



## State of Arizona

### Arizona Department of Public Safety (AZDPS)

# AZDPS CJIS Applications Conversion Project Initial Independent Assessment and Oversight Report

Period Ending Sep 30, 2017

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## DOCUMENT HISTORY

Version	Date	Brief Description of Modifications
1.0	8/21/2017	Draft – delivered to AZDPS
1.1	8/23/2017	Final – updated after review with AZDPS team

## 1. EXECUTIVE SUMMARY

The purpose of this report is to provide an independent assessment to the Arizona Department of Public Safety (DPS) for the Criminal Justice Information System (CJIS) Applications Conversion project. This report is in accordance with the requirements of the Arizona Joint Legislative Budget Committee (JLBC). PCG conducted this assessment as part of the independent verification and validation (IV&V) discipline and utilized IEEE standard 1012-2012 Standard for System and Software Verification and Validation.

AZDPS recently updated their Message Switch system and has entered a new phase of modernization to update their CJIS applications. The current CJIS applications use legacy programming languages and technologies which could impact the agency's ability to support the State's law enforcement and criminal justice agencies. AZDPS will need to move remaining Criminal Justice Applications (e.g. HotFiles and Criminal History Files) from the existing mainframe system to the new open system. Archaic applications, databases and languages will be transitioned to new, easy to support systems running on Windows and AIX.

Moving the HotFiles and Criminal History applications to an open system will also allow AZDPS to utilize a commercial off-the-shelf (COTS) application and enable agency support staff to maintain the system. Connecting other systems to this set of applications will utilize standard-based interfaces and hiring on-site personnel will become easier due to the larger number of candidates with more modern programming skills. This project will also get AZDPS one step closer to retiring the existing mainframe once all CJIS components have been migrated.

The Project has selected the vendor, CPI, and is in the planning phase. The Project consists of three phases: Phase One – HotFiles, Phase Two – Criminal History Application (CHA), and Phase Three – CJIS Others. Design activities for Phase One have completed and are underway for Phases Two and Three. PCG's area of focus for this assessment is on the activities and deliverables aligned with the initiation and planning stages of Phase One of the project. This included looking at the following key areas:











- Project Management
- Budget
- Schedule
- Requirements
- Quality
- Data Conversion









Additional assessment areas, such as design, testing, and integration, will be added in future quarterly reports based on the project's progress in the software development life cycle (SDLC). This document provides initial findings and assesses the status of the CJIS Applications Conversion Project.




### 1.1. EXECUTIVE DASHBOARD

This dashboard is designed to provide an overview of the current project effort, from an IV&V perspective, decomposed into major relevant categories. Category ratings distill the status of key project areas into a simple rating: Low, Medium, or High. The category is rated based upon existing or potential project impact to quality, manageability, cost or schedule.




**Table 1: Executive Dashboard**

Assessment Category	Rating	Trend	Status
Project Management			Documentation defining plans for Project Management activities have not been clearly identified.
Schedule			The schedule includes high-level tasks but only minimal planning and deliverable tasks are included. For instance, the plan includes the Data Mapping and Data Conversion Plan, but other planning documents should also be included in the schedule.
Budget			The Project is managing to the project budget of \$7,500,000 for all the three phases. Budget for the first fiscal year of \$2,300,000 is funded and plans are in place to secure subsequent fiscal year funding. The budget looks to be adequate to cover necessary project costs.
Requirements Management			The Project does not have formally documented requirements and instead has a high-level agreement with their vendor about what will be delivered. Not having in-scope and out of scope requirements explicitly identified could lead to lack of agreement between AZDPS and CPI on what CPI will be delivering. The Project has conducted in-depth discovery sessions with CPI to mitigate this concern and has developed a comprehensive detailed design document for Phase One.
Software Development			There were no associated findings in this period.

