

Solicitation 060-583784-SQ

**RFI For Automated Biometric Identification
System**



County of Orange

Bid 060-583784-SQ

RFI For Automated Biometric Identification System

Bid Number **060-583784-SQ**
Bid Title **RFI For Automated Biometric Identification System**

Bid Start Date **Aug 1, 2011 11:09:53 AM PDT**
Bid End Date **Aug 15, 2011 4:00:00 PM PDT**
Question & Answer
End Date **Aug 15, 2011 7:00:00 AM PDT**

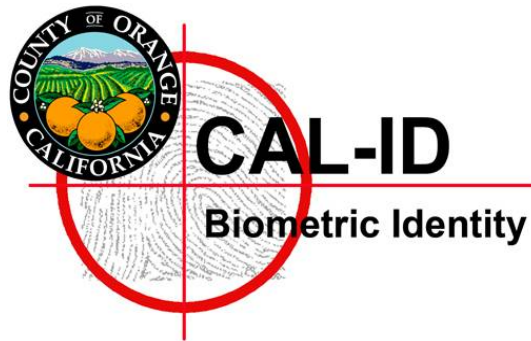
Bid Contact **Dwight G Tipping**
714-834-6375
dtipping@ocsdfinancial.org

Standard Disclaimer **The County of Orange is not responsible for and accepts no liability for any technical difficulties or failures that result from conducting business electronically.**

Description

The County of Orange, Sheriff's Department (OCSD) is seeking information and feedback from vendors that provide Automated Biometric Identification Systems solutions. Please see the RFI package for instructions on submitting a response.

**COUNTY OF ORANGE
ORANGE COUNTY SHERIFF-CORONER
REQUEST FOR INFORMATION
FOR
AUTOMATED BIOMETRIC IDENTIFICATION SYSTEM
RFI No.060-583784-SQ**



Date of Issuance: August 1, 2011

Responses Due: August 15, 2011
4:00 P.M., Pacific Daylight Time

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1. INTRODUCTION

The County of Orange, Sheriff's Department (OCSd) is seeking information and feedback from vendors that provide Automated Biometric Identification Systems solutions. The responses and feedback to this Request for Information (RFI) will be used to assist the County in improving, clarity, accuracy, appropriateness, and reasonableness of the draft documents that may form the core of a Request for Proposals (RFP) to obtain an Automated Biometric Identification System.

2. ANTICIPATED SCHEDULE

8/1/11	Distribution of RFI packages
8/15/11	RFI closing date - responses due by 4:00 pm. PDT.

NOTICE: These dates represent a tentative RFI Time Line. The County reserves the right to modify these dates at any time.

3. CONTACT INFORMATION

For any questions regarding the content of this RFI, responders may send their questions via email to the single point of contact for this RFI: Dwight Tipping III at dtipping@ocsd.org.

4. GENERAL TERMS AND CONDITIONS

- The County shall not be liable for any expenses incurred by responders in the preparation or submission of information. The County shall not, in any event, be liable for any expenses incurred by any responder prior to the date of award and execution, if any, of a Contract. Pre-contractual expenses are defined as expenses incurred by the bidder in: a) Preparing its response to this RFI; b) Submitting that RFI to the County; c) Discussions with the County in any matter related to the RFI; and d) any other expenses incurred by the responder prior to the date of award and execution, if any, of a Contract.
- All responses received may be public record after opening. Responses are not to be marked as confidential or proprietary. Responses submitted in response to the RFI may be subject to public disclosure. Additionally, all responses shall become the property of the County. The County reserves the right to make use of any information or ideas in the responses submitted.
- All Respondents understand and agree that the County is not obligated to thereby include any Respondent in any future solicitation process by distributing an RFI to them, nor is the County obligated to contract with any Respondent.

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- The responder agrees that it will not issue any news releases in connection with either the RFI or any subsequent amendment of or effort under this RFI without first obtaining review and written approval of said news releases from the County through the County's project manager.

5. DISCLAIMER

While the County appreciates the time and effort into the responses, it should be understood that the sole purpose of this Request for Information (RFI) is to gather information and feedback. There will not be an evaluation or scoring of the materials submitted. All information/feedback received in response to this RFI will not be returned. No award will be made based on the results of this process. Responders are solely responsible for all expenses associated with responding to this RFI. Any procurement by the County will be the subject of a separate solicitation process and subject to budget approval.

6. RESPONSE REQUIREMENTS

Please use the attached comment form for your feedback. Use a separate form for each document reviewed.

Documents for review are as follows:

1. Scope of Work for the Orange County Automated Biometric Identification System (Attachment A)
2. System Requirements Specification for the Orange County Automated Biometric Identification System (Attachment B)
3. Concept of Operations for the Orange County Automated Biometric Identification System (Attachment C)
4. Communications Infrastructure Description for Orange County's Criminal Justice Environment – 2011 (Attachment D)

RFI responses should be submitted as a PDF or MS Word email attachment sent to Dwight Tipping III at dtipping@ocsd.org with subject line "RFI-Automated Biometric Identification Systems". Respondent should identify the date of Response, name of Respondent, address, telephone number, fax number, E-mail address and name of primary contact. FAX (facsimile) responses are not preferred.

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7. COMMENT FORM**OCCL RFI Document Review Form**

(Use a separate copy of this form for each document reviewed)

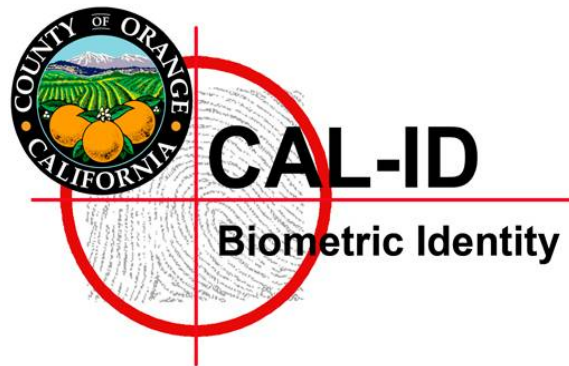
Document Name:	Company:
General assessment:	

* Is the comment editorial (E) or substantive (S)?

Cmt #	Section #	Line #	Type of Comment*	Comment	Any Recommended Changes
1					
2					

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Scope Of Work
for the
Orange County
*Automated Biometric Identification
System (OC ABI System)*



Deliverable Document 06
Developed by Higgins & Associates,
International
Under Contract
MA-060-11011162

22 July 2011

Version 2.0

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OC ABI Project Scope of Work

1. Introduction

1.1 SCOPE

This Scope of Work (SOW) defines the work to be performed by the Contractor responsible for the development and sustainment of the Orange County Automated Biometric Identification (OC ABI) System for the base period of the Contract. For this OC ABI Project, the Contractor ***shall*** be responsible for furnishing all personnel, facilities, equipment, material, supplies, support, and management and ***shall*** perform all functions necessary to design, develop, document, integrate, test, and deploy the OC ABI System as set forth in this SOW and the OC ABI System Requirements Specification [Ref. 1]. All of the requirements in the OC ABI System Requirements Specification, whether specifically referenced or not in this SOW, ***shall*** apply to the Contractor's deliverable products and services.

Note that mandatory requirements are denoted by the word "***shall***" in bold italicized font.

1.2 BACKGROUND

The Orange County Crime Laboratory (OCCL) has been operating an NEC AFIS21 system for 11 years providing services to its own members, local police departments within the county, the California Highway Patrol, and others. The services offered include:

- Identification of subjects with prior criminal histories through searches of the fingerprints through the AFIS
 - As part of the booking process for criminals
 - As part of the background investigation of people applying for positions of trust with the county
 - In response to ad hoc requests from investigators
- Assignment of local file number (the Orange County Number or OCN) for new arrestees. These OCNs are used in numerous county business processes.
- Support to the identification of criminals by searching latent fingerprints from crime scenes through the AFIS and analyzing the candidates.
- Connectivity to the CalDOJ AFIS and through it access to the Federal Bureau of Investigation's (FBI) AFIS system, which is currently migrating from their Integrated Automated Fingerprint Identification System (IAFIS) to the Next Generation Identification (NGI) System.
- Support to the Secure Communities program – where arrest records are forwarded through the FBI to the Department of Homeland Security (DHS).

The current system is serving the county well, but over time new functionality and interface standards have been introduced at the State and Federal level that the current

OC ABI Project Scope of Work

system cannot support. In 2009, the Orange County Remote Access Network (RAN) Board voted to replace the aging system and OCCL began the process to competitively replace the current AFIS with a multi-modal automated biometric identification system that can match fingerprint and palmprints as well as support the latest biometric interoperability standards.

The new services to be offered by the replacement system include:

- Searching of latent palms collected at crime scenes
- Fully standards-compliant, image-based transactions from data collection through final processing
- Support for Mobile ID devices that would permit patrol officers, jail staff, and investigators to collect and search fingerprints from traffic stops, interviews, and movement of prisoners – with sub minute responses

1.3 PAYMENT MILESTONES

The OC ABI Contract price will consist of a Development Phase Price [Contract Award through successful completion of System Acceptance Review (SAR)] and a Sustainment Phase Price [post Operational Readiness Review (ORR)].

Orange County Sheriff's Department (OCSD) has identified three (3) Payment Milestones for the Development Phase. Upon successful completion of Milestone 1, the Contractor will be paid 10 percent of the Development Phase Price. Upon successful completion of Milestone 2, the Contractor will be paid 15 percent of the Development Phase Price. Upon successful completion of Milestone 3, the Contractor will be paid the remaining Development Phase Price. "Successful completion" of a Payment Milestone requires acceptance by the OCCL of all contract deliverables (CDRLs) associated with the Milestone Review and deliverables that are due at any time prior to that review. The Payment Milestones are defined as follows:

1. **Payment Milestone 1** – Successful completion of the System Design Review (SDR).
2. **Payment Milestone 2** – Successful Completion of the Pre-Ship Review (PSR).
3. **Payment Milestone 3** – Successful Completion of the System Acceptance Review (SAR)

OCSD anticipates Sustainment Phase for two full years starting after successful completion of Development Payment Milestone 3. Sustainment Phase payments are to be invoiced monthly in arrears.

OC ABI Project Scope of Work

2. Applicable Documents

The documents below, of the exact issue shown, form a part of this SOW to the extent referenced herein. Referenced or applicable documents cited within documents referenced in this SOW ("First Tier" references) **shall** be considered compliance documents to the extent referenced herein. Documents cited ("Second Tier" references) within the "First Tier" references **shall** not be considered for compliance.

The OCCL recognizes that some of the standards and their associated data items, identified below, will change. Throughout this effort, the Contractor or the OCCL may propose following newer standards and their associated data items that replace or supersede those below. To substitute newer standards and their associated data items the Contractor **shall**: 1) identify existing standards and data items to be replaced; 2) identify new standards and associated data items proposed for use; 3) provide a rationale for using the new items including cost, schedule, performance, and supportability impact; and 4) receive OCCL approval.

2.1 REFERENCE DOCUMENTS

The following documents will be available in the OCSD Vendor Library:

- Ref.-1 Orange County Automated Biometric Identification System Requirements Specification, Version 1.0
- Ref.-2 American National Standards Institute/National Institute of Standards and Technology (ANSI/NIST) ANSI/NIST-ITL 1-2011 Data Format for the Interchange of Biometric and Forensic Information, dated mid 2011
- Ref.-3 CJIS Electronic Biometric Transmission Specification (EBTS), IAFIS-DOC-01078-9.3, dated late 2011
- Ref.-4 FBI Criminal Justice Information Services (CJIS) CJISD-ITS-DOC-08140-5.0, CJIS Security Policy, Version 5.0, dated 09 February 2011
- Ref.-5 Cal-DOJ EBTS – Livescan Suite of Documents, various issue dates
- Ref.-6 Communications Infrastructure Description for Orange County's Criminal Justice Environment – 2011, Version 2.1.

2.2 ORDER OF PRECEDENCE

In the event of conflict between specific technical requirements, the following order of precedence **shall** pertain: 1) the Orange County Automated Biometric Identification System Requirements Specification, 2) this Scope of Work, 3) other OCCL Specifications and Standards, and 4) all other references.

In the event of conflict between any items at the same level in the order of precedence, for example between different standards, the Contractor **shall** notify OCCL project management of each conflict, and propose a resolution. The resolution of each conflict **shall** be subject to OCCL approval.

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3. Requirements

The Contractor **shall** furnish all personnel, facilities, equipment, supplies, and support; and **shall** perform all functions necessary to design, develop, document, integrate, test, and deploy the OC ABI System as set forth in this SOW and the OC ABI System Requirements Specification [Ref. 1]. All of the requirements in the OC ABI System Requirements Specification, whether specifically referenced or not in this SOW, **shall** apply to the Contractor's deliverable products and services.

The Contractor **shall** analyze the requirements; design, develop, and document the OC ABI System; conduct Factory Acceptance Test (FAT), transition (install the system, migrate the databases, and train personnel) to the new OC ABI System; conduct System Acceptance Test; support User Acceptance Test; provide support to the operational OC ABI System; and manage said activities.

The Contractor **shall** provide OCCL with a comprehensive set of user, system, and management documentation. The Contractor **shall** deliver those items identified in the Contract Deliverable Requirements List (CDRL) presented in Appendix A. All CDRL items will be in Contractor format. The Contractor **shall** provide documentation in both electronic and hardcopy formats. All CDRL items are subject to OCCL approval and acceptance in order to satisfy the terms and conditions of the Contract.

All work under the OC ABI Contract **shall** be performed within the territory of the United States and **shall** be performed by United States citizens or Lawful Permanent Residents of the United States. Data and information provided by the OCCL **shall** not be communicated to anyone who is not a United States citizen or Lawful Permanent Resident of the United States. The one exception is that the provider algorithm development and algorithm maintenance can occur at the provider's facilities independent of where they are located.

3.1 MANAGEMENT

The Contractor is responsible for providing appropriate and sufficient project management services to plan, monitor, report, track, and manage the successful execution of the OC ABI Contract.

3.1.1 Project Organization

The Contractor **shall** establish a formal organization responsible for executing the total effort required by the Contract. A clear line of project authority **shall** exist among all organizational elements (including subcontractors). Roles, responsibilities, authority, and reporting requirements **shall** be established for each organizational element.

The Contractor **shall** appoint a Contractor Project Manager (CPM) who is a full time paid employee of the Contractor. The CPM **shall** serve for the duration of the Development Phase of the Contract effort and **shall** have responsibility for the accomplishment of all tasks to be performed under the contract. The CPM **shall** be responsible for the Contractor's technical, cost, and schedule performance. The CPM **shall** have full

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authority over all Contractor project activities and resources. The CPM **shall** be the principal interface between the project and the Contractor's corporate organization, between the project and its associated contractors, and between the Contractor and OCCL project management for all matters relating to the contract.

3.1.2 Project Planning

The Contractor **shall** prepare and submit detailed plans governing all activities to be performed under the OC ABI Contract. Planning documents **shall** be delivered in accordance with the provisions of Appendix A of this SOW. At a minimum, the following documentation **shall** be delivered: CDRLs: OC-01, 02, 03, and 04.

3.1.2.1 Project Management Plan

The Contractor **shall** develop and maintain the Project Management Plan (PMP). The PMP **shall** provide details on activities that will be completed in each phase of the Contract. The PMP will:

- Establish the project organization, structure, authority, roles, responsibilities, and internal reporting relationships;
- Define the interfaces between the Contractor and OCCL project management;
- Establish reporting mechanisms and documentation;
- Identify Contractor resources (requirements and assignment);
- Establish project management procedures and policies;
- Incorporate the project Integrated Master Schedule;
- Identify any constraints or assumptions.

3.1.2.2 Risk Management Plan

The Risk Management Plan (RMP) **shall** identify the organizations responsible for risk management and the roles and responsibilities of each. It **shall** specify the risk management processes (Risk Identification and Reporting, Risk Analysis, Risk Prioritization, Mitigation Planning, Risk Resolution, and Risk Monitoring) and tools to be used to manage risk.

3.1.2.3 Issue and Action Item Management Plan

The Issue and Action Item Management Plan **shall** provide a common understanding for the management of issues and action items throughout the project. The plan **shall** describe the process for identifying, prioritizing, tracking, and resolving issues and action items as they occur.

3.1.2.4 Integrated Master Schedule

The Integrated Master Schedule (IMS) is an integrated and resource loaded schedule containing the networked, detailed tasks necessary to ensure successful program execution. The IMS **shall** be vertically traceable to the SOW, the Program Management Plan, and all development, test, and transition plans required by the Contract. The IMS

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185 **shall** be used to verify achievability of contract objectives, to evaluate progress toward
186 meeting program objectives, and to integrate the program schedule activities with all
187 program components.

188 The IMS **shall** contain the contract milestones, accomplishments, and discrete
189 tasks/activities from Contract Award to the completion of the Development Phase of the
190 Contract. The IMS **shall** be an integrated, resource loaded, logical network-based
191 schedule that correlates to the SOW and Contractor plans. It **shall** display summary,
192 intermediate, and detailed schedules, and **shall** accommodate periodic analysis of
193 progress to date.

194 The IMS **shall** include significant external interfaces and critical items from suppliers,
195 teammates, or other detailed schedules that depict significant and/or critical elements and
196 OCCL furnished equipment or information dependencies for the entire contractual effort
197 in a single integrated network. The determination of significant and critical **shall** be
198 agreed to by the OCCL and the Contractor.

199 The IMS **shall** be statused according to the contractor's management control system and
200 **shall** be submitted no less frequently than monthly. The IMS **shall** be formatted as a
201 Microsoft Office Project 2007 schedule. This plan will form the basis for discussions at
202 each status meeting.

3.1.3 Project Reporting and Reviews

204 The Contractor **shall** provide management and technical reports and conduct
205 management and technical reviews and meetings throughout execution of the contract.
206 Attendees at management and technical reviews and meetings will include OCCL project
207 personnel, OCCL support contractors, the Contractor, and subcontractors as necessary to
208 meet the objectives of the meeting or review.

209 The Contractor **shall** participate in a project kickoff meeting at the OCCL facility within
210 10 working days after contract award. The purpose of the meeting is to introduce key
211 OCCL and Contractor personnel, to discuss plans, to discuss the status of any risks or
212 issues, to discuss proposals for further tailoring (if any) of the Contract, and to address
213 any other issues OCCL project management or the Contractor wish to discuss.

214 The Contractor **shall** conduct a monthly Project Management Review (PMR). The first
215 PMR **shall** be held within 30 days after contract award. Each PMR **shall** address:

- 216 • Schedule status against the IMS,
- 217 • Proposed changes to the IMS,
- 218 • Technical accomplishments,
- 219 • Risks, Issues, and Action Items,
- 220 • Planned activities, and
- 221 • Quality Assurance findings and plans for corrective action.

222 The PMRs **shall** also address selected technical and programmatic topics as directed by
223 OCCL project management. To the extent feasible, the Contractor will schedule PMRs
224 concurrent with reviews and Technical Interchange Meetings (TIMs).

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When the PMR is held at the Contractor's facility, the Contractor **shall** provide facilities for conducting the PMR and facilities for OCCL-only meetings and side meetings. The Contractor **shall** make available the key personnel necessary to carry out an efficient and effective agenda and **shall** provide presentation materials and supporting data.

With the exceptions of the User Acceptance Test (UAT) Test Readiness Review (TRR) and the System Acceptance Review, the Contractor **shall** conduct those reviews specified in Table 1. Required deliverables include CDRLs: OC-05, 06, and 07.

Table 1 provides a list of locations where management and technical reporting meetings and reviews will be held.

