RANGES
LOW RISK PROJECT   0 - 8
MEDIUM RISK PROJECT   9 - 25
HIGH RISK PROJECT   26 - 42
VERY HIGH RISK PROJECT   43 +

Add Project Risk Details (if required)

PIJ Project Classification & Risk Evaluation					
Risk Factor	**Low (0)**	**Medium (1)**	**High (2)**	**Very High (3)**	**Score**
Project Management Complexity					
Project Team Size (# of people)	1-5	6-10	11-15	> 15	1
Project Manager (PM) Experience	Deep experience in this type of project	Some experience in this type of project and able to leverage subject matter experts	Some experience in this type of project and has limited support from subject matter experts	New to this type of project	1
Team Member Availability	Dedicated staff for project activities only as assigned	Staff is in place, few interrupts for non project tasks are expected and have been accounted for	Available, some turnover expected, some interrupts for non project issues likely	Dedicated team not available; staff will be assigned based on capacity	1
# of Agencies involved in Development activity	1	2	3	> 3	0
Vendor (if used)	No Vendor required	Vendor has been used previously with success	Vendor has been used previously with some management support required	New Vendor and/or multiple vendors	3
Project Schedule	Schedule is flexible	Schedule can handle minor variations, but deadlines are somewhat firm	Scope or budget can handle minor variations, but deadlines are firm	Scope, Budget and Deadlines are fixed and cannot be changed	1
Project Scope	Scope is defined and approved	Scope is defined and pending approval	Scope being defined	High level definition only at this point	0
Budget Constraints	Funds allocated	Funds pending approval	Allocation of funds in doubt or subject to change without notice	No funding allocated	1
Project Methodology	Defined methodology	Defined methodology, no templates	High level methodology framework only	No formal methodology	0
IT Solution Complexity					
Product Maturity (if purchased)	Product implemented & working in > 1 state agency or business of similar size	Product implemented & working in 1 agency or business of similar size	Product implemented & working only in an agency or business of smaller size	Product not implemented in any agency or business	0
Solution Dependencies	No dependencies or interrelated projects	Some minor dependencies or interrelated projects but considered low risk	Some major dependencies or interrelated projects but considered medium risk	Major high-risk dependencies or interrelated projects	1
System Interface Profile	No other system interfaces	1-2 required interfaces	3-4 required interfaces	> 4 required interfaces	1
IT Architectural Impact	Follows State IT approved design; principles, practice & standards	New to the State but follows established industry standards	Evolving "industry standard"	No standards, leading edge technology	1
Deployment Impact					
Process Impact	No business process changes	Agency wide process changes	Multi-State Agency process changes	State-wide process changes	0
Scope of End User Impact	Department or Division level only	Multiple Division or Agency wide impacts	Multi-Agency impacts	State-wide impacts	0
Training Impact	No training is required	Minimal training is required	Considerable training is required	Extensive training is required	1
				Total Risk Score	12

X. PROJECT APPROVALS

X.A CIO Review

Key Management Information	Yes	No
1. Is this project for a mission critical application system?	X	
2. Is this project referenced in your agency's Strategic IT plan?	X	
3. Is this project consistent with agency and State policies, standards and procedures?	X	
4. Is this project in compliance with the Arizona Revised Statutes and GRRC rules?	X	
5. Is this project in compliance with the statewide policy regarding the Accessibility to Equipment and Information Technology for Citizens with Disabilities?	X	
6. Is this project mandated by law, court case or rule? If yes, cite the federal requirement, ARS Reference or Court Case. Details:		X

X.B Project Values

The following table contains summary information taken from the other sections of the PIJ document.