Assessment Category	Rating	Trend	Status
System and Acceptance Testing			Quality Control and Quality Assurance criteria are not identified for the project deliverables. The project team should work to document and maintain the quality benchmarks.
System Interoperability			There were no associated findings in this period.
Data Management			The Project schedule has a task identified to execute Data Mapping and Data Conversion of the legacy system, but lacks a formal Data Conversion Plan which would help provide traceability and a defined structure to the associated tasks.
Training			There were no associated findings in this period.

Risk Priority Legend					
	<b>Low</b> - Poses the least risk to project success and can generally be considered to be near-free of risks to quality, manageability, cost or schedule.		<b>Medium</b> – Poses a moderate risk to project success and generally have some products or processes that present risks which will result in deficient quality, manageability, cost or schedule.		<b>High</b> – Poses a significant risk to quality, manageability, cost or schedule and should be given priority.

In addition to the category rating, a trend indicator is provided. These indicators are defined as follows:

-  An increase in severity or potential project impact over the past reporting period
-  No change in severity or potential project impact over the past reporting period
-  A decrease in severity or potential project impact over the past reporting period

## 2. STATUS OF THE PROJECT

This section reports the status of the project scope of work as defined in the CPI proposal and finalized in the scope of work deliverable.

### 2.1. Scope Management

The CJIS Applications Conversion project has finalized the vendor selection and is in contract with CPI. AZDPS and CPI in coordination have finalized the design specification for Phase One – HotFiles Application and design specifications are almost complete for Phase Two and Phase Three, Criminal History Application and CJIS- Other respectively. The vendor is currently working upon finalizing the scope for the project for all three phases. When documenting the scope, the vendor should not only document what is considered in scope, but should document what is considered out of scope (e.g. ancillary systems, functionality, etc.).

### 2.2. Project Milestones and Deliverables

The CJIS Applications Conversion project is planned to be developed in three (3) phases. For this reporting period, Phase One design specifications are completed and design specs for Phase Two and Phase Three are in progress.

The table below shows the high-level milestones for the project and highlights any schedule changes during the reporting period.

**Table 2: Critical Activities and Updated Timeline**

Activity	Baseline Planned Completion Date	Current Planned Completion Date
HotFiles - Hardware set up, Configuration and Installation of SQL Server	10/06/17	No change
HotFiles - Database Model set up & Configuration, HotFiles Database architecture and table builds, Promote code to test	03/21/18	No change
HotFiles - Application Configuration, Unit testing & Integration testing. Release code to test	11/02/18	No change
User Acceptance Testing and User Acceptance Signoff for HotFiles	12/27/18	No change
HotFiles Production Rollout	01/08/19	No change
HotFiles - On-Line Validation Implementation	05/15/19	No change
CCH - Hardware set up, Configuration and Installation of SQL Server	02/09/18	No change

Activity	Baseline Planned Completion Date	Current Planned Completion Date
CCH - Database Model set up & Configuration, HotFiles Database architecture and table builds, Promote code to test	09/07/18	No change
CCH - Application Configuration, Unit testing & Integration testing. Release code to test	03/15/19	No change
User Acceptance Testing and User Acceptance Signoff for CCH	05/17/19	No change
CCH Production Rollout	05/30/19	No change
CJIS Other	11/15/19	No change

### 2.3. Project Expenditure Status

The following table shows actual and budgeted project costs. For this initial assessment, no funding has been expended to date. PCG will continue to monitor and report on expenditures in future assessments.

**Table 3: Revised Based on Updated Cash Flow Estimates**

	Project Budget	FY2018 Expended	FY2018 Budget	FY2019 Expended	FY2019 Budget	FY2020 Expended	FY2020 Budget
Systems Integrator Costs	\$7,189,514	\$0	\$2,382,264	\$0	\$4,807,250	\$0	\$0
Other Contractor Costs	\$324,000	\$0	\$108,000	\$0	\$108,000	\$0	\$108,000
Contingency @ <XX%>	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$7,513,514</b>	<b>\$0</b>	<b>\$2,490,264</b>	<b>\$0</b>	<b>\$4,915,250</b>	<b>\$0</b>	<b>\$0</b>



### 3. KEY FINDINGS AND RECOMMENDATIONS

This section provides a summary of the findings, risks, issues, and concerns made by IV&V during this reporting period. Refer to Appendix A for a description of the different priority assignments.