Meeting/Review Type	Location
Project Kickoff Meeting	OCCL Facility
System Requirements Review	Contractor's Facility
System Design Review	Contractor's Facility
FAT Test Readiness Review	Contractor's Facility
Pre-Ship Review	Contractor's Facility
SAT Test Readiness Review	OCCL Facility
Operational Readiness Review	OCCL Facility
UAT Test Readiness Review	OCCL Facility
System Acceptance Review	OCCL Facility
Project Management Reviews	Contractor's Facility

Table 1 Management and Technical Reporting, Meetings and Reviews

The Contractor **shall** propose a format for Monthly Status Reports and the OCCL Project Manager is responsible for approving the format. The Contractor **shall** provide Monthly Status Reports (CDRL OC-08) for review and approval by the OCCL Project Manager. These status reports **shall** include, at a minimum, a report on activities completed during the reporting period, activities planned for the next reporting period, issues, risks, action items, performance against the IMS, and other relevant information.

The Contractor **shall** track all progress against the approved PMP, other approved plans, and the IMS at least monthly and **shall** report status against the IMS at least monthly.

3.1.4 Risk Management

Risk is a measure of the potential inability to achieve overall project objectives within defined cost, schedule, and technical constraints and has two components: (1) the probability/likelihood of failing to achieve a particular outcome, and (2) the consequences/impacts of failing to achieve that outcome.

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248 The Contractor **shall** perform risk management activities in accordance with the (OCCL
249 approved) RMP. The Contractor **shall** assess (identify and analyze) risk areas, identify
250 and analyze specific risks, develop risk mitigation options and plans, monitor risks to
251 determine how risks have changed, document the overall risk management program, and
252 report identified risks and the status of risk mitigation efforts to OCCL project
253 management.

254 **3.1.5 Security**

255 The Contractor **shall** implement a security program in compliance with the CJIS Security
256 Policy [Ref. 4]. All Contractor supplied facilities or systems **shall** provide protection and
257 control of all OCCL provided information, equipment, documentation, and network
258 access. The Contractor **shall** document its security program in an In-Plant Security Plan
259 (CDRL OC-09).

260 **3.1.6 Configuration Management**

261 The Contractor **shall** develop a Configuration Management Plan (CMP, CDRL OC-10)
262 and implement a Configuration Management (CM) program in accordance with that plan.
263 The CMP **shall** identify the organization responsible for the CM function. The CMP **shall**
264 establish Configuration Management Responsibilities and Authority, identify
265 Configuration Management Resources and Tools, establish Configuration Management
266 Policies, and define Configuration Management Phasing and Milestones. The CMP **shall**
267 establish procedures for Configuration Identification, Configuration Control,
268 Configuration Status Accounting, and Configuration Audits and Reviews. The CPM **shall**
269 implement controls to ensure that only authorized changes are made to the CMP.

270 The Contractor **shall** develop and maintain control of CDRL items until accepted by
271 OCCL. The Contractor **shall** recommend an integrated set of commercial off the shelf
272 configuration control tools for use on the project. Subject to OCCL approval, the
273 Contractor **shall** procure and use the approved tools to perform their configuration
274 control functions. The Contractor **shall** procure the approved tools and provide them to
275 OCCL (CDRL OC-32). The Contractor **shall** turn change control of CDRL items over to
276 OCCL when the CDRL items are accepted.

277 The Contractor **shall** participate in OC ABI Project configuration control boards. OC
278 ABI Project configuration control boards will establish and control the requirements
279 baseline [Ref. 1] throughout the performance of the Contract, and will control the
280 operational baseline (deployed hardware, software, databases, and documentation) once
281 the OC ABI System becomes operational.

282 **3.1.7 Quality Assurance**

283 The Contractor **shall** develop a Quality Assurance Plan (CDRL OC-11) and implement a
284 Quality Assurance (QA) program in accordance with that plan. The Contractor's QA
285 program **shall** provide for an independent Contractor QA organization. The Contractor's
286 QA program **shall** assure that all supplies and services submitted to the OCCL for
287 acceptance conform to contract requirements. The Contractor **shall** ensure product

OC ABI Project Scope of Work

quality by inspection, controlling nonconforming material, controlling subcontractor quality assurance, and by having effective control of calibrated equipment. The Contractor **shall** perform and document inspections prior to requesting acceptance of the work by the OCCL.

OCCL reserves the right to perform audits and inspections of Contractor (and subcontractor) conformance to any or all contractual requirements at any time during the performance of the Contract. Due notice will be provided to the Contractor prior to conducting audits or inspections. Subcontract requirements **shall** permit participation in audits and inspections by OCCL and OCCL support contractors.

3.2 IMPLEMENTATION

3.2.1 System Requirements Analysis

The Contractor **shall** review the OC ABI System Requirements Specification [Ref. 1] and conduct the analyses and modeling necessary to validate the requirements of the OC ABI System Requirements Specification. The Contractor **shall** identify errors, ambiguities, conflicts, incompletes, and other defects in the OC ABI System Requirements Specification. The Contractor **shall** recommend changes to the OC ABI System Requirements Specification where those changes would correct defects or result in benefit to the OCCL (e.g., enhance the overall functionality, performance, or reliability of the OC ABI System, reduce life cycle costs, increase maintainability, shorten the schedule, or reduce program risk).

The Contractor **shall** conduct the analyses necessary to develop the interface requirements between the OC ABI System and the Local Arrest Record System (LARS) and between the OC ABI System and the Automated Jail System (AJS). The Contractor **shall** document those requirements in Interface Requirements Specification(s) (CDRL OC-35).

The Contractor **shall** conduct a System Requirements Review (SRR). At SRR, the Contractor **shall** present the results of the verification effort and the supporting data. The Contractor **shall** document recommended changes to the OC ABI System Requirements Specification in Specification Change Requests (CDRL OC-13) and **shall** support these recommendations (e.g., with trade study results and cost benefit analyses).

Upon successful completion of the SRR, the OC ABI Program Manager will authorize the Contractor to proceed with system design. OCCL will incorporate any approved changes (Specification Changes Requests) in a revision to the OC ABI System Requirements Specification [Ref. 1].

3.2.2 Network Requirements Analysis

The Contractor **shall** review the OCCL Communications Infrastructure Description for Orange County's NEC AFIS Environment [Ref. 6]. The Contractor **shall** conduct the analyses to define the technical requirements for the OCCL Network and AFIS LAN to host the OC ABI System and document those requirements in a Network Requirements

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Specification (CDRL OC-12). The Contractor **shall** extend this analysis to develop the requirements for replacement networks that will afford the OCCL enhanced security and improved performance.

At SRR, the Contractor **shall** present the results of the Network analysis effort and the supporting data. The Contractor **shall** present any trade study results and cost benefit analyses at the SRR.

3.2.3 Test Planning

The Contractor **shall** develop and execute a comprehensive test program, spanning all phases of development and all levels of assembly of the OC ABI System. The Contractor **shall** develop a Test and Evaluation Master Plan (TEMP, CDRL OC-14).

- The TEMP **shall** govern all levels of testing, from the unit level through the fully assembled and integrated (with external systems) system.
- The TEMP **shall** govern all phases of test, from unit testing through completion of System Acceptance.
- The TEMP **shall** govern formal (acceptance) and informal testing.

For unmodified Commercial-Off-the-Shelf (COTS) hardware and software, COTS vendor-supplied test results may be substituted for verification of requirements below the level of the fully integrated system.

The test program will consist of formal and informal tests. The formal tests are: Factory Acceptance Test (FAT), System Acceptance Test (SAT), and User Acceptance Test (UAT). All other tests are informal. The Contractor **shall** prepare Test Plans, Test Procedures, and Test Reports for FAT and SAT (CDRLs: OC-15 through 20). In order for testing to be executed multiple times (i.e., dry runs and production), the test procedures for formal tests **shall** be at the keystroke level. FAT and SAT **shall** be preceded by Test Readiness Reviews (TRRs) at which the OC ABI Project Manager must authorize the Contractor to proceed with the conduct of test before testing may begin. FAT and SAT **shall** be followed by formal reviews (i.e., PSR and ORR). UAT will be conducted by OCCL and will be preceded by a UAT TRR and followed by SAR.

3.2.4 Design and Development

The Contractor **shall** design, develop, and document the new OC ABI System to satisfy the requirements in the OC ABI System Requirements Specification [Ref. 1] and the requirements of this SOW. The Contractor **shall** design, develop, and fabricate or procure all hardware, software, and data components of the system(s), with the exception of the operational data to be provided by OCCL.

The Contractor **shall**, to the maximum extent feasible, use non-proprietary hardware and software in developing and implementing the OC ABI System. To the maximum extent feasible, OC ABI System equipment **shall** be available commercially from third party vendors as well as through the Contractor.

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The Contractor **shall** develop the OC ABI System Design Specification and the Bill of Materials (BOM). The Contractor **shall** conduct a System Design Review (SDR) and present their design for OCCL approval. The SDR **shall** be a comprehensive and in-depth review of the design as documented in the OC ABI System Design Specification and the BOM. Deliverables **shall** include CDRLs OC-07, 08, 09, 21, and 22.

The Contractor **shall** prepare a trade study and recommendations that encompass the whole OC related infrastructure. The Contractor **shall** develop a Continuity of Operations Plan (COOP) based on the approved trade study and recommendations. The deliverables **shall** include CDRLs OC-31 and 34. The vendor will offer a priced option any time within the first 5 years for an alternate site as described in the COOP to include options for workstations, communications, etc.

The design as depicted in the OC ABI System Design Specification and the SDR presentation materials **shall** represent a partitioning of the OC ABI System into design entities and describe the important properties and relationships among those entities. For purposes of this SOW, a design entity is an element (component) of the system that is structurally and functionally distinct from other elements and that is sold separately by the Contractor, a subcontractor, or a commercial vendor – or is developed specifically and solely for this contract.

For each design entity, the OC ABI System Design Specification and the SDR presentation materials **shall**:

- Identify the entity by name or another unique identifier;
- Provide a mapping of each requirement from the OC ABI System Requirements Specification [Ref. 1] to each design entity, and include a decomposition of the OC ABI System Requirements Specification requirements if a decomposition is necessary to uniquely allocate those requirements to design entities;
- Identify the entity type: Hardware or Software, Commercial Off The Shelf, reused with modification, or developmental (to be developed) and if to be modified or developed whether or not it will be included in future commercial offerings;
- Provide a description of the specific functional, performance, interface, security, or design requirements, and special requirements that must be met by the entity that are not included in the specification(s);
- Provide a description of the relationships of the entity with other entities – to include the *uses* or *requires the presence of* relationship for an entity.

For each OC ABI System external interface – including user interfaces – the OC ABI System Design Specification and the SDR presentation materials **shall** describe the methods of interaction and the rules governing those interactions. The methods of interaction include the mechanisms for invoking or interrupting system function(s), for communicating through parameters, common data areas or messages, and for direct access to internal data. The rules governing the interaction include the communications protocol, data format, acceptable values, and the meaning of each value. This attribute

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shall provide a description of the input ranges, the meaning of inputs and outputs, the type and format of each input or output, and output error codes. For information systems, it should include inputs, screen formats, and a complete description of the interactive language.

The Contractor **shall** design the interface between the OC ABI System and the Local Arrest Record System (LARS) and between the OC ABI System and the Automated Jail System (AJS) and document those designs in Interface Design Document(s) (CDRL OC-36).

The OC ABI System Design Specification and the SDR presentation materials **shall** identify and describe all of the resources external to the design that are needed by this entity to perform its function. The interaction rules and methods for using the resource **shall** be specified. The OC ABI System Design Specification and the SDR presentation materials **shall** provide information about items such as physical devices (printers, disc-partitions, memory banks), software services (math libraries, operating system services), and processing resources (CPU cycles, storage devices, and bandwidth). The design **shall** also specify power and physical space requirements.

At the SDR, the Contractor **shall** present evidence (e.g., results of analyses, computer model and simulation results, benchmark results, and vendor-supplied specifications) to demonstrate that the design satisfies the requirements of the OC ABI System Requirements Specification [Ref. 1].

The Contractor **shall** develop (code, fabricate, and/or procure) the hardware and software entities that comprise the new OC ABI System and integrate those entities into the complete OC ABI System to conform to the requirements of the OC ABI System Requirements Specification [Ref. 1], the OC ABI System Design Specification (CDRL OC-21) and the BOM (CDRL OC-22). The Contractor **shall** conduct all developmental test and evaluation necessary to demonstrate readiness of the system to undergo FAT.

As an option the Contractor **shall** design a network that satisfies the requirements as documented in the Network Requirements Specification (CDRL OC-12). The design shall be documented in the OC ABI System Design Specification (CDRL OC-21) and the BOM (CDRL OC-22). The design shall be presented at the SDR.

3.2.5 Network Design and Development

The Contractor **shall** design and develop the network that satisfies the requirements of the Network Requirements Specification (CDRL OC-12).

3.2.6 Factory Acceptance Test

The Contractor **shall** conduct Factory Acceptance Test (FAT). The purpose of FAT is to demonstrate that: 1) the OC ABI System satisfies the requirements of the OC ABI System Requirements Specification, 2) that the network satisfies the requirements of the Network Requirements Specification (CDRL OC-12), 3) that the migrated Operational Database satisfies the requirements of this Scope of Work, and 4) that the supporting documentation completely and correctly describes user interactions, operational

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- 445 procedures, and the design as implemented.
- 446 The Contractor **shall** conduct a Test Readiness Review (TRR) to demonstrate their and
447 the OC ABI System's readiness to conduct FAT. The Contractor **shall**:
- 448 • Provide an overview/walk-through of the FAT activity, which is to occur.
 - 449 • Describe the test environment (equipment, software, databases, and interfaces)
450 and how it differs from the operational environment (e.g., the use of simulators to
451 represent external interfaces).
 - 452 • Identify and discuss the rationale for and implications of any proposed redlines to
453 documents (i.e., test plans, test procedures, user documentation, installation
454 documentation).
 - 455 • Report on the status of all Action Items, Risks, and Issues that are currently open
456 or have been closed since the previous PMR. Plans and/or options for their
457 resolution will be addressed.
 - 458 • Identify any test procedures that the Contractor expects will fail or be incomplete
459 during FAT execution, address the implications of those failures/incompletes for
460 operations, and discuss plans/options for correcting the cause(s) of those failures.
- 461 At the culmination of the Contractor presentation, the OC ABI Project Manager will
462 authorize – or not authorize – the Contractor to proceed with the conduct of FAT.
- 463 If authorized by the OC ABI Project Manager, the Contractor **shall** conduct FAT using
464 the approved test procedures (including any redlines approved by the OC ABI Project
465 Manager at the TRR). Test results and satisfaction of each and every requirement of the
466 OC ABI System Requirements Specification **shall** be noted and witnessed by OCCL
467 personnel or OCCL support contractors. The Contractor **shall** document the test results,
468 requirements satisfaction, and failures or incompletes in the FAT Test Report.
- 469 The Contractor **shall** conduct FAT on the OC ABI System configured as specified in the
470 OC ABI System Design Specification approved at the System Design Review with any
471 changes to the Design Specification and the BOM approved by OCCL. FAT **shall** be
472 executed using OCCL approved Test Procedures.
- 473 At the culmination of FAT, the Contractor **shall** conduct a Pre-Ship Review (PSR). The
474 purpose of the PSR is to demonstrate the readiness of the Contractor and the readiness of
475 the OC ABI System to be deployed to the OCCL. The Contractor **shall**:
- 476 • Present the results of FAT
 - 477 • Review the status of all Action Items, Risks, and Issues that were presented at the
478 FAT TRR and any changes to their status, and review any new Action Items,
479 Risks, or Issues that arose as a result of FAT
 - 480 • Address the readiness of required deliverables (e.g., equipment, software,
481 databases) to deploy, and personnel to conduct installation
 - 482 • Address the readiness of the facilities to receive the deliverables

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- 483 • Address the readiness of training plans, materials, and training personnel to
484 provide training, and the readiness of trainees to receive training
- 485 • Provide an overview of plans for conduct of SAT and UAT.

486 Upon successful completion of PSR, the OC ABI Project Manager will authorize the
487 Contractor to ship the OC ABI System to the operational facility and begin deployment
488 activities. Deliverables include CDRLs OC-15, 16, and 17.

489 **3.2.7 Network Factory Acceptance Test**

490 The Contractor **shall** conduct FAT of the OC ABI System Network in conjunction with
491 the full OC ABI System FAT.

492 **3.3 TRANSITION**

493 The Contractor **shall** prepare a comprehensive Transition Plan (CDRL OC-33) that
494 guides the process of migration of OCCL and other users (e.g., police departments) from
495 the NEC AFIS21 to the new OC ABI System. The plan **shall** address parallel operations,
496 synchronization of the current and new repositories up to the final minutes, timing of
497 training relative to hardware installation, and sequence of switching services, migration
498 objectives, activities, required resources, schedule (may be included in the IMS), tools,
499 assumptions, OCCL furnished items (e.g., equipment, information, data, facilities, or
500 personnel), and external dependencies.

501 **3.3.1 Continuity of Operations**

502 The Contractor **shall** equip the OCCL specified facility with the equipment, software,
503 documentation, and initial data load necessary to establish a Continuity of Operations
504 capability in accordance with the COOP. The Contractor **shall** conduct the necessary
505 tests to verify that the Continuity of Operations capability is fully operational and **shall**
506 maintain the equipment, software, databases, and documentation at the facility current
507 throughout the period of the Contract including exercised options.

508 **3.3.2 OCCL Network**

509 The Contractor **shall** equip and install the implemented network that satisfies the
510 requirements of the Network Requirements Specification (CDRL OC-12).

511 **3.3.3 Installation**

512 The Contractor **shall** conduct site surveys and analyses to determine the facilities
513 requirements (e.g., heating, air conditioning, lighting, electrical power, structural loading,
514 and physical access) for:

- 515 1. The facilities hosting the OC ABI System equipment at the OCCL central site
- 516 2. Those locations hosting latent equipment, see OCCL Communications
517 Infrastructure Description for Orange County's NEC AFIS Environment (Ref.-6)

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3. Those locations where OC ABI System Communication Network is to be installed see OCCL Communications Infrastructure Description for Orange County's NEC AFIS Environment (Ref.-6)

The Contractor **shall** review the network configuration at the OCCL central site and at each location hosting latent equipment to ensure that the equipment to be installed is compatible with existing network topologies. The Contractor **shall** document any incompatibilities between the OC ABI System equipment to be installed and the facilities or networks and identify any required facilities of network modifications in an Installation Survey Report (CDRL OC-23).

The Contractor **shall** prepare a Version Description Document with the complete instructions necessary for a third party to install and configure all hardware, software, and data associated with each deployment. The document will include site-specific installation information (CDRL OC-24).

The Contractor **shall** prepare an Installation Plan (CDRL OC-25) to document installation tasks, responsibilities, schedule, resource requirements, equipment layout, cabling, and testing to verify correct installation of equipment and software at OCCL and locations hosting latent equipment. The Contractor **shall** prepare Installation Drawings (CDRL OC-26) to define equipment layout and cabling.

The Contractor **shall** (subject to OCCL approval) deliver and install the equipment and software deliveries at the OCCL central site and at locations hosting latent equipment to include the software identified in Table 2 in accordance with the requirements for dynamic software license allocation in SRD Section 4.7. The Contractor **shall** check the installation and perform the necessary data conversions to prepare the equipment and software to support SAT and operations. The Contractor **shall** install copies of Microsoft Office™ as required by the OC ABI System Requirements Specification [Ref. 1] Section 4.7. Said copies will be provided and licensed by the OCCL.

Workstations At OCCL	Vendor TP S/W	Vendor LT S/W	Vendor Admin S/W	Photoshop Elements™	Photoshop CS5™
11 TP	5	2	2	11	0
9 LT	2	9	2	0	9

Table 2 Maximum Numbers of Licenses in Use Simultaneously

3.3.4 Data Migration

The Contractor **shall** convert friction ridge images and some paper forms (that the Contractor **shall** scan into image files) into ANSI/NIST-compliant files and load them into the OC ABI System with all appropriate transaction-related information. The files **shall** be available in the operational OC ABI System for search, retrieval, record management (e.g., consolidation or deletion), and exporting as ANSI/NIST transactions or as ANSI/NIST Record Types (individually or in batches) based on selectable fields, per the following approach.