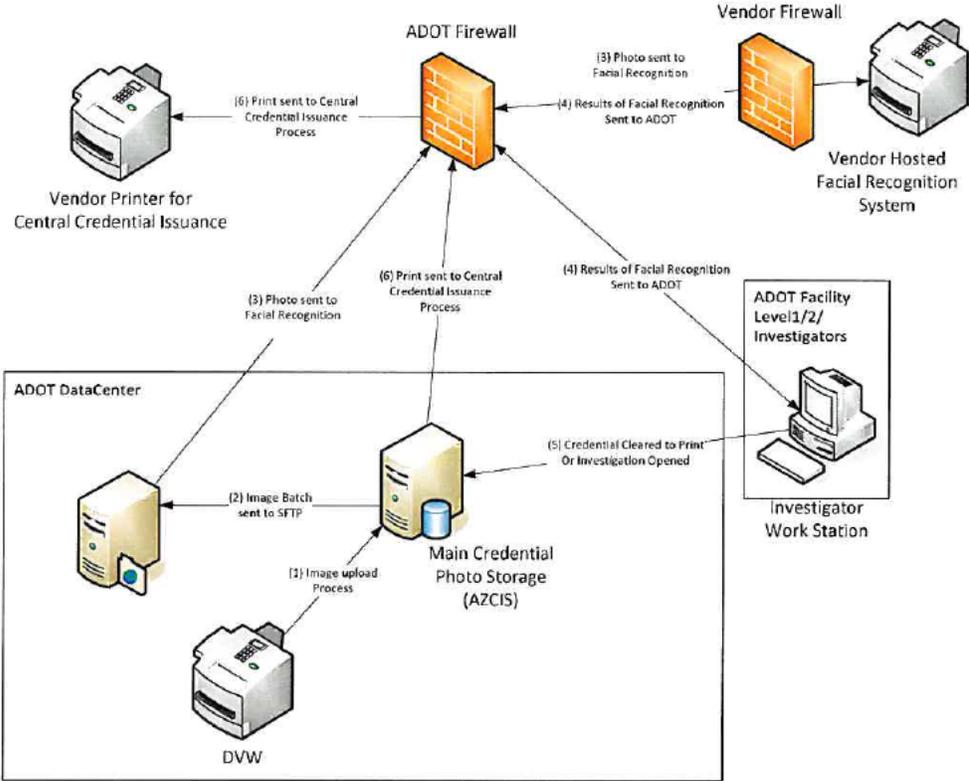| Description	Section	Significance
Economic Benefits	VI. Benefits to the State	16
Value Rating	VI. Value to the Public	17
Total Development Cost	VIII. Project Financials	$1,818,842
Total Project Cost	VIII. Project Financials	$2,736,644
FTE Hours	VIII. Project Financials	1,812
Project Risk Factors	IX. Risk Summary	12

X.C Project Approvals

Select One   ☐ Pre PIJ Assessment Approval Only   ☒ PIJ Project Approval

Project Title:	**Facial Recognition**

Responsibility	Printed Name	Approval Signature	Date
Project Manager:	Rita Skiye		
Agency CIO:	Joe Throckmorton		
Project Sponsor:	Charles Saillant		
Agency Director:	John Halikowski		

APPENDICES

B. Connectivity Diagram

ADOT Firewall

Vendor Firewall

(3) Photo sent to
Facial Recognition

(6) Print sent to Central
Credential Issuance
Process

(4) Results of Facial Recognition
Sent to ADOT

**Vendor Printer for
Central Credential Issuance**

**Vendor Hosted
Facial Recognition
System**

(3) Photo sent to
Facial Recognition

(6) Print sent to Central
Credential Issuance
Process

(4) Results of Facial Recognition
Sent to ADOT

**ADOT Facility
Level1/2/
Investigators**

ADOT DataCenter

(5) Credential Cleared to Print
Or Investigation Opened

(2) Image Batch
sent to SFTP

**Investigator
Work Station**

**Main Credential
Photo Storage
(AZCIS)**

(1) Image upload
Process

DVW

15

C. Project Schedule - Gantt Chart or Project Management Timeline

PHASE/Activity	Schedule Start	Schedule Finish
Project	**11/1/2013**	**11/21/2014**
MS - RFP Awarded	11/1/2013	11/1/2013
Analysis with Vendor	11/1/2013	1/17/2014
Complete Project Plan	11/1/2013	11/29/2013
DESIGN	**11/1/2013**	**1/17/2014**
MS - Design Document	1/17/2014	1/17/2014
MS - Customer Approval of Design	1/17/2014	1/17/2014
MS - Deployment Plan Completed	1/17/2014	1/17/2014
CONSTRUCTION	**12/2/2013**	**8/22/2014**
Vendor - Order and Receive Hardware	1/17/2013	2/28/2014
Conversion	12/2/2013	5/16/2014
Customization/Configuration/Interfaces	3/10/2014	6/2/2014
MS - Training Plans Complete	8/22/2014	8/22/2014
TESTING	**6/2/2014**	**10/3/2014**
QA Testing	6/2/2014	8/8/2014
System Testing	7/21/2014	8/29/2014
User Acceptance Testing	9/8/2014	10/3/2014
MS - System Acceptance	10/3/2014	10/3/2014
IMPLEMENTATION	**8/25/2014**	**10/24/2014**
User Training	8/25/2014	10/10/2014
Develop and submit RFC to CAB	10/1/2014	10/1/2014
MS - CAB Approval Received	10/17/2014	10/17/2014
Deploy to Production	10/20/2014	10/24/2014
CLOSING	**11/3/2014**	**11/21/2014**

D. NOI (Web Projects Only)

N/A

GLOSSARY

ADOT	Arizona Department of Transportation
MVD	Motor Vehicle Division
ECD	Enforcement and Compliance Division
ATP	Authorized Third Party
RFP	Request for Proposal
RFI	Request for Information
SAN	Storage Area Network
DVW	Digital Video Workstation
Blade server	A stripped-down server computer with a modular design optimized to minimize the use of physical space and energy
VMware	A software company that provides cloud and virtualization software and services