**Table 4: IV&V Findings Summary**

Finding	Total	Closed this period
Observations (Neutral/Positive)	1	N/A
Risks	0	N/A
Issues	0	N/A
Concerns	5	N/A

**Table 5: IV&V Findings**

ID	Summary	Finding Type	Statement	Significance/Context	Recommendation	Priority	IV&V Status Update
<b>Project Management</b>							
1	Documentation defining plans for project management activities have not been identified.	Preliminary Concern	PCG reviewed the Project artifacts and found Project Management and Planning documents have not been created yet.	Having clearly defined Project Management plan ensures all the stakeholder have a common understanding on the expectations, approach the process team will use to manage the project.	Develop a complete list of all project management deliverables. All deliverables should be added to the project schedule and assigned resources responsible for delivery (e.g. Implementation Plan, Communications Plan, Change Management Plan, Cost Management Plan).	N/A	

2	Dedicated and Experienced Project Team	Positive Finding	AZDPS has assigned a dedicated project manager to manage the CJIS Applications Conversion project as well as supporting analysts and subject matter experts from within AZDPS. This team provided timely responses to the IV&V team and displayed an optimistic approach to the project which bodes well for future team interactions.	A dedicated and focused project team helps avoid distractions from other activities and should help keep the Project on schedule.	N/A	N/A	
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**Schedule**

3	Schedule includes only high-level tasks.	Preliminary Concern	PCG reviewed the project schedule and found it includes high-level tasks. However, only minimal planning and deliverable tasks are included. The schedule includes a task for data mapping and creating a Data Conversion Plan, but other planning documents should also be included in the schedule (e.g. Test Management Plan, Requirements Management Plan, and Schedule Management Plan). The schedule exhibits some positive aspects including starting and finish dates, predecessor tasks, and	Having a complete and clearly defined schedule for all project activities will help stakeholders manage and track the progress of project and take necessary action, if required,	Add additional tasks, including notations for all project deliverables and key working documents such as the delivery of test results and planning documents. Examples of additional tasks for consideration are data validation, data cleanup, and unit testing. Develop a schedule management plan to support the Project Schedule and to describe how the schedule will be updated and maintained over the life of the project.	N/A	
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			assigned resources for each task.				
<b>Requirements Management</b>							
4	The Project does not have requirements formally documented.	Preliminary Concern	<p>The Project currently does not have formally documented requirements and instead has a high-level agreement with their Vendor about what will be delivered. Not having in-scope and out of scope requirements explicitly identified could lead to lack of agreement between AZDPS and CPI on what CPI will be providing, and may impede traceability throughout the project unless these concerns are clearly addressed and documented in negotiations and final contract.</p> <p>The Project has conducted in-depth discovery sessions with CPI to mitigate this concern and has developed a comprehensive detailed design document for Phase One. CPI's OpenFox solution which is being used for the project has also been successfully implemented in 30 other states, which reduces the risk that key functionality</p>	Having a complete and clearly defined set of requirements is critical for project success, as it provides the common understanding to the project stakeholders on what will be delivered.	Develop project requirements, review with project stakeholders, and require signature for formal approval. To support the requirements, develop a Requirements Management Plan and Requirements Traceability Matrix (RTM) that traces requirements to design, test cases, and test results (system acceptance).	N/A	