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553 The Contractor **shall** convert and load the Master Index of all known subjects' attributes
554 (TCN, OCN, Sex, and DOB). The attributes **shall** be double-key entered by a second
555 person.

556 **3.3.4.1 Known Tenprints**

557 There are multiple classes of tenprint and palmprint records that **shall** require processing
558 as part of the initial data load:

559 1) Original inked forms to be scanned at 1,000 ppi and compressed with JPEG2000.
560 If the friction ridge image data are already resident in the current AFIS database
561 in ANSI /NIST conformant formats the Contractor **shall** load the image data from
562 that database into the OC ABI operational database. If the friction ridge image
563 data is not resident in the current AFIS database the Contractor **shall** load the
564 ANSI/NIST conformant image data from the original inked forms into the OC
565 ABI operational database.

566 2) Livescan forms that were printed out and are not available digitally – where the
567 paper records are available they will have to be scanned at 500 ppi with no
568 compression.

569 3) Livescan records that are electronically stored and that have fully ANSI/NIST
570 conformant Type-4, Type-14, or Type-15 records.

571 For all cards scanned the front and back **shall** be scanned at 250 or 300 ppi and saved as
572 Type-20 records in the newly generated transactions and saved in the ANSI/NIST
573 Archive.

574 For all cards and digital records ingested, the Contractor **shall** use the NIST Fingerprint
575 Image Quality (NFIQ) software to quality rate each finger and save the data for a report
576 at the end of the data conversion. The NFIQ scores **shall** also be added to each Type-14
577 record in the newly created transactions for scanned records, if not already present.

578 The Contractor **shall** perform feature extraction on all tenprint and palmprint records for
579 use in the matchers. The Contractor **shall** cross-search all of the tenprint records to
580 determine all transactions that share unique identities and link them together as single
581 identities. The Contractor **shall** use existing OCCL person ID codes and **shall** retain all
582 booking numbers in indexing the tenprint repository. Where new matches are found, the
583 list of candidates **shall** be presented to OCCL Cal-ID for review and approval prior to
584 completion of the data load. If during card conversion it is necessary to manipulate an
585 image(s) for quality control purposes (e.g., to correct a sequence error) a separate copy of
586 the corrected image transaction **shall** be maintained in addition to the original transaction.
587 All such instances **shall** be documented in a Database Conversion Report (CDRL OC-
588 30).

589 For cases where multiple transactions are present for a subject in the repository, the
590 Contractor **shall** use the NFIQ image quality scores, to develop a “best image set” as a
591 composite record for each of the current or proposed identities. Images from sealed

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records can be used as a best image as long as the link to the sealed information is not accessible other than by special permissions selectively assigned to supervisors.

The Contractor **shall** load feature sets for up to three transactions for each identity – the composite and the two most recent transactions. The known tenprint file **shall** be loaded into the matchers for testing and operational use, with pointers to the appropriate TCNs, SIDs, and identities within the ANSI/NIST Archive. All fingerprints per enrollment record (i.e., up to 20 fingerprints) for the composite and up to the two most recent transactions **shall** be loaded into the matchers and **shall** be searchable for tenprint to tenprint (TP-TP) and “forward” latent to tenprint (LT-TP) transactions.

3.3.4.2 Known Palms

The current system stores but cannot search palms. There are digital palm image sets available for the majority of arrest cycles since early 2006 and are stored in the OC Archive at their original 1,000 ppi capture rate. All other palm records are on paper forms.

For cases where multiple palm transactions are present for a subject, the Contractor **shall** convert palms to optimize matching accuracy. In performing palmprint conversion, the Contractor **shall** verify the identity of the subject by matching one or more fingers from the palm card to a tenprint record of the subject. After performing feature extraction on all palm records for use in the matchers, the Contractor **shall** use existing OCCL Cal-ID person ID codes and will retain all pointers in indexing the palmprint repository. The known palm file **shall** be loaded into the matchers for testing and operational use, with pointers to the appropriate OCCL IDs, TCNs, any SIDs or FBI numbers, and identities.

3.3.4.3 Latent Prints

The unsolved latent images are in the OCCL Laboratory Information Management System (LIMS) as well as in the NEC AFIS and they are in “.tiff” files. The Contractor **shall** process all unsolved finger and palm latent images and generate feature sets, either by auto-extracting them or by converting the corresponding, existing feature sets to the currently-under-final-review Extended Feature Set (EFS) format. The preference is the use of the already encoded feature sets as the basis of re-encoding into the EFS format.

The unsolved latent file **shall** be loaded into the matchers. The records **shall** be searched against the known files and against one another; all strong candidates **shall** be documented for OCCL latent examiners to review after the system goes operational.

3.3.5 Training

The Contractor **shall** develop User Manuals (CDRL OC-27) addressing all user functions for all user types (i.e., tenprint and latent examiners; and system administrators). User documentation **shall** describe the components, functions, and operations of each workstation type. Operations descriptions **shall** include a list and description of all error conditions, as well as the associated error messages displayed and the action required of the operator for each error condition. Each OC ABI System workstation **shall** be

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631 provided with online user documentation that is resident on the workstation or accessible
632 via the agency's internal networks.

633 The Contractor **shall** prepare a Training Plan (CDRL OC-28) and Training Materials
634 (CDRL OC-29) – for example, computer based training, videos, guides, manuals and
635 conduct on-site user training as required to support testing, deployment, and operations.
636 Training **shall** be conducted at the OCCL central site.

637 The Contractor **shall** conduct three types of courses:

638 1) *Tenprint Operations Training* – This course **shall** cover all OC ABI System
639 tenprint functionality. The course will provide hands-on¹ instruction on the
640 tenprint workstation for automated manual and tenprint processing. The
641 course will cover tenprint manual and automated workflows, displays, data
642 entry, quality assessment, and all functionality. The course will cover the
643 basic and administrative user functions of the NIST archive. This course also
644 includes the method by which NIST standard fingerprint transactions can be
645 run against non-OCCL systems. This course will also cover palmprint and
646 slap print entry and quality assessment functions. The number of persons to
647 receive Tenprint Operations Training is 21. The training is to take place in
648 Orange County no earlier than two weeks prior to the start of UAT. The
649 training classes are to be provided at least two times to cover availability of
650 personnel.

651 2) *Latent Operations Training* – This course will cover all OC ABI System latent
652 functionality associated with the new OC ABI System. The course will
653 provide hands-on instruction on the latent workstation. The course will cover
654 use of the LCMS, EFS, latent manual workflows, displays, data entry, quality
655 assessment, and all functionality. The course will cover the basic user
656 functions of the NIST archive. This course includes the method by which
657 NIST standard fingerprint transactions can be run against non-OCCL systems.
658 The course will include instruction in best practices for ensuring optimum
659 accuracy. This course will also cover latent palmprint and slap entry, quality
660 assessment, and matching functions. The persons to receive Latent
661 Operations Training at OCCL are the same 21 people who are to receive the
662 Tenprint Operations training. After they are trained then there are between 40
663 and 50 other latent personnel from police departments within the county to be
664 trained.

665 3) *System Administration Training* – This course will cover all OC ABI System,
666 database, and security administration functionality associated with the new
667 OC ABI System. The course will provide hands-on instruction on all OC ABI

1 "Hands-on" requires that each student have access to a fully functional workstation with OC ABI System functionality and an appropriate training database during the training sessions. This requirement applies to the Tenprint Operations Training, the Latent Operations Training, and the System Administration Training.

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668 System equipment, software, and databases. The course will include
 669 instruction in best practices for ensuring optimum performance and system
 670 security. The persons to receive System Administration Training are all at
 671 OCCL and there are 6 of them. The training classes are to be provided at least
 672 two times to cover availability of personnel.

673 3.3.6 System Acceptance Test

674 The Contractor **shall** conduct System Acceptance Test (SAT). The purpose of SAT is to
 675 demonstrate that – in the operational environment: 1) the OC ABI System satisfies the
 676 requirements of the OC ABI System Requirements Specification, 2) that the networks
 677 satisfy the requirements of the Network Requirements Specification (CDRL OC-12), 3)
 678 that the migrated Operational Database satisfies the requirements of this Scope of Work,
 679 and 4) that the supporting documentation completely and correctly describes user
 680 interactions, operational procedures, and the design as implemented.

681 The Contractor **shall** conduct a Test Readiness Review (TRR) to demonstrate their and
 682 the OC ABI System's readiness to conduct SAT. The Contractor **shall**:

- 683 • Provide an overview/walk-through of the SAT activity that is to occur
- 684 • Describe the test configuration and environment (equipment, software, databases,
 685 and interfaces). Any differences between the test and operational configuration
 686 and environment will be identified²
- 687 • Describe precautions taken to ensure that operational databases will not be
 688 corrupted or cause the users of interfacing systems to take actions based on the
 689 belief that test messages are actual operational messages
- 690 • Identify and discuss the rationale for and implications of any proposed redlines to
 691 documents (i.e., test plans, test procedures, user documentation, installation
 692 documentation)
- 693 • Report on the status of all Action Items, Risks, and Issues that are currently open
 694 or have been closed since the PSR. Plans and/or options for their resolution will
 695 be addressed
- 696 • Identify any test procedures that the Contractor expects will fail or be incomplete
 697 during SAT execution, address the implications of those failures/incompletes for
 698 operations, and discuss plans/options for correcting the cause(s) of those failures

699 At the culmination of the Contractor presentation, the OC ABI Project Manager will
 700 authorize – or not authorize – the Contractor to proceed with the conduct of SAT.

701 If authorized by the OC ABI Project Manager the Contractor **shall** conduct SAT using
 702 the approved test procedures (including any redlines approved by the OC ABI Project

2 While it is the intention that the test and operational configurations and environments be identical, OCCL acknowledges that this may not be entirely feasible (e.g., it may be necessary to instrument the test configuration to demonstrate requirements satisfaction).

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Manager at the TRR). The Contractor **shall** conduct SAT on a fully configured and deployed – in the operational environment – OC ABI System, using the operational database, and using operational external interfaces (no simulations of external interfaces). The Contractor **shall** take necessary precautions to ensure that SAT execution does not corrupt the operational databases (including the databases of interfacing systems) or cause the users of interfacing systems to take actions based on the belief that test messages are actual operational messages. Test results and satisfaction of each and every requirement of the OC ABI System Requirements Specification **shall** be noted and witnessed by OCCL personnel or OCCL support contractors. The Contractor **shall** document the test results, requirements satisfaction, and failures or incompletes in the SAT Test Report (CDRL OC-20).

At the culmination of SAT, the Contractor **shall** conduct an Operational Readiness Review (ORR). The purpose of the ORR is to demonstrate the readiness of the deployed OC ABI System, databases, documentation, and user personnel to begin User Acceptance Test. The Contractor **shall**:

- Present the results of SAT
- Review the results of user training
- Review the status of all Action Items, Risks, and Issues that were presented at the SAT TRR and any changes to their status, and review any new Action Items, Risks, or Issues that arose as a result of SAT
- Address the readiness of required deliverables (e.g., equipment, software, databases) to deploy, and personnel to conduct User Acceptance Test

Upon successful completion of ORR, the OC ABI Project Manager will authorize the conduct of User Acceptance Test. Deliverables include CDRLs OC-19 and 20.

3.3.7 Network System Acceptance Test

The Contractor **shall** conduct SAT of the OC ABI System Network in conjunction with the full OC ABI System SAT.

3.3.8 User Acceptance Test

The OCCL will conduct User Acceptance Test (UAT). The purpose of UAT is to demonstrate that the OC ABI System, Operational Database, the supporting documentation, and the user training are adequate for their intended purpose.

The OCCL will conduct a TRR to assess OCCL's readiness to conduct UAT. If the OC ABI Project Manager determines that OCCL is ready to conduct UAT, she will direct that UAT begin. UAT will be conducted for a period of thirty (30) days. Upon completion of UAT, the OCCL will conduct a System Acceptance Review (SAR) to assess whether the OC ABI System, database, documentation and training are adequate to allow OCCL to declare the OC ABI System fully operational.

The Contractor **shall** provide a level of effort support throughout the period of UAT. The

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741 support personnel **shall** be able to assist users in the performance of user functions and
742 **shall** document problems encountered in the course of UAT. The level of support **shall**
743 be provided for all shifts.

744 **3.4 SUSTAINMENT**

745 The Contractor **shall** provide corrective maintenance at no additional cost to OCCL for
746 any error, malfunction, or defect in Contractor supplied equipment, software, or
747 documentation which, when used as delivered, fails to perform in accordance with
748 Contractor's officially announced, written or published, technical specifications.

749 **3.4.1 Preventative Maintenance**

750 The Contractor **shall** periodically perform inspection and adjustment of the equipment
751 and replacement of defective parts thereof by dispatching maintenance personnel at the
752 frequency recommended by the manufacturer in order to keep the equipment in good
753 operating condition. The machine time required **shall** be scheduled on a monthly basis
754 during working hours agreed to by OCCL.

755 Scheduled down time for performing preventative maintenance at the Central Site **shall**
756 not exceed two (2) hours in any month unless agreed to in advance by OCCL.

757 **3.4.2 Troubleshooting**

758 The period of maintenance coverage for the Central Site and for the locations hosting
759 latent equipment **shall** be 24 hours a day, seven days a week.

760 The Contractor **shall** provide to all sites appropriate user troubleshooting support
761 personnel on call, 24 hours a day, seven days a week via a Help Desk and **shall** accept
762 such requests telephonically or via email and document them in Trouble Tickets. The
763 Help Desk personnel **shall** perform triage on the Trouble Tickets and provide responses
764 on those that are known problems with workarounds or solutions the others are to be
765 forwarded to Contractor support personnel.

766 The Contractor **shall** provide to all sites appropriate hardware and software support
767 personnel on call, 24 hours a day, seven days a week in response to Trouble Tickets and
768 **shall** acknowledge them telephonically or by email within one (1) hour and respond
769 remotely via a secure link or on site within four (4) hours, after notification of a problem
770 which requires their presence. In the event maintenance personnel cannot be reached, a
771 Contractor representative **shall** return the call based upon an established escalation
772 policy.

773 The Contractor **shall** provide a monthly report of all Trouble Tickets and their status.

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774 **Appendix A: Contract Deliverable Requirements List**

775 The Contractor ***shall*** deliver those items identified in the CDRL below. Unless otherwise
 776 stipulated herein all CDRL documents ***shall*** be delivered in softcopy only (one copy).
 777 All CDRL items are subject to OCCL approval and acceptance in order to satisfy the
 778 terms and conditions of the Contract.

Identifier	Deliverable Title	Delivery Dates & Hardcopy Requirements
OC-01	Project Management Plan	With Proposal and with update within 30 days after Contract Award.
OC-02	Risk Management Plan	With Proposal and with update within 30 days after Contract Award.
OC-03	Issue and Action Item Management Plan	Within 30 days after Contract Award.
OC-04	Integrated Master Schedule	With Proposal and with update within 30 days after Contract Award.
OC-05	Meeting Agendas	Draft 5 working days prior to the meeting.
OC-06	Presentation Materials	Draft 5 working days prior to a meeting, with updates at the meeting, and Final as part of OC-07.
OC-07	Meeting Minutes	Draft 2 working days after the meeting, with Final 5 working days after receipt of OCCL comments.
OC-08	Monthly Status Report	Draft 5 working days prior to PMR, with Final attached to PMR OC-07.
OC-09	In-Plant Security Plan	With Proposal and with update within 30 days after Contract Award.
OC-10	Configuration Management Plan	Within 30 days after Contract Award.
OC-11	Quality Assurance Plan	Within 30 days after Contract Award.
OC-12	Network Requirements Specification	Draft 5 working days prior to SRR, with updates at the meeting, and Final as attachment to SRR meeting OC-07.
OC-13	Specification Change Requests	Draft 5 working days prior to SRR, with updates at the meeting, and Final as attachment to SRR meeting OC-07.
OC-14	Test and Evaluation Master Plan	With Proposal and with update within 30 days after Contract Award.
OC-15	Test Plan (FAT)	Draft 5 working days prior to SDR, with updates at the meeting, and Final as attachment to SDR meeting OC-07.

OC ABI Project Scope of Work

Identifier	Deliverable Title	Delivery Dates & Hardcopy Requirements
OC-16	Test Procedures (FAT)	Draft 40 working days prior to FAT TRR or 5 working days before SDR – whichever is earlier, with the Final at FAT TRR. [Five (5) hardcopies at FAT TRR]
OC-17	Test Report (FAT)	At PSR
OC-18	Test Plan (SAT)	Draft 5 working days prior to SDR, with updates at the meeting, and Final as attachment to SDR meeting OC-07.
OC-19	Test Procedures (SAT)	Draft 40 working days prior to SAT TRR or 5 working days before SDR – whichever is earlier, with the Final at SAT TRR. [Five (5) hardcopies at SAT TRR]
OC-20	Test Report (SAT)	At ORR.
OC-21	OC ABI System Design Specification	Draft 5 working days prior to SDR, with updates at the meeting, and Final as attachment to SDR meeting OC-07.
OC-22	Bill of Materials	Preliminary Draft with Proposal. Updates at SDR and at PSR. Final at SAR.
OC-23	Installation Survey Report	Draft 5 working days prior to SDR, with update as an attachment to SDR meeting OC-07, and Final at PSR.
OC-24	Version Description Document	Draft 5 working days prior to PSR, with updates at the meeting, and Final as attachment to ORR meeting OC-07.
OC-25	Installation Plan	Draft 5 working days prior to SDR, with update as an attachment to SDR meeting OC-07, and Final at PSR.
OC-26	Installation Drawings	Draft 5 working days prior to SDR, with update as an attachment to SDR meeting OC-07, and Final at PSR.
OC-27	User Manuals	Draft 30 working days prior to PSR, with update as an attachment to PSR meeting OC-07, and Final at ORR. [One (1) hardcopy for each trainee]
OC-28	Training Plan	Draft 30 working days prior to PSR, with update as an attachment to PSR meeting OC-07, and Final at ORR.
OC-29	Training Materials	Draft 30 working days prior to PSR, with update as an attachment to PSR meeting OC-07, and Final at ORR. [One (1) hardcopy for each trainee]
OC-30	Database Conversion Report	Draft 5 working days prior to FAT TRR, with Final as an attachment to FAT TRR meeting OC-07.

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Identifier	Deliverable Title	Delivery Dates & Hardcopy Requirements
OC-31	Continuity of Operations Plan	Draft 5 working days prior to SDR, with update as an attachment to SDR meeting OC-07, and Final at PSR.
OC-32	Configuration Control Tools (Software, Documentation, Training, and Maintenance)	Thirty (30) days prior to System Requirements Review. [Five (5) hardcopies of each document]
OC-33	Transition Plan	Draft 5 working days prior to SDR, with updates at the meeting, and Final as attachment to SDR meeting OC-07.
OC-34	Continuity of Operations Trade Study and Recommendations	Thirty (30) days prior to System Requirements Review. [Five (5) hardcopies of each document]
OC-35	Interface Requirements Specification	Draft 5 working days prior to SRR, with updates at the meeting, and Final as attachment to SRR meeting OC-07.
OC-36	Interface Design Documents	Draft 5 working days prior to SDR, with updates at the meeting, and Final as attachment to SDR meeting OC-07.

*OC ABI Project Scope of Work*779 **Appendix B: Glossary of Terms**

Term	Definition
AFIS	Automated Fingerprint Identification System
ANSI	American National Standards Institute (a governing body for US national standards)
ANSI Standard	Shorthand for the American National Standard for Information Systems – Data Format for the Standard for the Interchange of Fingerprint Information, Facial, and Other Biometric Information – Part 1
ANSI/NIST	A standard developed by NIST’s Information Technology Lab (ITL) using the ANSI procedures and registered with ANSI
CalDOJ	California Department of Justice
CDRL	Contract Deliverable Requirements List
CJIS	Criminal Justice Information System
CM	Configuration Management
CMP	Configuration Management Plan
COOP	Continuity of Operations Plan
COTS	Commercial-Off-the-Shelf
CPM	Contractor Project Manager
DHS	Department of Homeland Security
EBTS	Electronic Biometric Transmission Standard – adopted by a Domain (q.v.) as their implementation of the ANSI/NIST Standard
EFS	Extended Feature Set – a vendor-neutral set of descriptors used for latent encoding and searching across dissimilar AFIS systems
EFSG	EFS User Guidelines for Markup
EFTS	Electronic Fingerprint Transmission Standard – a term used when only fingerprints were being exchanged – now replaced by the term EBTS for ABIS systems; a Domain’s implementation of the ANSI/NIST Standard
FAT	Factory Acceptance Test
FBI	Federal Bureau of Investigation

OC ABI Project Scope of Work

Term	Definition
IAFIS	Integrated Automated Fingerprint Identification System – the FBI’s system for integrating fingerprint comparisons with criminal history record processing
ICE	U.S. Immigration and Customs Enforcement
ID	Identification
IMS	Integrated Master Schedule
LAN	Local Area Network
LCMS	Latent Case Management System
LIMS	Laboratory Information Management System
LITS	Latent Interoperability Transmission Specification
LT	Latent
MTBF	Mean Time Between Failures
NCIC	National Crime Information Center – an FBI Data System
NGI	Next Generation Identification system – the FBI’s multi-modal replacement for IAFIS
NIST	National Institute of Standards and Technology – part of the US Department of Commerce
OCCL	Orange County Crime Laboratory
OCSD	Orange County Sheriff-Coroner’s Department
ORI	Originating Agency Identification
PD	Police Department
OC ABI	Orange County Automated Biometric Identification
ORR	Operational Readiness Review
PMP	Project Management Plan
PMR	Project Management Review
PSR	Pre-Ship Review
QA	Quality Assurance
RMP	Risk Management Plan
RMA	Reliability, maintainability, and availability
S&F	Store and Forward

OC ABI Project Scope of Work

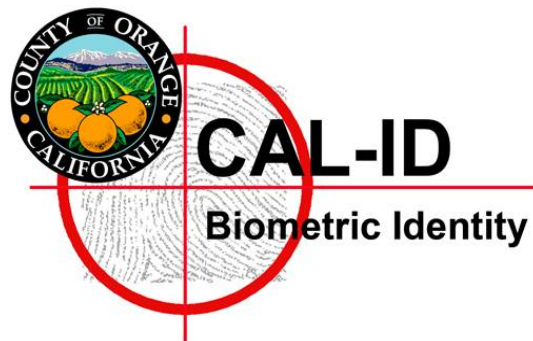
Term	Definition
SAR	Systems Acceptance Review
SAT	Systems Acceptance Test
SDR	System Design Review
SRR	System Requirements Review
SID	State Identification Number
SOW	Scope of Work
TCN	Transaction Control Number
TBD	To Be Determined
TEMP	Test and Evaluation Plan
TIM	Technical Interchange Meeting
TP	Tenprint
TOT	Type of Transaction
TRR	Test Readiness Review
UAT	User Acceptance Test
UPS	Uninterruptable Power Supplies
ULW	Universal Latent Workstation
USL	Unsolved Latent Repository – a file
WSQ	Wavelet Scalar Quantization – a compression method used for Type-4 and Type-14 records collected at 500 ppi.

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System Requirements Specification
for the
Orange County
*Automated Biometric Identification
System (OC ABI System)*



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OC ABI System Requirements Specification

1 Introduction

This document specifies the functional and technical requirements for the Orange County (OC) Automated Biometric Identification System (ABI System).

There are eight workflows that will be utilized by the Orange County Crime Lab (OCCL) California Identification Bureau (Cal-ID) staff, as displayed in Table 2. Those workflows that exist today have been translated from the existing NEC-based nomenclature into the non-provider-specific terminology that is used throughout this document.

Some of the new workflows are not the traditional, one-sequence-that-must-be-followed workflows. These include latent case management where an examiner can start any appropriate subtask and follow it with any other appropriate subtask in a non-deterministic way. For instance, a latent examiner might open a case, mark the region of interest and perform image pre-processing tasks; and then decide to go back and re-mark the region of interest and start image pre-processing again.

The current identification workflows follow very specific paths in the existing Cal-ID NEC-based environment; however, OCCL expects the ABI System will provide simplified workflows that will make use of new technologies and new processing techniques in providing increased flexibility for users and Cal-ID Administrators.

1.1 PURPOSE

This System Requirements Specification (SRS) describes the functional and technical requirements for the provision of a replacement system for OC and as such forms part of the RFP as well as establishes a baseline for use during the life of the replacement system. It will be placed under configuration control by the OCCL and maintained as part of the replacement system technical baseline.

1.2 DEFINITIONS, ACRONYMS, AND ABBREVIATIONS

The terminology used in this SRS, to include acronyms, is explained in Appendix A, Glossary of Terms.

1.3 REFERENCES

The current versions of the following documents are incorporated to the extent that they are explicitly referenced in this document. Externally controlled documents (e.g., the FBI CJIS Security Policy) are specified as to the exact version. Note that some of these documents might, in turn, reference other documents.

- California Livescan Transmission Specifications (May 2011)
- California Latent Transmission Specification (Pending CalDOJ publication)
- OCCL Cal-ID Network Environment Technical Specification (May 2011)

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- Information Technology: American National Standard for Information Systems' Data Format for the Interchange of Fingerprint, Facial, & Other Biometric Information-Part 1 (ANSI/NIST-ITL 1-2011)
- FBI/CJIS Electronic Biometric Transmission Specification Version 9.3 to include all referenced Appendices (Anticipated release Fall 2011)
- FBI Criminal Justice Information Services (CJIS) CJISD-ITS-DOC-08140-5.0, CJIS Security Policy, Version 5.0, dated February 9, 2011.
- Proposition 69, DNA Fingerprint, Unsolved Crime and Innocence Protection Act

1.4 OVERVIEW OF DOCUMENT

This SRS is organized into the following sections, as listed in Table 1.

Section Title	Scope
1 Introduction	Purpose of ABI System and introductory material
2 Overall System Description	Constraints, assumptions, dependencies, and guidelines for System development and use
3 System Functional Requirements: 1. Identification 2. Tactical 3. Forensic 4. Image Retrieval 5. Administrative	General high-level descriptions of the functional workflows
3.1 through 3.8 Functional Requirements	Detailed descriptions and requirements For each workflow: Input, Processing, and Output requirements.
4 Technical Requirements 1. Storage Capacity requirements 2. Performance requirements 3. Accuracy requirements 4. Safety requirements 5. Security requirements 6. Environmental requirements 7. Form & Fit requirements 8. Reliability, maintainability, and availability requirements	Detailed technical requirements

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Section Title	Scope
5 Qualification Requirements 1. Verification Methods 2. Verification Conditions	Criteria for acceptance testing
Appendix A: Glossary of Terms	List of terms and acronyms
Appendix B: Type of Transactions	List of Types of Transactions supported by the System
Appendix C : Table of Processing Parameters	List of processing parameters to be managed by Cal-ID Administrator
Appendix D: Table of Dissemination Fields	List of each Field that can be disseminated or viewed by others than the record owner or by “limited authorization” OCCL staff.
Appendix E: Reserved	
Appendix F: List of All Requirements	List of each requirement from the prior sections – the basis for the Requirements Verification Tractability Matrix (RVTM)

Table 1 Organization of this SRS

2 Overall System Description

For a number of years, OCCL has been aiming to modernize their ability to provide improved and additional identification / forensic services to the users in the county. The rationale is briefly discussed in the Concept of Operations (ConOps) document.

The current OCCL Cal-ID capability to store and compare friction ridge data is provided by an NEC AFIS21 System. The desire is to move to a system that not only deals with known and unknown friction ridge material but also supports:

- Receipt, storage, and forwarding of other biometric modalities, such as facial and iris images, as these and other capabilities become available on the FBI’s Next Generation Identification (NGI) system
- New CalDOJ and FBI types of transactions
- Other new record types as defined by ANSI/NIST-ITL 1-2011

There are no requirements that the new system offer the technical searching of these additional modalities (face and iris); however, the new ABI System should be poised to easily add modalities at later date(s). Currently, OC is not prepared to utilize matching capabilities in these additional modalities.

Additionally, OC desires a system that offers a central site disaster recovery plan to eventually permit OCCL to implement continuity of operations in the event of a natural and/or manmade disaster as well as in the case of critical hardware failures at the primary

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site. Other than normal backup and restore capabilities associated with system availability requirements there are no continuity of operations requirements associated with this SRS.

2.1 SYSTEM SERVICES

The overall ABI System will support several services. The high-level description of each service is listed below. The workflows associated with each service are detailed in Section 3.

Identification Services (Tenprint Criminal and other submittals) – provides services to OC local law enforcement agencies to search and link transactions where the biometric data matches an enrolled identity or establishes a new identity. Identification Services also include Tenprint Maintenance, which includes maintenance of all known friction ridge repositories (i.e., in the Archive, working files, and the matchers) as well as sealing / deleting records.

Tactical Services (Mobile ID and Rapid Identifications) – provides services to OC local law enforcement agencies and cross jurisdictional systems to rapidly identify subjects at the county level, and conditionally forwards the transactions onto the CalDOJ, national level, and/or cross jurisdictionally. These services are sometimes included in Identification Services when describing AFIS systems.

Forensic Services (Criminal or Disaster Victim Identification (DVI)) – links latent fingerprints and palmprints submitted with manual intervention from OC examiners or other authorized cross jurisdictional systems, as appropriate, to known enrollment identities. In the case of deceased persons where only low quality fingerprints are obtainable they are submitted as forensic services. The new system will provide a robust latent case management system (LCMS). These services are often described as Investigative Services when describing an AFIS system.

Image Retrieval Services – provides services to authorized OC local law enforcement agencies and cross jurisdictional systems to request and retrieve NIST records from the county level as well as at the national level. These requested images can be used for various purposes such as forensic matching and tenprint maintenance.

Administrative Services – supports the Cal-ID Administrators and supervisors with capabilities such as: adding new operators; changing passwords; adding and deleting users; and managing workflows. It is used for generating reports on overall System use and on specific encounter results.

2.2 OPERATING ENVIRONMENT

The ABI System central devices (matchers, servers, and storage devices) will be housed in the OCCL building in a computer room with a raised floor and additional air conditioning. The other deployed devices, such as workstations and printers, will have to operate in an office environment, which will limit acceptable noise and thermal characteristics of the equipment.

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103 **2.3 NETWORK INTERFACES**

104 Currently, the AFIS system operates in a complex set of networks controlled by different
105 organizations and not all are operating at the same security level. One task for the
106 selected provider will be to analyze the network environment and propose and develop /
107 install a new network that meets the technical requirements specified in this SRS as well
108 as the protocol and capacity requirements identified in their network analysis task.

109 **3 Functional Requirements**

110 This section provides the System functional requirements for the OC ABI environment.
111 As listed above, there are multiple high-level classes of service associated with the new
112 ABI System. The classes of services are:

- 113 • Identification
- 114 • Tactical
- 115 • Forensic
- 116 • Image Retrieval
- 117 • Administrative

118 Table 2 is a summary of all workflows. For each workflow, the appropriate service is
119 identified and some high-level characteristics are documented.

OC ABI System Requirements Specification

Workflow	Service	Characteristics
Workflow 01 (WF01): Tenprint Criminal & Other	Identification	Includes 1:1 and/or 1:n with optional forward to another AFIS; ABI System can include known palmprints in the case of criminal and other transactions. Mandatory logging of all submissions. Receipt/retention of multiple NIST responses, and conditional forwarding of responses to the originator.
WF02: Rapid Identification	Tactical	Includes 1:1 (optional) and /or 1:n and optional forwarding to another AFIS, and can also be received from other AFIS. Receipt/retention of multiple NIST responses, and conditional forwarding of responses to the originator.
WF03: Tenprint Maintenance	Identification	Includes updates, modifications, seals and deletions to known tenprint & palmprint records in the ANIS/NIST Archive and the matchers. These changes can optionally be forward to CalDOJ and the FBI. Mandatory logging. Receipt/retention of multiple NIST responses and conditional forwarding of responses to the originator.
WF04: NIST Image Retrieval	Image Retrieval	Includes NIST Image Requests from OC Agencies and/or other external AFIS, NIST Archive, returning responses to originator. Also supports forwarding OC agencies' requests to other AFIS and processing responses from other AFIS back to the originator. Mandatory logging, Audit trail generation/reporting.
WF05: Reverse and Latent Search Results Response	Forensic	Includes unsolicited notification results from the ABI System, OC agencies and/or other AFIS such as CalDOJ/FBI. These can be results of a reverse latent search, possible match against a retained latent or a delayed examiner hit/no-match determination notification. Reverse latent notifications require forwarding onto originating OC terminal and/or examiner ID for resolution. Mandatory logging and retention in ANSI/NIST Archive.
WF06: Latent Search-Forward	Forensic	Includes 1:1 and/or 1:n, finger and/or palms latent search, from OC Agencies or other external AFIS, returning NIST responses to originator. Optional update to unsolved latent Repository and ANSI/NIST Archive. Optional cascading latent search request to other AFIS systems based on latent examiners direction, conditional cascaded LT-LT or PLT-PLTs. Processing NIST responses from other AFIS and making them available through the Latent Case Management System.
LCMS: Latent Case Management	Forensic	Includes Latent Repository and ANSI/NIST Archive update and optional cascading of a maintenance transaction to another AFIS. This is the core of the Forensic services – examiners using ABI System latent services will have access to the LCMS tools, logs, and image and case management services.
Administrative Management	Administrative	Includes Administrative Functions that support the Cal-ID Administrator and supervisor with the capability to add, modify, and delete new operators, users, livescans and other AFIS, manages workflows defaults, thresholds, etc. for each TOT and requesting ORI (Originating Agency Identifier).

120 Table 2 ABI System Workflows Mapped to Services

OC ABI System Requirements Specification

Appendix B lists Types of Transaction (TOTs) mapped to the workflows referenced in Table 2, to include the normal inbound and response transactions and error transactions.

3.1 BUSINESS RULES

There is a set of business rules associated with the ABI System. These rules reflect the commonalities among the transaction types and the services offered by Cal-ID. The purpose of establishing and documenting business rules is to identify requirements that would normally be stated in more than one workflow and thus in the pursuit of clarity are only presented once but are referenced in the various workflows and technical requirements, as appropriate.

Business Rule ID #	Business Rule
BisRule001	Record ownership: Internal and external agencies will only be able view and print the Type-1 and Type-2 Fields and other record types including but not limited to Types 4,14, 10, 9, 13, 15, 20, and 21 as determined by the Cal-ID record dissemination parameters specified for the requesting examiner, ORI, and the requested record's TOT and ORI. The subset that non-owners and unauthorized OCCL staff can view is limited to the fields as specified in Appendix D. When the originating ORI is the same as the file records ORI, and/or the OCCL examiner is qualified to view the contents of the records, all fields present in the record will be available for review.
BisRule002	Master Cross-Index (MCI): The System will maintain and update the ABI System master cross index where: The MCI will only allow one active OCN per unique subject as identified by the OC ABI System and/or Cal-ID staff. When an Active OCN is returned as part of a candidate list, the OCN will be displayed in the candidate list and hyperlinked to the appropriate ANSI/NIST Archive record(s). All MCI activities (to include assignment and changes due to consolidations or record purges) are to be logged and retained indefinitely.
BisRule003	Number of events per subject in matchers: For fingerprints, the first three final records per active OCN are stored in the matchers directly; the fourth and subsequent final record enrolled will cause the system to generate a composite record with the best 20 fingers based on NIST Fingerprint Image Quality (NFIQ) scores and store it and the two most recent final records in the matchers. The ABI System is to store at least one final palmprint record set (full palm, upper, lower, and writers, when available) in the matchers per active OCN (all are to be latent cognizant). For palmprints, the first final record is to be stored directly; if a second or subsequent final palmprint (full, upper, lower, or writer's) is available and if it has a higher quality image(s), then it will replace the initially enrolled palm image(s) in the matchers. Note Well: For the composite fingerprint record in the matchers there will be no Type-2 merging or changes made in the ABI System.

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Business Rule ID #	Business Rule
	Definitions: Final: 1) When there are no changes made to the original “tenprint” submission throughout the ABI System processing, the original submission will be deemed the “final” submission. 2) When there are any changes made to the original submission, such as in Quality Control, the additional complete modified submission will be stored in the ANSI/NIST Archive and will be then deemed the “final” submission. Complete record: 1) Tenprint - represents all available fingers, including rolled, plains and/or flats (record Type 4 or 14), up to 20 fingers per submission. 2) Palm - represents a set of “full palms”, upper, lower, and writers when available (3 or 4 possible images per hand).
BisRule004	Verification Packets: Verification packages will include the original images and all candidate images and event information. Verification packages will be retained in the work queues for a predefined number of candidates to include the highest matcher scored OCN at the top of the candidate list. Multiple candidates bearing the same OCN will be consolidated into a single OCN “folder” with the highest scored submission or master being presented as one of the 10 candidates. Note: It is possible that a verification package for 10 candidates can contain up to 3 sets of images (2-20 images per set), per candidate, in the 10 OCN folders. All Auto Matches, Auto No-Matches and Indeterminate(s) are to be flagged accordingly and are subject to being manually changed by an examiner before a final determination is made.
BisRule005	Reserved
BisRule006	Check For Duplicate Transaction Control Number (TCN): The ABI System will check the TCN of each received transactions and compare it to the ANSI/NIST Archive and all work queues for TCNs to determine if the new TCN is a duplicate of TCNs previously accepted by the system or currently in process. All transactions with duplicate TCNs will be rejected with an error response transaction (ERRT). Note Well: There will be cases where a transaction will be rejected and the submitting agency will be asked to correct and to resubmit the transaction without changing the TCN. In these cases, since there is no previously accepted use of that TCN, the ABI System should accept it. Note Well: Criminal transactions, per Proposition 69, will lead to two transactions with the same TCN assignment. One will be an early search at CalDOJ of the plain impressions to determine if the subject needs DNA collection and then a normal criminal transaction will follow with the same TCN.
BisRule007	ANSI/NIST Archive Storage - The ABI System is to store the following: A complete copy of each “accepted” and “rejected” inbound transaction to the ABI System will be stored, including responses from the External AFIS. If any transaction is modified (e.g. sequence error corrections) during processing, a complete copy of the modified transaction will be added to the ANSI/NIST Archive. A complete copy of all responses generated by the ABI System will be added to the

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Business Rule ID #	Business Rule
	ANSI/NIST Archive. A complete copy of all transactions forwarded by the ABI System will be added to the ANSI/NIST Archive. A system user (tenprint, latent, admin, or supervisor) will be able to display and print a selected transaction or any specific records within a selected transaction exactly as captured, within the constraints of BisRule001.
BisRule008	Assignment of OCNs: The ABI System will automatically assign the next available sequential OCN to new subjects. OCN numbers will never be reused.
BisRule009	Printing Cards: When CalDOJ data fields are present, the ABI System will use the standard California fingerprint and palmprint card formats specific to the TOT found in the 1.04 Field (per CalDOJ card format specifications). When only FBI Fields are available, the ABI System will use the standard FBI fingerprint and palmprint card formats specific to the TOT found in the 1.04 Field (per FBI card format specifications). When printing cards, the ABI System will use an FBI Electronic Biometric Transmission Standard (EBTS) Appendix F certified printer.
BisRule010	Temporary ABI System Storage: The ABI System uses temporary storage to buffer a copy of each transaction received. Only after all internal and external responses are finished (i.e. ABI System, CalDOJ, FBI, DHS, other, etc.), and the settable period of time (up to 30 days) has elapsed can all temporary files and/or QC & Verification packets be automatically deleted from temporary storage. If the temporary storage is full, the ABI System will overwrite the oldest record and send the administrator a notification.
BisRule011	Dynamic Workflow Assignments and Logging: Each of the processing workflows will be dynamically determined by the “processing parameters” for each submission by originating ingested TOT, ORI (Originating Agency Identifier), and LSID (Live Scan Identification number). This will include parameters that control field parsing, record/field entry defaults, Quality Control parameters, verification match/no-match thresholds, priority defaults, Repository retention, Archive retention, auto-cascaded reverse latent searches or not, and response dissemination. A complete copy of these processing parameters will be included in the activity logs for each submission, linked to the associated transaction TCN. The design and implementations of these parameters will be left up to the selected vendor. The initial values will be established during the development phase.
BisRule012	Cross-Jurisdictional Searches: The ABI System will: Ingest such in-bound transactions (TP-TP, LT-TP, and LT-KP), add them to the archive, process them locally, and return identification decisions or candidates to the submitters based on whatever agreement has been negotiated. Retain is always set to N and priority is always set to 9 – unless an agreement has been reached with the external system giving them retention rights for unsolved latents or higher priorities, in which case the system will use

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Business Rule ID #	Business Rule
	the defaults for that business partner's transactions. Permit users to create and send outbound TP-TP and forward latent searches to other systems and receive and process the responses using either the Extended Feature Set (EFS) or an appropriate Type-9 encoding. BisRule007 applies to all cross-jurisdictional searches.