			will be overlooked or work incorrectly.				
<b>System and Acceptance Testing</b>							
5	Quality and Performance measures are not identified and documented.	Preliminary Concern	The Project does not have a documented Quality Management Plan that provides the Quality and Performance measures for the deliverables.	Having a complete and clearly defined Quality Management plan is critical for project success as it provides stakeholders with a clear understanding on the quality and performance expected for the project deliverables.	IV&V acknowledges that the Project is in the planning phase and recommends that the Project creates a Quality Management Plan. This plan should thoroughly outline planned tasks and management activities related to Quality Assurance and Quality Control processes.	N/A	
<b>Data Management</b>							
6	Data Management Plan created	Preliminary Concern	The project has a deliverable identified in the Project schedule for data mapping and data conversion for the legacy system, but lacks a formal Data Conversion Plan.	Data management, particularly data conversion, is a high-risk activity due to the quality of the data in a legacy system. Because of the risks associated with these activities, it is important to have proper mitigation tactics in place that help ensure that required key data conversion tasks are followed. Having a detailed Data Conversion plan helps provide traceability and a defined structure to	IV&V acknowledges that the Project is in the planning phase and recommends that the Project creates a Data Conversion Plan. This plan should thoroughly outline planned tasks and management activities related to data dictionary conversion and data mapping.	N/A	

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				the associated tasks for data migration related activities.			
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## **APPENDIX A: PRIORITY ASSIGNMENTS**

A priority is assigned to all risks and issues identified by IV&V. Once a priority is assigned to a risk or issue, it will be reassessed during each subsequent reporting period as part of the routine IV&V project monitoring activities and documented in the IV&V Findings Log.