Table 3 OC Business Rules

3.2 ABI SYSTEM IDENTIFICATION SERVICES

As delineated in Table 2, the Identification Services include three workflows (WF01, WF02, and WF03). Each workflow is defined and its requirements stated in this section. Cal-ID Identification Services use newly collected fingerprint data from subjects to launch searches of prior enrollments to determine if the subject has been previously enrolled in the Cal-ID, CalDOJ, and FBI/National Systems or other cross jurisdictional systems.

3.2.1 Functional Requirements – WF01 – Tenprint Normal

This section outlines the functional requirements for the various inputs, processing, and outputs of tenprint identification services. This workflow is the core of the ABI System's Identification Services as all criminal transactions and some others (e.g., deceased known and unknown) are processed here.

3.2.1.1 WF01 Inputs

The tenprint identification transaction data will be electronically transmitted as CA-EBTS or FBI EBTS files. Inked forms will be converted to appropriate transaction types and are handled by requirements WF01InputReq001 through WF01InputReq004. These paper-to-digital capture requirements can also be used to support Workflows 02 and 03.

In response to Proposition 69, the "DNA Fingerprint, Unsolved Crime and Innocence Protection Act", Cal-ID will perform a pre-enrollment search at CalDOJ for each criminal transaction. The purpose of this "lights-out early search" is to determine if the subject has already had a DNA sample collected. If not, the CalDOJ response will advise the booking facility to collect a DNA sample and label it with the provided information. If the DNA had already been provided, a response will be returned so indicating. These early transactions will include only plain impressions and will be routed by the ABI system S&F functionality directly to CalDOJ, bypassing the matchers. The actual enrollment transaction will have the same TCN as the early pass-through transaction.

Table 4 lists Types of input Transactions (TOTs) associated with Workflow 1.

TOT	Transaction Name
AMN	Amnesia Victim

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TOT	Transaction Name
APP	Applicant
CRM	Criminal Tenprint Submission
CUS	Custody
DCD	Deceased
DNA	DNA Notification Search
IDN	Identification Only
MPR	Missing Person
REG	Violent Offender Registration (Sex, Drug, Arson, etc.)

158 Table 4 WF01: Identification TOTs Supported

159 The ABI System ingested records will be parsed for compliance with the CalDOJ EBTS
 160 or external FBI EBTS depending on the originating TOT, ORI and Destination Agency
 161 Identifier (DAI). Per BisRule011, those submissions that comply with the required fields
 162 will then be checked for image quality (including calculating and saving the individual
 163 rolled finger NIST Fingerprint Image Quality (NFIQ) scores and performing sequence
 164 checks) as appropriate to BisRule011. Transactions that fail the parsing test will be
 165 logged and returned to the originating agency with a corresponding NIST error response.

166 Where transactions fail the image quality checks, any encountered problems will be
 167 conditionally forwarded to a fingerprint examiner for Quality Control (QC) or
 168 automatically returned to the submitting agency with the corresponding NIST error
 169 response. The QC operator will be able to select quality control error notices from a pull
 170 down list and/or selectively return an automatically generated corresponding NIST error
 171 response. If the transactions are for applicants, other than those indicated in their
 172 processing parameters as being locally searched (e.g., law enforcement applicants), they
 173 will go through all Input steps but then be sent directly to the CalDOJ AFIS, by-passing
 174 the ABI System processing.

175 For accepted transactions, the ABI System will evaluate the image quality of Type-10
 176 facial images relative to the ANSI/NIST-ITL 1-2011 Annex E Subject Acquisition
 177 Profile (SAP) level 30 per Section 7.7.5.1. The evaluation ratings will be saved with the
 178 archived records and in a data file from which reports can be generated at the ORI and
 179 LSID levels.

180 Accepted, modified, and rejected transactions will be preserved indefinitely in
 181 ANSI/NIST Archive (repository) of transactions per BisRule007.

182 Table 5 lists the Cal-ID Identification Function Input Requirements for Workflow 01.

Requirement ID #	Requirement
WF01InputReq001	For paper forms submitted, the ABI System SHALL support: The ability for the operator to select from a menu of sets of card or paper forms, where the default will be dynamically set to the last processed set of forms.

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Requirement ID #	Requirement
	The ability for the operator to select from a menu of TOTs (as identified in Tables 4, 8, and 12), where the default will be set to the last processed TOT. Scanning of the front and back sides (where information is found) of friction ridge forms at 250 or 300 ppi and creating the Type-20 record(s), compressed at 10:1 using JPEG 2000. Create an automated assignment of a unique TCN that can be optionally overwritten by the Cal-ID operator. Display first side of any double sided form to the operator and support active key entering while the other side or additional cards (e.g., a palmprint card) are being scanned. After scanning is complete, allow the operator to view the scanned images.
WF01InputReq002	For paper forms submitted the ABI System SHALL provide the user with: The capability of automatically scanning the image portions of the fingerprint and/or palmprint forms at 1,000 ppi using FBI certified Appendix-F scanner systems with standard FBI compression guidelines. The capability of automatically scanning the image portions of the fingerprint and/or palmprint forms at 500 ppi using FBI certified Appendix-F scanner systems with no compression. Automatically assigning the image(s) to Type 14/15 records.
WF01InputReq003	For paper forms submitted the ABI System SHALL provide the user with: The capability of entering Type 1 and Type 2 Field specific texts to an operator selected TOT and Destination Agency Identifier (DAI), per the corresponding CA/FBI EBTS. Linking the text Fields (Types 1 and 2) with the appropriate scanned images [WF01InputReq001 & WF01InputReq002]. The ABI System will perform data validations as the operator is entering data, such as date tests, etc. and notify operator at the time of any deficiency The ABI System will perform completed package checks to confirm all of the “required” fields and multiple field relationships have been properly populated. Double Key entry Verifications will be required based on the default processing parameters associated with the TOT selected.
WF01InputReq004	For paper forms submitted, after scanning and text entry are complete the ABI System SHALL automatically create an ANSI/NIST Transaction with the Record Types 1, 2, 14, 15 (if palms are present), and 20 and put them in the queue for ingesting into the appropriate Workflow (01, 02, or 03).
WF01InputReq005	The ABI System SHALL be able to: 1. Ingest EBTS transactions as listed in Table 4, both electronically submitted transactions and transactions created in WF01InputReq004 2. Parse for compliance with the selected EBTS transaction definitions per the processing parameters for the submitted TOT and ORI, then log the results per BisRule011 3. Check for adherence to annotations for missing images (e.g., AMP)

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Requirement ID #	Requirement
	4. The ABI System will return the appropriate NIST response with detailed error descriptions per CA/FBI guidelines for those that fail step 2 or 3 above. The results are to be returned, as appropriate, logged, and the transaction removed from this Workflow.
WF01InputReq006	The ABI System SHALL generate NFIQ scores for each finger (rolled and/or flats).
WF01InputReq007	The ABI System SHALL automatically assign pattern classification(s) to each finger image (whorl, right loop, left loop, arch, unknown).
WF01InputReq008	The ABI System SHALL perform quality checks using the ingested friction ridge images against quality threshold processing parameters per BisRule011.
WF01InputReq009	The ABI System SHALL conditionally forward the transactions that fail the automated quality checks [WF01InputReq008] to appropriate examiner work queues for examiner-assisted QC or conditionally reject the submission per processing parameters based on the ingested TOT and ORI. All rejected are to be removed from this Workflow after sending the appropriate ANSI/NIST response transaction.
WF01InputReq010	The ABI System SHALL permit examiners to selectively pick a transaction from the QC queue and present the selected transaction's images within 4 seconds of the selection.
WF01InputReq011	The ABI System SHALL provide support to examiners in performing QC activities: - Adjust sequence: § From Plain to Rolled § From Rolled to Rolled § Whole hand swap - Correct or establish the pattern - Center images - Correct annotations - Provide an ability to reject a transaction by: § Supporting the operator with the ability to select a table of reasons from a list or enter a reason via the keyboard § Automatically generate the appropriate NIST error response back to the originator
WF01InputReq012	The ABI System SHALL record in a system log all quality checks (automated and manual) results and make them available for review. The results to be logged include all Type 1 and Type 2 record Fields, as well as: - Automated QC § Fingerprint quality score per NFIQ and the NFIQ algorithm version § Rolled sequence results against the plains § Presence of spurious fingers and palms § Presence of annotations when no images are present § Original annotations § Automated pattern call(s) § Rejected transaction(s) - Manual QC

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Requirement ID #	Requirement
	§ Pattern classifications after manual QC § Manual sequence adjustments § Manual image adjustments § Annotations after manual QC § Rejected transaction(s)
WF01InputReq013	The ABI System SHALL be able to respond to rejected transactions via an EBTS error transaction (corresponding response error TOT for the ingested TOT and ORI, per Appendix B).
WF01InputReq014	The ABI System SHALL create a modified submission in the ANSI/NIST Archive when the QC operator changes anything in a transaction. The modified submission will be deemed the “final” submissions per BisRule007.
WF01InputReq015	The ABI System SHALL rate any Type-10 frontal facial images in the accepted “final” transactions per the ANSI/NIST 1-2011 Annex E SAP 30 in terms of pass or fail and record the results in a searchable data file.
WF01InputReq016	The ABI System SHALL forward the acceptable transactions: • An applicant transmission (other than those with processing parameters indicating a local search) will go directly to the CalDOJ AFIS, bypassing the Cal-ID ABI System • All others will go onto the ABI System for processing.

183 Table 5 WF01: Identification Services Input Requirements

184 3.2.1.2 WF01 Processing

185 The ABI System will process identification transactions received from internal and
 186 external interfaces. The various biometric modality data (fingerprint and palmprints) will
 187 be sent to the appropriate matchers for searching. Successful transactions (i.e., that pass
 188 the parser and image quality checks) will be conditionally sent to the Local Arrest Record
 189 System (LARS) for a name search inquiry and the resulting possible match OCN will be
 190 sent to the matchers. The logs and ANSI/NIST Archive will be updated for each
 191 exchange with LARS.

192 When a name-based 1:1 candidate comparison receives a certain level of matcher score,
 193 [Threshold 1] the System can declare a match known as a “lights out” match; likewise,
 194 when the 1:n matcher score is above a settable auto-match score [Threshold 2] the
 195 System can declare a “match”. A separate name search no-match threshold [Threshold 3]
 196 below which all 1:1 scores are indicative of a “no match” will also be settable. A separate
 197 1:n search threshold [Threshold 4] below which all 1:n scores are indicative of a “no
 198 match” will also be settable.

199 Based on a combination match decision, the ABI System will update the matchers and
 200 directories per BisRule003 and make the results available to the originator. Based on the
 201 submittal data, the transaction may or may not be forwarded to CalDOJ, other cross
 202 jurisdictional systems, the FBI and other national systems or via the FBI to international

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203 systems for further searching. In the case of new enrollees, the OCN will be established
 204 by the ABI System per BisRule008.

205 Table 6 lists the Tenprint Identification Services Processing Requirements.

Requirement ID #	Requirement
WF01ProcReq001	The ABI System SHALL “feature extract” all friction ridge images .
WF01ProcReq002	The ABI System SHALL : 1. Create appropriate internal TP-TP searches per BisRule003. 2. Automatically cascade TP-LT and KP-PLT internal reverse latent searches based on BisRule011.
WF01ProcReq003	The ABI System SHALL automatically execute all searches created in WF01ProcReq002.
WF01ProcReq004	The ABI System SHALL be able to conditionally forward the internal TP-TP transactions to the LARS System to solicit any possible name-based candidates via an EBTS transaction using the appropriate ANSI/NIST transaction.
WF01ProcReq005	The ABI System SHALL be able to ingest LARS name search responses from the LARS system using the appropriate ANSI/NIST transaction.
WF01ProcReq006	The ABI System SHALL conditionally update the “final” transaction with information from the LARS and create a modified submission that will be used for downstream processing (see definitions in BisRule003).
WF01ProcReq007	The ABI System SHALL update the log entry and ANSI/NIST Archive for each LARS transaction with the Type 1 and Type 2 information (WF01ProcReq004 through WF01ProcReq006).
WF01ProcReq008	The ABI System SHALL automatically execute all 1:1 matches using the possible match OCN(s) returned from LARS.
WF01ProcReq009	The ABI System SHALL create a verification package and move it to a work queue for all submissions independent of Auto No-Match, No-Match, or Indeterminate(s) per BisRule004.
WF01ProcReq010	If the TP-TP matcher score for a name-based searched 1:1 candidate is above a settable threshold [Threshold 1], the ABI System SHALL automatically declare a match on that submission.
WF01ProcReq011	If the TP-TP matcher score for a 1:n candidate is above a settable threshold [Threshold 2], the ABI System SHALL automatically declare a match for that candidate OCN.
WF01ProcReq012	If the matcher scores and verification scores for all 1:n candidates are below a settable threshold [Threshold 3] and the matcher scores for all 1:1 candidates are below a settable threshold [Threshold 4], the ABI System SHALL automatically declare a no-match result for the submission.
WF01ProcReq013	If there is more than one automatic match for disparate OCNs then the ABI System SHALL mark the submissions indicator in the appropriate examiner work queues for conditional examiner-assisted verification.

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Requirement ID #	Requirement
WF01ProcReq014	If there are any 1:n candidates with scores between Thresholds 2 and 3 or if there are any 1:1 candidates with scores between Thresholds 1 and 4, the ABI System SHALL mark a submissions indicator in the appropriate examiner work queues for conditional examiner-assisted verification.
WF01ProcReq015	The ABI System SHALL allow examiners to selectively pick a transaction from the Verification queue and present the selected transaction's images for at least the search prints and the first candidates within 4 seconds of the selection.
WF01ProcReq016	The ABI System SHALL provide support for examiners to verify candidates for searches selected from the queue and to selectively manipulate the original image and the candidate image separately or in synchrony (i.e., zoom, magnify, and rotate; and adjust contrast, brightness, and sharpness) as well as use hyperlinked fields in the candidate entries to go to the Master ID cross-reference file or to a specific archived transaction within the constraints of BisRule001.
WF01ProcReq017	The ABI System SHALL permit examiners to print any search or candidate fingerprint set with Type 1 and Type 2 data per BisRule001 and BisRule009.
WF01ProcReq018	The ABI System SHALL permit an examiner to change any automated determinations to a manual decision (i.e. Auto-Match to Manual No-match, Auto No-Match to a Manual Match).
WF01ProcReq019	The ABI System SHALL permit examiners to determine when more than one match determination will result in a consolidation process. The examiner can select the "target" OCN that one or more OCN and folder contents will be automatically merged with.
WF01ProcReq020	Reserved
WF01ProcReq021	In the case of a completely automatic and/or manual No-Match decision, and the processing parameters indicate a new OCN should be established, the ABI System SHALL establish a new OCN per BisRule008.
WF01ProcReq022	The ABI System SHALL conditionally forward the submissions automatically onto LARS, Automated Jail System (AJS), CalDOJ, the FBI or other cross jurisdictional systems per the processing parameters for the ingested TOT and ORI and match results. 1. The LARS will be sent the completed package including the resulting OCN placed in the OCN field for all criminal related submissions. 2. The AJS will be sent the completed package including the resulting OCN placed in the OCN field for all criminal related submissions originating from the OC Sheriffs Jail. 3. The submissions are forwarded onto CalDOJ with the resulting OCN. CalDOJ will then conditionally forward them onto the FBI or other cross jurisdictional systems.
WF01ProcReq023	The ABI System SHALL ingest all NIST response transactions from CalDOJ, FBI, DHS, and any other authorized systems where an OC search was forwarded.
WF01ProcReq024	The ABI System SHALL store an original copy of all submissions forwarded in the ANSI/NIST Archive per BisRule007.

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Requirement ID #	Requirement
WF01ProcReq025	The ABI System SHALL update the MCI for each subject enrolled to include links to all successfully processed transaction TCNs, prepared and received responses, consolidated OCNs, and all ABI System matcher identity tables per BisRule002 and BisRule008.
WF01ProcReq026	The ABI System SHALL update the matchers with the “final” submissions per BisRule003 per processing parameters.
WF01ProcReq027	The ABI System SHALL automatically log all search transactions results to include the original Type 1 and Type 2 fields, time received, time at end of processing, and identity decision.

Table 6 WF01: Identification Services Processing Requirements

3.2.1.3 WF01 Outputs

The ABI System will prepare and send NIST compliant responses for all appropriate transactions received at the ABI Systems (i.e., from livescans, card scans, LARS, etc.). If the transaction failed to pass the various checks above then the ABI System will have produced an error message in the stages above. This section deals with requirements for transactions processed at the ABI System without errors and the ABI System processing of all responses received from CalDOJ, the FBI or other external systems – with or without errors.

Table 7 lists the Cal-ID Identification Services Output Requirements.

Requirement ID #	Requirement
WF01OutReq 001	The ABI System SHALL automatically generate and return the appropriate response for the ingested TOTs per the processing parameters back to the originating agency address as specified in the OC ORI table. The responses will contain the originating TCN in the Transaction Control Reference (TCR) and the response TCN will contain the originating TCN followed by a unique incident number. Where the subject was successfully searched the responses will contain the results (for Match and No-match) and the resulting OCN.
WF01OutReq 002	The ABI System SHALL automatically forward authorized external system responses onto the originating agency per processing parameters by adjusting the ORI and DAI of the transaction.
WF01OutReq 003	Reserved
WF01OutReq 004	The ABI System SHALL automatically log all transactions and responses per BisRule007 and BisRule011.

Table 7 WF01: Identification Services Output Requirements

3.2.2 Functional Requirements –WF02– Tactical Services

This section outlines the functional requirements for the various inputs, processing, and outputs of tactical services. Given the tactical nature of these electronic transactions and the criticality of receiving a rapid response, this workflow does not include manual or

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221 automated QC, LARS name checks, verification, or automated identification decisions.
 222 For this workflow, the ABI System will return up to 5 candidates and, if available, the
 223 candidates' facial images.

224 3.2.2.1 WF02 Inputs

225 The Tactical identification transaction data will be transmitted as electronic CA or FBI
 226 EBTS files into the ABI System for preprocessing. Inked forms will not be accepted –
 227 they will instead be directed to WF01.

228 Table 8 lists the initial types of input transactions (TOTs) associated with Workflow 02.

TOT	Transaction Name
PIR	Personal Identification Request
QID	Quick ID
RPIS	Rapid Fingerprint Identification Search
TFS	CalDOJ Mobile ID
TPIS	Tenprint Fingerprint Image Search

229 Table 8 WF02: Tactical Services TOTs Supported

230 The ABI System will parse records for compliance with the corresponding CA or FBI
 231 EBTS and for duplicated TCNs. Transactions that fail the parsing test will be logged and
 232 returned to the submitting agency with an appropriate NIST response TOT.