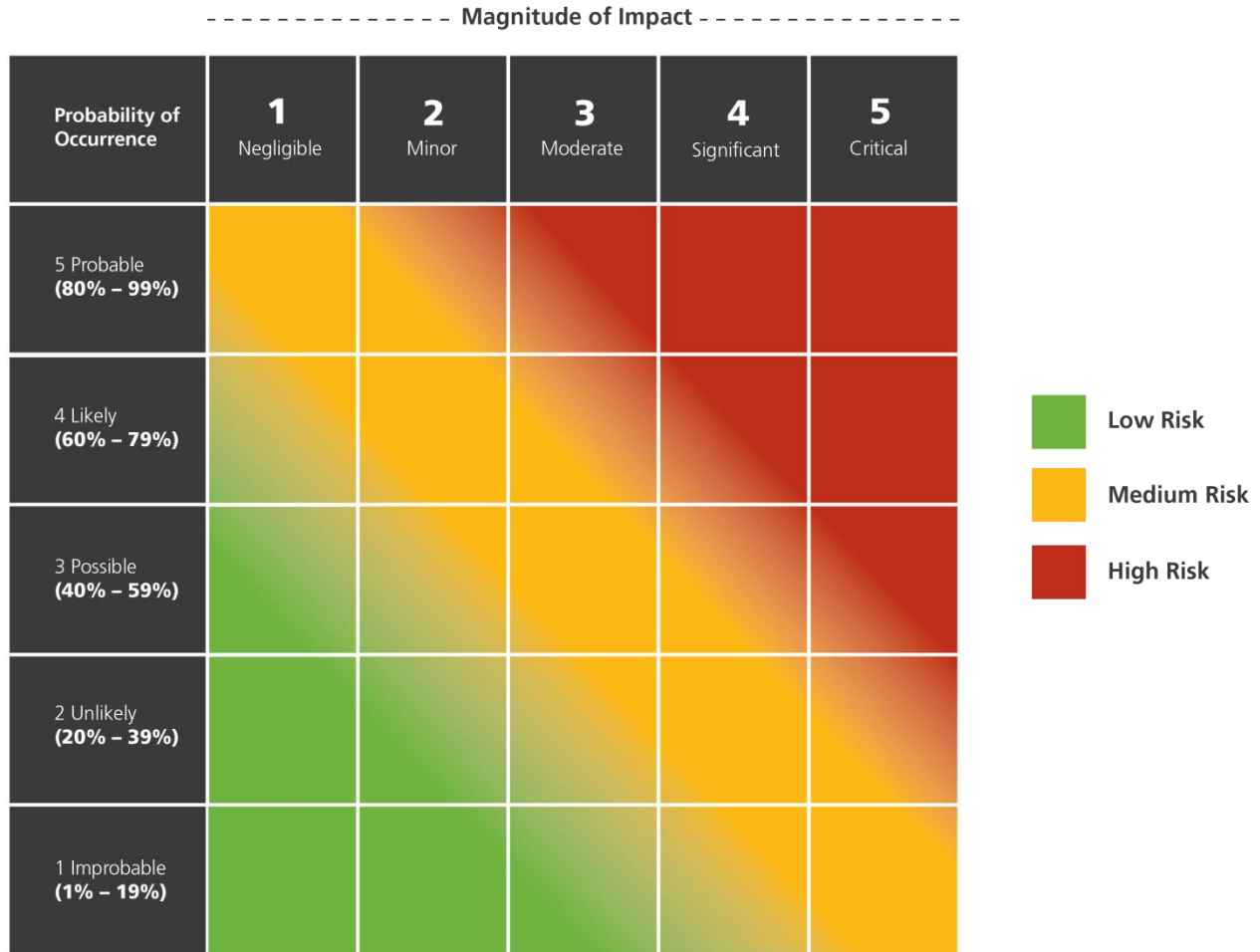
### **APPENDIX A.1: RISKS**

A risk is “an uncertain event or condition that, if it occurs, may have a positive or negative effect on a project’s objectives”. IV&V will identify risks with negative effects and expand the definition to include both conditions which may occur and those which may not occur (e.g. lack of a well-defined requirements traceability process could lead to delivery of an incomplete system, requiring costly and time consuming rework).




A key to risk management is understanding the potential risks to the project and ensuring that these risks and risk mitigation strategies are communicated to key project stakeholders on an ongoing basis. Risk analysis should begin early during project planning by determining or identifying the factors that may affect the project. Risk can impact a project in many ways: project quality, scope, cost, and schedule. Proper risk identification seeks to determine how the risk may affect the project and to document the project area(s) impacted by the identified risk.

Once risks are identified and characterized, both qualitative and quantitative factors are examined. IV&V’s analysis considers the project conditions to determine the probability of the risk being realized and the impact to the project if it is realized. Overall the risk priority is determined by multiplying the probability rating times the impact rating. IV&V determines the risk priority using a risk-rating matrix (see Figure 1 below) which determines the priority of each risk based on an assessment of probability of occurrence and the magnitude of impact.

**Figure 1: Risk Rating Matrix**



**Table 6: Risk Priority Definitions**




Issue Priority	Definition
	A priority of high is assigned if there is a possibility of substantial impact to product quality, scope, cost, or schedule. A major disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
	A priority of medium is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be implemented as soon as feasible.
	A priority of low is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

## APPENDIX A.2: ISSUES

An issue is a finding, often previously identified as a risk that documents an event that has occurred and caused negative impact to the project. IV&V issues, documented in the IV&V Findings Log, identify the event, its impact to the project, and updates towards resolution.

An issue's priority is determined by its impact on the project. The following table defines the issue priorities that IV&V uses when assigning a priority to an issue.

**Table 7: Issue Priority Definitions**

Issue Priority	Definition
	A priority of high is assigned if the issue presents substantial impact to product quality, scope, cost, or schedule. A catastrophic disruption is likely and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
	A priority of medium is assigned if the issue presents a moderate impact to product quality, scope, cost, or schedule. Some disruption is likely and a different approach may be required. Mitigation strategies should be implemented as soon as feasible.
	A priority of low is assigned if the issue presents a slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely and some oversight is most likely needed to ensure priority remains low. Mitigation strategies should be considered for implementation when possible.