233 These submissions will be processed as quick turnaround transactions. The default
 234 priority will be set by the ABI System processing parameters per TOT and ORI. For
 235 example, a TPIS from an outside AFIS ORI such as Western Identification Network
 236 (WIN) or another California county will generally be defaulted to the lowest priority of
 237 nine, but when an OC Mobile ID device is submitting a TPIS, these will generally be set
 238 to the highest priority of one. Those transactions that comply with the parsing criteria will
 239 be conditionally stored in the ANSI/NIST Archive and forwarded onto the match process.

240 Table 9 lists the Tactical Services Input Requirements.

Requirement ID #	Requirement
WF02InputReq 001	The ABI System SHALL be able to: 1. Ingest EBTS Tactical submissions initially listed in Table 8 using BisRule011 2. Parse for compliance with the selected EBTS transaction definitions per the processing parameters for the submitted TOT and ORI, then log the results and the processing parameters 3. Check for adherence to annotations for missing images The ABI System will return the appropriate NIST error response with detailed error descriptions per CA/FBI guidelines for those that fail step 2 or 3 above.

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Requirement ID #	Requirement
WF02InputReq 002	The ABI System SHALL forward the acceptable transactions onto the ABI System for Processing.

241 Table 9 WF02: Tactical Services Input Requirements

242 3.2.2.2 WF02 Processing

243 The ABI System will process Tactical transactions received from internal and external
 244 interfaces. The fingerprint images will be feature extracted and searched “without add”
 245 to the repository, but will be conditionally retained in the ANSI/NIST Archive per the
 246 processing parameters. Matcher result candidates will be made available to the originator
 247 via EBTS responses. The logs and ANSI/NIST Archive will be updated for each
 248 exchange.

249 Table 10 lists the Tactical Services Processing Requirements.

Requirement ID	Requirement
WF02ProcReq001	The ABI System SHALL “feature extract” the fingerprint images.
WF02ProcReq002	The ABI System SHALL create appropriate internal TP-TP searches into the matchers per BisRule003.
WF02ProcReq003	The ABI System SHALL automatically execute all searches created in [WF02ProcReq 002].
WF02ProcReq004	The ABI System SHALL create a verification package and move it to a verification queue per BisRule004.
WF02ProcReq005	The ABI System SHALL provide support for examiners to review candidates for searches selected from the queue for up to 30 days after the results have been returned to the submitter. Note well: this step is not in-line with the flow of tactical transactions.
WF02ProcReq006	The ABI System SHALL conditionally forward the submissions automatically onto CalDOJ, the FBI or other cross jurisdictional systems per the processing parameters for the ingested TOT and ORI and match results. The submissions are conditionally forwarded onto CalDOJ. CalDOJ will then conditionally forward them onto the FBI or other cross jurisdictional systems.
WF02ProcReq007	The ABI System SHALL store an original copy of all submissions forwarded in the ANSI/NIST Archive per BisRule007.
WF02ProcReq008	The ABI System SHALL ingest all NIST response transactions from CalDOJ, FBI, DHS, and any other authorized systems where an OC tactical search was forwarded.
WF02ProcReq009	The ABI System SHALL automatically log all search transactions results to include the original Type 1 and Type 2 Fields, time received, time at end of processing, and the response message.

250 Table 10 WF02: Tactical Services Processing Requirements

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3.2.2.3 WF02 Outputs

The ABI System will prepare and send NIST compliant responses for all appropriate transactions received at the ABI System. If the transaction failed to pass the various checks above, then the ABI System will have produced an error message in the stages above. This section deals with requirements for transactions processed at the ABI System with and without errors and the ABI System processing of all responses received from CalDOJ, the FBI or other external Systems.

Table 11 list the Tactical Services Output Requirements

Requirement ID	Requirement
WF02OutReq 001	The ABI System SHALL automatically generate and return the appropriate response for the ingested TOTs per the processing parameters back to the originating agency address as specified in the OC ORI table: - For successfully searched transactions, responses include the top five candidates above Threshold 3 with a facial image for each candidate, if available. - If there are no candidates above Threshold 3 then return a no-candidate response.
WF02OutReq 002	Reserved
WF02OutReq 003	The ABI System SHALL automatically forward authorized external system responses (candidates or errors) onto the originating agency per processing parameters by adjusting the DAI of the transaction and log them per BisRule007 and BisRule011.
WF02OutReq 004	Reserved

Table 11 WF02: Tactical Services Output Requirements

3.2.3 Functional Requirements –WF03– Tenprint Maintenance

This section outlines the functional requirements for the various inputs, processing, and outputs of tenprint maintenance services. Tenprint maintenance covers a myriad of services and the workflow is not a traditional one with a start point, decisions-based branches, and a well defined end point. Rather, administrators and supervisors can enter the maintenance function to perform one or more of the following activities:

- Image updates
- Delete or seal records
- Add subsequent updates to an already enrolled transaction

3.2.3.1 WF03 Inputs

Delete or Seal Records: This tenprint maintenance transaction can be created dynamically by the tenprint supervisor using the ABI System's internal commands. The transactions will be logged and added to the Archive.

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273 **Subsequent Updates:** This tenprint maintenance transaction will be electronically
 274 submitted as a CA-EBTS transaction when the submitting agency determines that a
 275 factual error was made in the original submission (e.g., the wrong sex was marked for a
 276 subject).

277 **Note well:** The baseline system requirements do not include any requirements for a
 278 formal facial image management capability – beyond what is available in the proposed
 279 baseline commercial-off-the-shelf (COTS) solutions.

280 Table 12 lists the types of input transactions (TOTs) associated with Workflow 03.

TOT	Transaction Name
SUP	Subsequent Update

281 Table 12 WF03: Tenprint Maintenance Services TOTs Supported

282 The ABI System ingested records will be parsed for compliance with the CalDOJ EBTS
 283 or external FBI EBTS depending on the originating TOT and ORI. Transactions that fail
 284 the parsing test will be logged and returned to the originating agency with a
 285 corresponding NIST error response.

286 Those submissions that comply with the parsing and contain friction ridge images will be
 287 checked for image quality (including calculating and saving the individual rolled finger
 288 NIST Fingerprint Image Quality (NFIQ) scores and performing sequence checks, if
 289 appropriate to the number of images in the transaction).

290 Then the transactions will be conditionally preserved indefinitely in ANSI/NIST Archive
 291 (repository) of transactions per BisRule007.

292 Table 13 lists the Tenprint Maintenance Input Requirements for Workflow 03.

Requirement ID #	Requirement
WF03InputReq001	Reserved
WF03InputReq002	Reserved
WF03InputReq003	Reserved
WF03InputReq004	Reserved
WF03InputReq005	The ABI System SHALL be able to: 1. Ingest EBTS transactions as listed in Table 12 2. Parse for compliance with the selected EBTS transaction definitions per the processing parameters for the submitted TOT and ORI, then log the results and the processing parameters 3. Check for adherence to annotations for missing images 4. The ABI System will return the appropriate NIST response with detailed error descriptions per CA/FBI guidelines for those that fail step 2 or 3
WF03InputReq006	The ABI System SHALL generate NFIQ scores for each finger (rolled and/or flats) image to be updated.
WF03InputReq007	The ABI System SHALL automatically assign pattern classification(s) to each

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Requirement ID #	Requirement
	finger image (whorl, right loop, left loop, arch, unknown) image to be updated.
WF03InputReq008	Reserved
WF03InputReq009	The ABI System SHALL reject any submission that fails the image quality checks, per processing parameters based on the ingested TOT and ORI, all others will continue through maintenance processing.
WF03InputReq010	The ABI System SHALL be able to respond to rejected transactions via an EBTS error transaction (corresponding response error TOT for the ingested TOT and ORI), see Appendix B.
WF03InputReq011	The ABI System SHALL forward the acceptable transactions onto the ABI System Processing.

293 Table 13 WF03: Tenprint Maintenance Services Input Requirements

294 3.2.3.2 WF03 Processing

295 The ABI System will process maintenance transactions received from internal and
296 external interfaces.

297 **Delete or Seal Records:** The ABI System will support the tenprint supervisor in
298 selecting transactions to be deleted or sealed using a workstation command screen. The
299 ABI System will perform the requested action and mark the records as sealed or deleted.

- 300 • In the case of sealed records, the record will remain in the Archive but not be
301 accessible through any search mechanism (e.g., TCN or OCN search) other than
302 by the supervisors and the records will be removed from the matchers to include
303 removal from any composite, best image set.
- 304 • In the case of deleted records, the records will be removed from the Archive and
305 the matchers to include removal from any composite, best image set seven days
306 after the request is submitted. The log will be updated to reflect the action taken,
307 the reason for it, and the name of the person who took the action.
- 308 • It is understood that copies of sealed and deleted records will exist for a period of
309 time in backup files. Over time, as routine full system backups are created these
310 records will reflect the current system status of sealed or deleted.

311 **Subsequent Updates:** The ABI System will permit these updates to change a record but
312 per BisRule007 the “final” record will be archived and linked to the appropriate OCN. If
313 the original transaction was forwarded to CalDOJ then these transactions will be
314 forwarded to CalDOJ.

315 Table 14 lists the Tenprint Maintenance Services Processing Requirements.

Requirement ID	Requirement
WF03ProcReq001	The ABI System SHALL “feature extract” all friction ridge images.
WF03ProcReq002	The ABI System SHALL create appropriate internal 1:1 TP-TP search requests per BisRule003.

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Requirement ID	Requirement
WF03ProcReq003	The ABI System SHALL automatically execute all searches created in WF03ProcReq002.
WF03ProcReq004	If the TP-TP matcher score for a searched 1:1 candidate is above a settable threshold [Threshold 1] then the ABI System SHALL automatically declare a match on that submission and submit it for further maintenance processing.
WF03ProcReq005	If the matcher score for a 1:1 search is below a settable threshold [Threshold 4], the ABI System SHALL automatically declare a no-match result for the submission and reject it for maintenance processing with the appropriate error message.
WF03ProcReq006	The ABI System SHALL provide the tenprint supervisor with a command screen that permits records to be selected by OCN and TCN and seal them at the OCN or TCN level by: 1. Marking all copies in the Archive inaccessible to anyone through any search mechanism (e.g., TCN or OCN search) other than authorized supervisors. 2. Removing all feature sets associated with the sealed transaction from the matchers to include from any composite, best image sets. 3. Conditionally forward a Biometric Delete (BDEL) transaction to CalDOJ if the transaction had previously been submitted there.
WF03ProcReq007	The ABI System SHALL provide the tenprint supervisor with a command screen that permits records to be selected by OCN and TCN and delete them at the OCN or TCN level seven days after the command is selected, by: 1. Deleting all copies in the Archive or any other files on the system. 2. Removing all feature sets associated with the deleted transaction from the matchers to include from any composite, best image sets. 3. Conditionally forward the BDEL transaction to CalDOJ if the transaction had previously been submitted there.
WF03ProcReq008	If the search results in a match [WF03ProcReq004] and the TOT = SUP, the ABI System SHALL automatically: 1. Update the record's information in all system locations to include the Archive per BisRule007 all copies in the Archive inaccessible to anyone other than authorized supervisors. 2. Forward the transaction to CalDOJ, if the original transaction was submitted to CalDOJ.
WF03ProcReq009	Reserved
WF03ProcReq010	The ABI System SHALL store an original copy of all submissions forwarded in the ANSI/NIST Archive per BisRule007.
WF03ProcReq011	The ABI System SHALL store an original copy of all responses received in the ANSI/NIST Archive per BisRule007.
WF03ProcReq012	The ABI System SHALL update the MCI for each subject enrolled to include links to all successfully processed transaction TCNs, prepared and received responses, consolidated OCNs, and all ABI System matcher identity tables per BisRule002 and BisRule008.

OC ABI System Requirements Specification

Requirement ID	Requirement
WF03ProcReq013	The ABI System SHALL automatically log all maintenance transaction results to include the original Type 1 and Type 2 Fields, time received, time at end of processing per BisRule007 and BisRule011.
WF03ProcReq014	The ABI System SHALL permit the supervisor(s) to select and review all transactions marked for deletion that have not yet been deleted and selectively remove them from the delete queue.

Table 14 WF03: Tenprint Maintenance Services Processing Requirements

3.2.3.3 WF03 Outputs

The maintenance requests produce output when they are parsed and quality checked upon ingesting and when problems are encountered during processing. There are no other outputs from the workflow.

Requirement ID	Requirement
WF03OutReq 001	Reserved

Table 15 WF03: Tenprint Maintenance Services Output Requirements

3.3 ABI SYSTEM NIST IMAGE SERVICES

Cal-ID NIST Image Services supports authorized internal and external requests for tenprint and/or latent records and images from the OC ABI System ANSI/NIST Archive. This includes another sub workflow that:

- 1) Manages OC agencies requests for NIST records and images from other AFIS such as CalDOJ, FBI, and WIN
- 2) Accepts the external system responses and forwards those responses back to the originator

3.3.1 Functional Requirements –WF04– NIST Image Retrieval

This section outlines the functional requirements for the various inputs, processing, and outputs of NIST image retrieval services.

3.3.1.1 WF04 Inputs

This workflow permits authorized OC ABI System examiners and other authorized external AFIS examiners to retrieve NIST conformant image sets and archived NIST responses (e.g., in support of audit trail investigations) from the ABI System as well as from the CalDOJ AFIS system and the FBI.

For a known subject record/image request from the OC ABI System, the originator will send the OCN, TCN/BKN (booking number), CII and/or FBI number associated with the subject and/or for a specific event. For latent record/image requests from the OC ABI

OC ABI System Requirements Specification

System the submitter will send the Latent Case Number and lift number, and/or TCN associated with the latent and/or for a specific event.

Additionally, this workflow also permits authorized OC examiners to forward Image Retrieval requests to other AFIS using the local agency ID, LCMS, CII and/or FBI number associated with the record from the other AFIS. The transaction can be launched for the following reasons:

1. To determine whether a better fingerprint image can be obtained for use in Functional Requirements –WF03– Tenprint Maintenance
2. To launch a search with the returned image using Functional Requirements – WF01 – Tenprint Normal
3. To determine whether a fingerprint, palmprint or latent image is available to use in a latent case analysis using Functional Requirements –WF06– Forward Latent Services
4. To determine whether a mug shot is available for use in a digital lineup (please note creating the digital lineups is a process entirely outside of the ABI System scope)

Table 16 lists the TOTs associated with Workflow 04.

Type of Transaction	Transaction Name
CPR	Photo Request – not implemented in the baseline ABI System, beyond what is available in the proposed ABI Systems
IRQ	NIST Image Request

Table 16 WF04: Image Retrieval TOTs Supported

Image retrieval and audit trail transactions are submitted by tenprint examiners, latent examiners, and system administrators. All image retrieval and audit trail transactions will be parsed for compliance with the corresponding CA/FBI EBTS. Transactions that fail the parsing test will be logged and returned to the submitted agency with the appropriate error response. Successful transactions (i.e., those that pass the parser checks) will be stored in the ANSI/NIST Archive.

Table 17 lists the Image Retrieval Input Requirements.

Requirement ID #	Requirement
WF04InputReq001	The ABI System SHALL provide the ability to create transactions as listed in Table 16 using pull-down menus or manually entering the Type 1 & 2 Fields.

OC ABI System Requirements Specification

Requirement ID #	Requirement
WF04InputReq002	The ABI System SHALL be able to: 1. Ingest EBTS transactions as listed in WF04InputReq001 or directly from internal and external cross jurisdictional systems 2. Parse for compliance with the selected EBTS transaction definitions for the submitted TOT and ORI per processing parameters 3. The ABI System will return the appropriate NIST response with detailed error descriptions per CA/FBI guidelines for those that fail step 2 above
WF04InputReq003	The ABI System SHALL record in a log the results of each EBTS submission ingested, including processing parameters.
WF04InputReq004	The ABI System SHALL record a copy of each ingested transaction in the ANSI/NIST Archive in the fully EBTS compliant form in which it was received pursuant to BisRule007.
WF04InputReq005	The ABI System SHALL forward the acceptable transactions onto the ABI System Processing.

368 Table 17 WF04: NIST Image Retrieval Services Input

369 3.3.1.2 WF04 Processing

370 The ABI System will process image retrieval transactions received from the internal and
 371 Cross Jurisdictional Systems when authorized. The transaction will be processed locally
 372 and then conditionally forwarded to CalDOJ, the FBI, or other systems as appropriate.

373 Table 18 lists the Image Retrieval Services Processing Requirements.

Requirement ID #	Requirement
WF04ProcReq001	The ABI System SHALL process the EBTS transactions from WF04InputReq005 and determine whether the requested image or audit trail information is available on the ABI System.
WF04ProcReq002	If the image is not available, the ABI System SHALL conditionally forward image retrieval request transactions onto CalDOJ, the FBI's NGI system or other repositories.
WF04ProcReq003	The ABI System SHALL be able to ingest the corresponding responses from CALDOJ, the FBI and other cross jurisdictional systems.
WF04ProcReq004	The ABI System SHALL use the response information from the ABI System and other systems interfaced to update the transaction log.

374 Table 18 WF04: NIST Image Retrieval Services Processing Requirements

375 3.3.1.3 WF04 Output

376 The ABI System will prepare responses to all transactions received.

377 Table 19 lists the Image Retrieval Services Output requirements.

OC ABI System Requirements Specification

Requirement ID #	Requirement
WF04OutReq001	The ABI System SHALL automatically generate and return the appropriate response for the ingested TOTs per the processing parameters back to the originating agency address as specified in the OC ORI table. The responses will contain the originating TCN in the TCR and the Response TCN will contain the originating TCN followed by a unique incident number. Where the subject was successfully searched the responses will contain the results.
WF04OutReq002	The ABI System SHALL automatically forward authorized external system responses onto the originating agency per processing parameters by adjusting the ORI and DAI of the transaction.
WF04OutReq003	The ABI System SHALL automatically log all transactions and responses per BisRule007 and BisRule011.

378 Table 19 WF04: NIST Image Retrieval Services Output Requirements

379 3.4 ABI SYSTEM FORENSIC SERVICES

380 As delineated in Table 2 the Forensic Services include two workflows and the Latent
 381 Case Management System functionality (LCMS). Each workflow is defined and the
 382 requirements are stated in this section:

383 WF05 Reverse Latent Search Responses

384 WF06 Forward Latent Services

385 LCMS Latent Case Management System

386 3.4.1 Functional Requirements –WF05–Reverse Latent Search Responses

387 This section outlines the functional requirements for the various inputs, processing, and
 388 unsolicited outputs of Reverse Latent Searches. Identification transactions containing
 389 fingerprint or palmprint records are conditionally reverse-searched against the OC
 390 unsolved latent files – known as a cascaded search. This conditionally happens for all
 391 Tenprint Identification and Tenprint Maintenance transactions from any source. The
 392 cascading conditionally occurs in Tenprint WF01, WF02 and WF03.

393 3.4.1.1 WF05 Inputs

394 The Reverse Latent Search results will be electronically transmitted as CA-EBTS or FBI
 395 EBTS files. The initial Types of input Transactions (TOTs) associated with Workflow 05
 396 are listed below.

397 They can originate at the OC ABI System, CalDOJ, or the FBI's NGI system. If they
 398 start at OC, they are sent to the appropriate Originator system address. If they originate
 399 at the CalDOJ or the FBI, they are forwarded onto the Originator system address where
 400 the latent was enrolled in the unsolved latent file.

401 Table 20 lists the TOTs associated with Workflow 05.

402

OC ABI System Requirements Specification

Ref #	TOT	Transaction Name
1	ULM	Unsolved Latent Match Response

Table 20 WF05: Reverse Latent Search TOTs Supported

Table 21 lists the Reverse Latent Input Requirements.

Requirement ID	Requirement
WF05InputReq001	The ABI System SHALL be able to ingest, EBTS transactions as listed in Table 20 as responses from searches made in response to WF01ProcReq002, WF02ProcReq002 and WF03ProcReq002.
WF05InputReq002	The ABI System SHALL be able to ingest EBTS transactions as listed in Table 20 as responses from CalDOJ or the FBI/NGI from OC latent's registered in those system(s).
WF05InputReq003	The ABI System SHALL record in a log the results of each transaction ingested.

Table 21 WF05: Reverse Latent Services Input Requirements

3.4.1.2 WF05 Processing

When an unsolved latent match response is received from the ABI System, CalDOJ or the FBI, the transaction is logged, added to the ANSI/NIST Archive, and forwarded to the appropriate originating examiner system address via the LCMS. It is anticipated that only one candidate will be returned per ULM transaction. Table 22 lists the Reverse Latent Search Processing requirements.

Requirement ID	Requirement
WF05ProcReq001	The ABI System SHALL record a copy of each ingested transaction in the ANSI/NIST Archive in the fully EBTS compliant form in which it was received.
WF05ProcReq002	The ABI System SHALL create an LCMS entry in the appropriate verification work queue for each transaction listed in Table 20 that is received.
WF05ProcReq003	The ABI System SHALL support examiners in selectively picking a transaction from the Verification queue.
WF05ProcReq004	The ABI System SHALL support the examiners in the verification of candidates for searches selected from the queue by providing the associated friction ridge images (reverse search print and original latent image) within 3 seconds of the verification transaction selection.
WF05ProcReq005	The ABI System SHALL support the examiners in the verification of candidates for searches selected from the queue and to selectively manipulate the original image and the candidate image separately or in synchrony (i.e., zoom, magnify, rotate, contrast adjust, brightness adjust, reverse black and white, apply gamma correction, mirror (horizontal or vertical), sharpen/un-sharpen, mark points of similarity, apply false color encoding based on image density, and generate histograms).

OC ABI System Requirements Specification

Requirement ID	Requirement
WF05ProcReq006	The ABI System SHALL permit the examiners to print (1) any search latent at 1:1 up to 5:1 size for latent images with case number and image number as well as time and date printed or (2) any candidate fingerprint/palmprint set with Type 1 and Type 2 data pursuant to BisRule009
WF05ProcReq007	The ABI System SHALL support the forensic examiner selectively declaring a match, returning the transaction to the work queue, or forwarding the transaction to another examiner for confirmation or advice.
WF05ProcReq008	The ABI System SHALL automatically log all reverse friction ridge search transactions and the steps taken, the examiners involved, and the search results in the LCMS.
WF05ProcReq009	The ABI System SHALL support the preparation of court presentations when a match is found in any reverse latent search.
WF05ProcReq010	The ABI System SHALL automatically log all reverse latent search transactions and the examiners' results in the system log and LCMS.
WF05ProcReq011	The ABI System SHALL support the forensic examiner selectively declaring a match, returning the transaction to the work queue, or forwarding the transaction to another examiner for confirmation or advice.
WF05ProcReq012	The ABI System SHALL create a Work Queue that displays for operator review the resulting responses from CalDOJ, FBI, DHS and any other interfaced AFIS.

413 Table 22 WF05: Reverse Latent Services Processing Requirements

414 3.4.1.3 WF05 Outputs

415 The ABI System will permit the examiner to document the results of the examination of
 416 the ULM and associated friction ridge material. Table 23 lists the Reverse Latent Search
 417 Output requirements.

Requirement ID	Requirement
WF05OutReq001	The ABI System SHALL automatically prepare a LCMS report for all reverse latent searches.
WF05OutReq002	The ABI System SHALL support the examiner in selecting to (1) mark the case as closed or (2) simply save and close the LCMS file.
WF05OutReq003	The ABI System SHALL maintain a searchable log of all reverse latent searches submitted to the ABI System by external systems from the ABI System.

418 Table 23 WF05: Reverse Latent Searches Services Output Requirements

419 3.4.2 Functional Requirements –WF06– Forward Latent Services

420 Forward latent searches use latent fingerprint and palmprint samples collected at crime
 421 scenes and disaster victim fingerprints, as well as fingerprints from deceased subjects
 422 collected by morgues or from the ANSI/NIST Archive, to determine whether the subject
 423 has been previously encountered and enrolled in the ABI System. External systems, both

OC ABI System Requirements Specification

Universal Latent Workstations (ULW) and cross-jurisdictional agencies having an agreement with OCCL Cal-ID, can also submit forward latent searches.

3.4.2.1 WF06 Inputs

The input TOTs are listed in Table 24.

TOT	Transaction Name
LFFS	Latent Fingerprint Features Search
LFIS	Latent Fingerprint Image Search

Table 24 WF06: Forward Latent Search TOTs Supported

Collection will typically start with:

1. A crime scene technician or investigator collecting images or other friction ridge samples at a crime scene
2. A forensic specialist examining an item of evidence (e.g., a handgun) and imaging a latent fingerprint or palmprint
3. A Coroner investigator or forensic technician collecting friction ridge samples from a deceased person
4. A disaster response team providing DVI services where fingerprints are typically harvested from whatever portions of a hand that can be found and used – this is different from an Identification Service search of good quality tenprints collected at the morgue post mortem using the Deceased (DCD) TOT for a TP-TP Identification search.

In each case, along with an image, other case-related information will be supplied, such as date collected, unique identification number of the image or sample, the point of contact where results should be reported, collection location, crime type or morgue case type, etc. The images and information will be entered though an ABI System workstation and transmitted to the LIMS via the LCMS.

The LCMS will provide tracking of the processing of the latent through all searches to include maintaining a log of searches, image processing, candidates, etc. The LCMS will provide the ability for examiners to query status and other attributes of latent submittals and cases as well as to return to open cases as often and whenever they see fit. Transactions entered through ULWs and external systems will be entered through the LCMS for tracking and reporting purposes.

Through an ABI System search, the ABI System will be able to support the determination of whether the subject who left latent friction ridge detail is a “known” person (i.e., a subject that has an ABI System Identity assigned to it at OC, CalDOJ or other external system). The ability to perform these searches of course depends in large part on the quality and size of the latent sample submitted for searching as well as on the skill of the latent examiner.

OC ABI System Requirements Specification

458 Table 25 lists the Forward Latent Input Requirements.

Requirement ID #	Requirement
WF06InputReq001	The ABI System SHALL support the examiners in creation of a new case in the appropriate LCMS to include entering data in the case information fields [LCMSReq001] as well as the following image fields per image: 1. Latent collection location. 2. “Method of Processing” using a pull-down menu.
WF06InputReq002	The ABI System SHALL support the ingesting of digital images with latent fingerprints or palmprints captured at various scales as Type 13 images into a specific case using a pull-down menu of cases associated with the examiner’s agency.
WF06InputReq003	The ABI System SHALL support the scanning of latent friction ridge material into Type 13 images at 1:1 scale, 1,000 ppi, 8-bit gray scale, along with a ruler for calculating/verifying scale and resolution into a specific case using a pull-down menu of cases associated with the examiner’s agency.
WF06InputReq004	The ABI System SHALL support the imaging with a high resolution digital camera of latent friction ridge material as Type 13 images at 1:1 scale, 1,000 ppi, 8-bit gray scale, along with a ruler for calculating/verifying scale and resolution into a specific case using a pull-down menu of cases associated with the examiner’s agency.
WF06InputReq005	The ABI System SHALL support the ingesting of latent case textual information linked to a latent image as Type 1 and 2 fields from a text file or the keyboard into a specific case using a pull-down menu of cases associated with the examiner’s agency.
WF06InputReq006	The ABI System SHALL support the scanning of inked fingerprints into Type 13 images from deceased persons at 1,000 ppi, 8-bit gray scale into a specific case using a pull-down menu of cases associated.
WF06InputReq007	The ABI System SHALL support the ingesting of crime scene and object reference images selectively as Type 20 and Type 21 images for use in the LCMS into a specific case using a pull-down menu of cases associated.
WF06InputReq008	The ABI System SHALL ingest LFFSs submitted from ULWs at from ULW software executing on a latent workstation, or by cross-jurisdictional submitters and after logging them into the LCMS, setting them for auto run.
WF06InputReq009	The ABI System SHALL support the examiner in selectively creating an LFFS package for each latent image in a case [WF06InputReq001 – WF06InputReq007], with the appropriate Type 1, Type 2, Type 13, and Type 20 records, and store it in the LCMS as an LFFS.
WF06InputReq010	The ABI System SHALL update the LCMS and ABI System logs with the results of each step in the forensic services input process.

459 Table 25 WF06: Forward Latent Services Input Requirements

460 3.4.2.2 WF06 Processing

461 The ABI System will forward the latent transactions with the impression and tracking
462 information to the LCMS for forensic processing as an LFFS transaction type. The
463 ABI/LCMS will queue the latent transaction for a latent examiner to select and process.

464 The examiner will perform pre-search steps (rotate, crop, mark and edit minutiae, etc.)
465 before submitting a search. This will be performed using latent editing software

OC ABI System Requirements Specification

integrated into the ABI System software, to include Photoshop™ - for details see Form and Fit Requirements in Section 4.

The examiner will be able to limit the search by crime type, finger or palm position, geographical region where the crime was committed, and other traditional parameters or elect to use no search limitations. The ABI System will search the record against known records as well as against unsolved latent records.

If the transaction originated from a ULW or cross-jurisdictional partner, it will be auto-launched without any examiner action – as a lights-out remote search. Since the ABI System will not know whether the remote submitter made an identification, these submittals will not be automatically forwarded to the FBI – but rather the agency will have to resubmit them for forwarding. Cross-jurisdictional partners will not use the ABI System to forward searches to the FBI or other systems, as they have their own hierarchical paths to that service.

The known record files for latent searches to run against, sometimes referred to as the “latent cognizant files,” will contain up to three instances of known fingerprints and one set of best palmprint images enrolled in the system.

Table 26 lists the Forward Latent Services Processing Requirements

Requirement ID #	Requirement
WF06ProcReq001	The ABI System SHALL automatically queue the latent transaction within the LCMS.
WF06ProcReq002	The ABI System SHALL permit a forensic examiner to select a transaction for preprocessing from the work queue or from unsolved Latent file.
WF06ProcReq003	The ABI System SHALL support the preprocessing of Type 13 latent images to include image processing (i.e., zoom, magnify, rotate, contrast adjust, brightness adjust, reverse black and white, apply gamma correction, apply a Fast Fourier Transform (FFT), mirror (horizontal or vertical), sharpen/unsharpen, mark features, apply false color encoding based on image density, generate histograms, and select a region of interest) and save the results to LCMS.
WF06ProcReq004	The ABI System SHALL selectively export from the LCMS the Type 13 for preprocessing on another system.
WF06ProcReq005	The ABI System SHALL import to the LCMS Type 13 images that were preprocessed on other systems (e.g., ULW workstations).
WF06ProcReq006	The ABI System SHALL support examiners in selectively saving and closing the case or submitting it for extraction.
WF06ProcReq007	The ABI System SHALL support the auto-extraction of features from LCMS transactions using the Extended Feature Set as defined in the ANSI/NIST ITL-1 2011 Standard and save the results to the LCMS.
WF06ProcReq008	The ABI System SHALL support the manual review and editing of features [WF06ProcReq007] by an examiner and save the results to the LCMS.

OC ABI System Requirements Specification

Requirement ID #	Requirement
WF06ProcReq009	The ABI System SHALL support the creation/editing of search parameters such as selective geographic location (state, multiple states, or county), crime type(s), a specific subject (e.g., a suspect in the case), pattern type, hand, or finger position, to include candidate list length (up to 250 candidates) using pull-down menus.
WF06ProcReq010	The ABI System SHALL support the submittal of forward latent searches selectively against any combination of known fingerprints, palmprints, and unsolved latents on the ABI System where the known fingerprints include all enrolled exemplars – both rolled and plain impressions.
WF06ProcReq011	The ABI System SHALL automatically search the submitted forward latent searches [WF06ProcReq010].
WF06ProcReq012	Reserved
WF06ProcReq013	The ABI System SHALL build candidate lists of possible matches to forward searches and queue them for forensic examiners to select for verification; candidate Type-2 information will include sex, DOB, and complete pattern type list in conformance to BisRule001.
WF06ProcReq014	If the latent case was a remote, lights-out search, the ABI System SHALL automatically forward the candidate list to the submitting agency with the images of the top candidate(s) (a selectable number up to 10).
WF06ProcReq015	The ABI System SHALL support examiners in selectively picking a transaction from the Verification queue.
WF06ProcReq016	The ABI System SHALL support the examiners in the verification of candidates for searches selected from the queue by providing the associated friction ridge images, features (search print and first candidate), and a list of Type 2 and record processing history within 4 seconds of the selection.
WF06ProcReq017	The ABI System SHALL support the examiners in the verification of candidates for searches selected from the queue and allow them to selectively manipulate the original image and the candidate image separately or in synchrony (i.e., zoom, magnify, rotate, contrast adjust, brightness adjust, reverse black and white, apply gamma correction, apply FFT, mirror [horizontal or vertical], sharpen/un-sharpen, mark points of similarity, apply false color encoding based on image density, generate histograms, turn on and turn off all minutiae, and display matching minutiae).
WF06ProcReq018	The ABI System SHALL support the forensic examiner in selectively declaring a tentative match, returning the transaction to the queue, forwarding the transaction to another examiner for confirmation or advice, or editing and resubmitting the search to include manually editing the feature set.
WF06ProcReq019	The ABI System SHALL support a second forensic examiner selectively selecting a confirmation-verification package and using the tools [WF06ProcReq016 and 017] declaring a match, non-match, or elimination; or editing and resubmitting the search to include manually editing the feature set.
WF06ProcReq020	The ABI System SHALL automatically log all forward friction ridge search transactions and the steps taken, the examiners involved, and the search results in the LCMS.

OC ABI System Requirements Specification

Requirement ID #	Requirement
WF06ProcReq021	The ABI System SHALL support the preparation of court presentations when a match is found in any forensic friction ridge search.
WF06ProcReq022	The ABI System SHALL automatically log all forward latent search transactions and the examiners' results in the system log and LCMS.

483 Table 26 WF06: Forward Latent Services Processing Requirements

484 3.4.2.3 WF06 Outputs

485 The ABI System will prepare responses to all forward latent transactions received. The
 486 examiners will be given the opportunity to forward unsolved latents to the FBI, to add
 487 them to the OC unsolved latent file, to edit and resubmit them, or to save them for future
 488 work. If there is a match, then the identity of the subject is returned to the submitting
 489 agency. If there is no match and the latent sample is selectively added to the unsolved
 490 latent file, it will be reverse searched against all subsequent transactions that include
 491 fingerprint and palmprint data.

492 Match reports and status information can be selectively returned to other OCCL systems
 493 used by the crime scene technicians and laboratory management. This will permit
 494 laboratory managers to integrate the information into status reports, case files, and other
 495 databases.

496 Table 27 lists the Forward Latent Services Output Requirements.

Requirement ID #	Requirement
WF06OutReq001	The ABI System SHALL automatically prepare a LCMS report for all forensic searches that lead to an identification.
WF06OutReq002	The ABI System SHALL support the examiner in selecting to (1) add new unsolved latent to the OC unsolved latent file with a link to the appropriate LCMS record(s), (2) delete the record, or (3) simply save and close the LCMS file.
WF06OutReq003	The ABI System SHALL support the selective forwarding of LFFS transactions to CalDOJ or the FBI, first using an LPNQ transaction, if appropriate, or to other systems (e.g., cross-jurisdictional partners) using the EFS or ULW to generate a more appropriate Type 9 record pursuant to BisRule012.
WF06OutReq004	The ABI System SHALL support the ingesting of any response to an LPNQ transaction (an LPNR TOT) automatically forwarding it to the appropriate LCMS case.
WF06OutReq005	The ABI System SHALL support the ingesting of any response to an LFFS transaction (SRL or ERRL TOTs) automatically forwarding it to the appropriate LCMS case pursuant to BisRule012.
WF06OutReq006	The ABI System SHALL maintain a searchable log of all forensic transactions submitted (along with the responses) to the ABI System and to external systems in the system log and LCMS.

OC ABI System Requirements Specification

Requirement ID #	Requirement
WF06OutReq007	The ABI System SHALL support the selective forwarding of FBI and other external responses (SRL TOTs) to latent transactions to the appropriate Verification queue [WF06ProcReq006].
WF06OutReq008	The ABI System SHALL support the selective forwarding of latent case status and results to other OCCL systems such as the Laboratory Information Management System (LIMS).

Table 27 WF06: Forward Latent Services Output Requirements

3.4.3 Functional Requirements –LCMS– Latent Case Management System

The LCMS will be used to ingest and launch searches as described and specified in:

- Functional Requirements –WF05–Reverse Latent
- Functional Requirements –WF06– Forward Latent Services

The LCMS will support the latent examiners and system administrators in maintaining the ABI System latent files and the LCMS records to include the maintenance of latent cases, images, and reports at the local, CalDOJ and CJIS/NGI levels. Maintenance of latent transactions submitted to the CalDOJ and the FBI will be via the TOTs in Table 28, and they will be generated by the LCMS.

The ABI System will process latent management transactions received from the internal systems. They can be of two types: (1) internal non-NIST maintenance transactions (e.g., add to ABI System unsolved latent file) and (2) external NIST transactions for forwarding to the CalDOJ, FBI or external systems (e.g., cross-jurisdictional partners). The original NIST transactions will be preserved indefinitely in the ANSI/NIST Archive (repository) of transactions.

Latent examiners and supervisors will use the LCMS to manage the latent case files via latent workstation functionality. Table 29 lists the LCMS requirements. There are no workflows in the sense that the user interface is restricted to specific sequences of actions. On the other hand, there are some transactions where the system will automatically ask whether a cascaded ANSI/NIST transaction should be generated and submitted to the FBI (e.g., deletion of an unsolved latent from ABI System which the LCMS knows was added to the unsolved files at CJIS).

The transactions listed in Table 28 can be created by the LCMS system and forwarded onto CalDOJ or the FBI or other cross-jurisdictional AFIS.

Latent examiners will also be able to scan in major case prints and use them in forward latent searches. This will permit the OCCL to capture major case prints from victims, first responders, as well as witnesses for elimination purposes. When a suspect has been identified major case prints can also be captured for investigative purposes. These prints will be stored in the LCMS and dynamically loaded into matchers for specific searches rather than being an active, searchable file. These records are to be considered neither applicant nor criminal files.

OC ABI System Requirements Specification

TOT	Transaction Name
LSMQ	Latent Search Status and Modification Query
ULAC	Unsolved Latent Add Confirm Request
ULD	Unsolved Latent Delete Request

529 Table 28 LCMS: Latent Case Management Maintenance TOTs Supported

530 Table 29 lists the LCMS Services Processing Requirements.

Requirement ID #	Requirement
LCMSReq001	The ABI System SHALL support latent examiners and system administrators in the creation of latent cases, independent of actually loading any images, to include entering and saving information in the following data Fields: 1. Case name 2. Case number 3. Owning agency 4. Date of crime 5. Date case opened in LCMS 6. Examiner the case is assigned to 7. Crime Lab reference number/lift number 8. 4-digit NCIC Uniform Offense Code 9. State Crime Code(s) – a pull down menu based on the 4-digit Uniform Crime code entered 10. Local Crime Code(s) – a pull down menu based on the 4-digit Uniform Crime code entered 11. Auto delete flag at statute of limitations date (Y/N) 12. Up to 10 additional free form Fields
LCMSReq002	The ABI System SHALL support latent examiners and system administrators in populating and updating a “method of collection” table used in an LCMS pull-down menu of types of collection/processing to include lifts; digital imagery; Alternate Light Source (ALS); ninhydrin, DFO, or other chemical process; deposition processes; and up to 10 others.
LCMSReq003	The ABI System SHALL permit Cal-ID System administrators in populating and updating a table of statutes of limitations based on state crime codes.
LCMSReq004	The ABI System SHALL permit Cal-ID system administrators in selective maintenance of the LCMS files, unsolved latent file, and matcher files to include correcting incorrectly entered information, moving images between cases, merging cases, and updating the table of statutes of limitations based on state crime codes.
LCMSReq005	The ABI System SHALL automatically track all latents submitted to external agencies for retention.
LCMSReq006	The ABI System SHALL automatically track for reporting purposes all latents submitted by external agencies.

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Requirement ID #	Requirement
LCMSReq007	The ABI System SHALL automatically identify situations where searches against different latents from the same case have identical candidates anywhere in the top 100 positions and alert the examiner(s) assigned to the case with a message in their work queue. The ABI System examiner community refers to this as a latent candidate merge.
LCMSReq008	The ABI System SHALL offer latent examiners and system administrators the ability to remove latent images from the ABI System and/or an external unsolved latent file(s).
LCMSReq009	If latent examiners and system administrators elect [LCMSReq007] to remove a latent image from any external system's unsolved latent file, the ABI System SHALL automatically generate the appropriate TOT from Table 28.
LCMSReq010	The ABI System SHALL automatically alert the system administrator via a message in an administrative queue when a case reaches the following windows: 90, 60, and 30 days from the expiration of the statute of limitations for any and all cases.
LCMSReq011	The ABI System SHALL support the latent examiners and system administrators in selectively opening and dealing with administrative message in their work queue and in re-launching or closing cases where the statute of limitations expired notice has been sent to them.
LCMSReq012	The ABI System SHALL automatically delete unsolved cases from the LCMS when the statute of limitations expires if the Auto-Delete flag was set to "Y" in LCMS when the case was opened or at any later point.
LCMSReq013	If the LCMS automatically closes a latent case that has any images in an external system's unsolved latent file, the ABI System SHALL automatically generate the appropriate TOT from Table 28.
LCMSReq014	The ABI System SHALL forward latent management transactions to CalDOJ and/or the FBI's NGI system.
LCMSReq015	The ABI System SHALL be able to ingest external system responses from CalDOJ, the FBI (ULAR, ULDR, LSMR, and ERRA TOTs).
LCMSReq016	The ABI System SHALL use the response information from CalDOJ or the FBI to update the transaction log.
LCMSReq017	The ABI System SHALL automatically forward any external system response transactions to the appropriate LCMS.
LCMSReq018	The ABI System SHALL automatically log all latent management transactions and activities to include date, time, person performing the activity, activity type, status (successful or problem encountered), and any changes to the ABI System or external system matcher files of unsolved latents.
LCMSReq019	The ABI System SHALL record a copy of each ingested transaction in the ANSI/NIST Archive in the fully CA/FBI EBTS compliant form in which it was received.
LCMSReq020	The ABI System SHALL support latent examiners in the scanning of major case prints at 1000 ppi to include storing them in appropriate Type-14 records, assigned to a specific Latent case.

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Requirement ID #	Requirement
LCMSReq021	The ABI System SHALL support latent examiners in searching latents against the major case prints associated with a case.
LCMSReq022	The ABI System SHALL support latent examiners and system administrators in the linking of major case prints to additional cases.
LCMSReq023	The ABI System SHALL support latent examiners and system administrators in the deletion of major case prints.

Table 29 LCMS: LCMS Services Processing Requirements

3.5 ABI SYSTEM ADMIN SERVICES

The Cal-ID Administrator will be responsible for the integrity of information in the System: creating and maintaining user accounts; backing up and restoring files; exporting files in response to ad-hoc requests; generating reports; and adding, deleting and modifying workflow processing parameters specific to TOTs and ORIs on an as needed basis. The default setting for the administrative fields will be developed during the implementation of the system through Cal-ID – Provider collaboration.

3.5.1 Functional Requirements –ADMIN– System Administration Management

Administrative tasks will start with the Cal-ID Administrator or Cal-ID Supervisor level logging into a workstation connected to the ABI System. They will deal with System error messages, assist in recovering from problems, and generate problem reports via e-mail, 24 X 7 help desk calls or other means. Additionally, the Cal-ID Administrator will be qualified to add, modify and delete workflow Processing Parameters mentioned throughout the workflows specific to TOTs and ORIs.

3.5.1.1 Admin Reports

The administrators will be able to generate reports using a robust report generation tool that permits ad hoc selection of fields, data ranges within fields, and Boolean operators against the repository, system logs, and system performance and capacity metrics. The report generation tool will support mathematical analysis (e.g., averaging, maximums and minimums) dynamic ordering of information within the reports. The tool will further support exporting report content to Word™ and Excel™ as appropriate.

Requirement ID #	Requirement
AdminFuncReq001	The ABI System SHALL support the Cal-ID Administrator to selectively set up and manage at least 10 classes of users (e.g., latent supervisor) with configurable permissions per class.
AdminFuncReq002	The ABI System SHALL support the Cal-ID Administrator in assigning a default modular system workflow and default processing parameters (PP) for each TOT, ORI, and LSID/AFIS combination.
AdminFuncReq003	The ABI System SHALL support the Cal-ID Administrator or Cal-ID Supervisor in editing the default PP [AdminFuncReq002], as minimally specified in Appendix C.

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Requirement ID #	Requirement
AdminFuncReq004	Reserved
AdminFuncReq005	Reserved
AdminFuncReq006	The ABI System SHALL support the Cal-ID Administrator in assigning, editing, and managing the fields and record types that may be disseminated and viewed (BisRule001) to non-owner and/or to OCCL examiners with limited file access authorization. The list of all fields is provided in Appendix D Dissemination List.
AdminFuncReq007	The ABI System SHALL support the Cal-ID Administrator in assigning, editing, and managing workflow priorities PPs as defined in AdminFuncReq004, with up to 9 priorities to conform to the ANSI/NIST Standard for Field 1.006: <i>“The values will range from “1” to “9”, with “1” denoting the highest priority. The default value will be defined by the agency receiving the transaction.”</i>
AdminFuncReq008	The ABI System SHALL support the Cal-ID Administrator in assigning, editing, and managing all matching Thresholds specific to each TOT and ORI group as defined in AdminFuncReq004.
AdminFuncReq009	Reserved
AdminFuncReq010	The ABI System SHALL enable the Cal-ID Administrator to selectively back up the ABI System, biographic, ANSI/NIST Archive, and/or forensic files at all System levels.
AdminFuncReq011	The ABI System SHALL support the Cal-ID Administrator in selectively restoring the ABI System, biographic, ANSI/NIST Archive, and forensic files.
AdminFuncReq012	The ABI System SHALL allow the Cal-ID Administrator to selectively ingest any supported transaction(s), individually or in bulk, and process them as appropriate to the TOT to include dynamically modifying the ingested submissions; TOT into another TOT individually or in bulk.
AdminFuncReq013	The ABI System SHALL permit the Cal-ID Administrator to selectively cancel programs that are not responding and restart any program or computer.
AdminFuncReq014	The ABI System SHALL support the Cal-ID Administrator in selectively exporting, in bulk or individually, ANSI/NIST conformant transactions along with any control files or indices such as the MCI.
AdminFuncReq015	The ABI System SHALL support the Cal-ID Administrator in selectively exporting “unknown” (latent) files in bulk or individually to include images, EFS features, and case / image information.
AdminFuncReq016	Reserved
AdminFuncReq017	The ABI System SHALL support automated logging of the following information: 1. Use by time, person, functionality, etc. 2. Viruses encountered – at the device level. 3. All events associated with unsuccessful login attempts, at the device level.

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Requirement ID #	Requirement
AdminFuncReq018	The ABI System SHALL support automated logging of the following information for the date / time of the request: 1. Disk memory used, free, and totals by System and component: § ANSI/NIST Archive § Temporary files (e.g. Transaction temp files) § LCMS 2. Peak and average matcher memory use on an hourly and daily basis, used and free, and totals by System and component 3. Matcher utilization/saturation at the device level on an hourly and daily basis
AdminFuncReq019	The ABI System SHALL support automated logging of the following information for a definable date / time range: 1. A record of all abnormal shutdown(s) of any computer along with any available diagnostics. 2. Number and percentage of transactions by class and TOT that failed/passed parser and image quality checks. 3. Number and percentage of transactions by class and TOT that were manually reviewed by OCCL staff for QC. 4. Number and percentage of transactions by class and TOT that were manually reviewed by OCCL staff for Verification. 5. Number and percentage of transactions by class and TOT that were “errored out” in any workflow processing or output step.
AdminFuncReq020	The ABI System SHALL support automated logging of individual finger and average by hand NFIQ scores sorted by TOT, submitting ORI, or date/time range.
AdminFuncReq021	Reserved
AdminFuncReq022	Reserved
AdminFuncReq023	The ABI System SHALL support the administrators in generating reports using a robust report generation tool that permits ad hoc selection of fields, data ranges within fields, and Boolean operators against the repository, system logs, and system performance and capacity metrics.
AdminFuncReq024	The ABI System SHALL support mathematical analysis and dynamic ordering of information within the reports [AdminFuncReq023].
AdminFuncReq025	The ABI System SHALL support exporting report content [AdminFuncReq024] to Word™ and Excel™ as appropriate.
AdminFuncReq026	Reserved

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Requirement ID #	Requirement
AdminFuncReq027	The ABI System SHALL support the Cal-ID Administrator in assigning PPs to workflows as defined in AdminFuncReq004 to establish, define, modify and delete authorized access and functionalities (TOT) for each cross jurisdictional ORI, including but not limited to establishing the default matching priority processing parameters, threshold parameters, and per AdminFuncReq006 the Fields and records that can be exchanged.
AdminFuncReq028	The ABI System SHALL support the Cal-ID Administrator with the ability to set the auto assign OCN number to any group of numbers by stating beginning and end, as long as none of the pending numbers exist in the ABI System. This allows the Administrator to set aside a block of OCN number for manual assignment.
AdminFuncReq029	The ABI System SHALL support the Cal-ID Administrator in assigning a default set of forms, key entry and data validations for each TOT and DAI. The validation can vary for each TOT depending on the destination agency.
AdminFuncReq030	The ABI System SHALL support the Cal-ID Administrator or Cal-ID Supervisor in selecting a specific TOT set of data entry and data validation guidelines to include at the TOT and DAI level: 1. Tables and field definitions will be initially defined using Appendix E and will be periodically updated by the ABI System Cal-ID Administrator. 2. All default values will be identified 3. Fields can be defined to be automatically populated with a default and/or cascading value into other fields to best minimize key entry 4. The ABI System will provide drop down menus for data fields 5. Tables can be defined to accept new values as identified by the operator
AdminFuncReq031	Reserved
AdminFuncReq032	The ABI System SHALL notify the Cal-ID Administrator when: 1. The temporary buffer is 90% full; every 24 hours until it falls below 90% 2. The temporary buffer is 98% full; every hour until it falls below 98% 3. If the buffer reaches 100% full, the ABI-System will notify the Cal-ID Administrator and the Cal-ID Administrator or the system supervisor will have the ability to manually delete submissions from the temporary queues on a one by one basis or by selecting groups based on TOT, ORIs and/or completion or initial dates.
AdminFuncReq033	The ABI System SHALL provide the Cal-ID Administrator with the ability to manually delete submissions from the temporary queues on a one by one basis or by selecting groups based on TOT, ORIs and/or completion or initial dates.

553 Table 30 Cal-ID Administrator Input Requirements

554 3.5.1.2 Admin Processing

555 The ABI System **SHALL** process all requests from the Cal-ID Administrator, as
 556 enumerated above.

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3.5.1.3 Admin Outputs

The ABI System **SHALL** support the output types identified in the input functions for Cal-ID Administrator, as enumerated above.

4 Technical Requirements

This section provides the System technical requirements for the new ABI System environment. The Technical Requirements are organized as follows:

- Capacity Requirements – capability to store some number of a class of items such as:
 - Enrolled transactions
 - Searchable feature-based data sets on-line in matcher.
- Performance requirements – number of events and units of time such as:
 - Throughput as expressed in transactions turned around in a period of time
 - Average transaction response time
- Accuracy requirements – matcher capability
 - Tenprint to tenprint accuracy
 - Other-ID slaps to tenprint accuracy
 - Tenprint to latent accuracy
 - Latent to tenprint accuracy
 - Palm latent to known palm accuracy
 - Criminal known palm to latent accuracy
- Safety Requirements
- Security Requirements
- Environmental Requirements
- Form and Fit Requirements for workstations and printers
- Reliability, Maintainability, and Availability requirements
- Environmental requirements – such as uninterrupted power supplies and office environment noise levels

4.1 STORAGE CAPACITY REQUIREMENTS

Storage capacities are relevant to multiple areas of the ABI System architecture to include:

- Storage of image files to be used in verifications ANSI/NIST Archive
- The templates / features loaded in the matchers

The following subsections delineate these requirements and will refer to the tables provided below. The capacity will grow over the life of the system. Table 31 Storage

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591 Capacities by Image Type by Year projects the growth of annual cumulative transactions
592 through 2019.

593 Assumptions:

- 594 • The percentage of criminal transactions that match within Cal-ID is
- 595 approximately 70%
- 596 • Average criminal submissions are 90,000-100,000 per year

597 The following table lists the current and projected repository sizes for Cal-ID:

Cumulative Events	Feb 2011	2012	2013	2014	2015	2016	2017	2018	2019
Tenprint(K ¹) (1000 ppi)	1,283	1,330	1,391	1,488	1,593	1,704	1,823	1,951	2,088
Palms (K)		600	642	687	735	786	842	900	963
Mobile ID (K)		25	34	46	62	83	112	151	204
Tenprint Conversion from paper records (K)	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700	1,700
Modified Submissions	400	570	600	630	660	690	720	750	570
Unsolved latent (LT) FP (K)	35	35	39	42	47	51	56	62	68
Unsolved latent (PLT) PP(K)	0	0	5	8	11	15	18	22	26

598 Table 31 Storage Capacities by Image Type by Year

599

600 The temporary capacity requirements are listed in Table 32.

Requirement ID	Requirement
StorageReq 001	The ABI System SHALL have the disk storage capacity of at least 250 GB for storing transactions in a temporary file.
StorageReq 002	The ABI System SHALL have the disk storage capacity of at least 250 GB for use in workflow 1, 2, 3, 5, and 7's work queues for quality control, tenprint verification, and palmprint verification.

¹ K is short for thousands of records

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Requirement ID	Requirement
StorageReq 003	The ABI System SHALL have the capacity and ability to create and store a backup copy of all LCMS, Verification image sets, and other critical files that reside on all workstations.

Table 32 Temporary Storage Capacity Requirements

The ABI System will be designed to accommodate an ANSI/NIST Archive of all input and output transactions through the life of the contract, including a conversion effort. The addition of response TOTs will make the capacity requirements larger than the storage of input transactions only, however most response transactions generated by the ABI System are smaller than the corresponding input transactions. The vendor will have to perform the appropriate design analysis to determine the design requirements in Gigabytes as a function of transaction type using the data specified in this document.

At the initial operating point of the ABI System, all existing records will have been loaded into the ABI System to include loading them into the ANSI/NIST Archive, the matchers, any verification repositories, and the master index.

The ABI System storage capacity requirements are listed in Table 33.

Requirement ID	Requirement
StorageReq 001	For the base contract, the ABI System SHALL have the capacity to store in the ANSI/NIST Archive at the beginning of any year, at least, the number of EBTS transactions listed per year in Table 31 Storage Capacities by Image Type by Year for that year; where 100% of the new known friction rides are captured at 1,000 ppi and all unknown friction ridges (i.e., latents) are captured at 1,000 ppi.
StorageReq 002	For the base contract, the ABI System SHALL have the annual capacity to store in the matchers the templates for enrolled fingerprints using BisRule003
StorageReq 003	For the base contract, the ABI System SHALL have the annual capacity at the beginning of the year to store in the matchers the templates for enrolled unsolved fingerprints and palmprints at the levels shown in Table 32.
StorageReq 004	For the base contract, the ABI System SHALL have the capacity to store a backup copy on portable digital media of all ANSI/NIST transactions that are in the ANSI/NIST Archive and the feature sets in the matchers, in any given year, as a backup for the ANSI/NIST Archive and Matchers.

Table 33 Storage Capacity Requirements

4.2 PERFORMANCE REQUIREMENTS

The ABI System will meet performance (throughput and response time) requirements as specified in this section. DVI transactions will not be timed nor is it known how many

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will be submitted in any given day; therefore they are not specified as having specific throughput or timing requirements.

4.2.1 Throughput Requirements

The ABI System throughput requirements cover all three classes of workflows:

- Identification (Tenprint) Services
- Forensic (Latent) Services
- Tactical (Mobile ID and other rapid searches) Services

The ABI System throughput rates will grow over the life of the System. Refer to Table 34 for the initial eight-year contract.

Type of Submission	Growth Rate	2012	2013	2014	2015	2016	2017	2018	2019
Criminal TP-TP	7%	300	321	343	368	393	421	450	482
Other TP-TP	7%	20	21	23	25	26	28	30	32
Other ID Slaps-TP	7%	10	11	11	12	13	14	15	16
TP-LT	7%	300	321	343	368	393	421	450	482
KP-PLT	7%	240	257	275	294	315	337	360	385
Tactical TP-TP	35%	300	405	547	738	996	1,345	1,816	2,452

Table 34 Average Daily Transaction Rates per Base Contract Year

The Throughput requirements are for concurrent ingest and processing of identification, forensic, and tactical transactions. The average and peak rates are shown in Table 34 Average Daily Transaction Rates per Base Contract Year and Table 35 Peak Rates for Throughput Requirements.

Transaction Type	Peak Period	% of Average Daily Rate
Criminal TP-TP	30 minutes	10%
Other TP-TP	1 hour	20%
Other ID Slaps-TP	30 minutes	10%
Tactical TP-TP	5 minutes	2%
TP-LT	30 minutes	20%
KP-PLT	1 hour	20%
LT-TP	30 minutes	10%
PLT-KP	30 minutes	10%

Table 35 Peak Rates for Throughput Requirements

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Requirement ID #	Requirement
ThruPutReq001	For the base contract, the ABI System SHALL be able to ingest, process, and respond in the peak period to at least the percentage of the daily average Tenprint Identification transactions (TP-TP) as stated in Table 34 and Table 35, while latent and Mobile ID transactions are being ingested, processed, and responded to. [This requirement is independent of any time for examiners to perform QC on the input stream or to review candidate lists / perform verification.]
ThruPutReq002	For the base contract, the ABI System SHALL be able to ingest, process, and respond in the peak period to at least the percentage of the daily average forward latent transactions as stated in Table 34 and Table 35 while identification and Mobile ID transactions are being ingested, processed, and responded to. [This requirement is independent of any time for examiners to perform QC on the input stream or to review candidate lists / perform verification.]
ThruPutReq003	For the base contract, the ABI System SHALL be able to ingest, process, and respond in the peak period to at least the percentage of the daily average Mobile ID transactions as stated in Table 34 and Table 35 while identification and latent transactions are being ingested, processed, and responded to.
ThruPutReq004	If in any day the ABI System is presented with more transactions in a peak hour than the design capacity, the ABI System SHALL queue the additional work up and process it as soon as capacity is available with that processing to be based on the priority of the transactions.

633 Table 36 Throughput Requirements

634 4.2.2 Response Time Requirements

635 The response time for ABI System transactions is a function of the transaction type
 636 (identification, forensic, and tactical). The response times do not include any staff
 637 interaction times for QC, verification, or any other review.

638 Table 37 provides the response times per class of transaction while Table 38 defines the
 639 requirements for providing these response times.

Transaction Types	Response Requirements Under Peak Load
Criminal TP-TP	5 minutes
Other TP-TP	60 minutes
Other ID Slaps-TP	10 minutes
TP-LT	5 minutes
LT-TP	30 minutes
PLT-KP	30 minutes
KP-LT	10 minutes
Mobile ID TP-TP	15 seconds

640 Table 37 Response Times per Transaction Type

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The response time requirements stated below are for 95% of the transactions in any period as there are always some outliers caught up in processing and they will not be considered in the performance testing. Testing will be done against the initial repository load using a test set with a mixture of all transaction types at the peak rates calculated using Table 37.

Requirement ID	Requirement
ResponseTimeReq001	For the base contract, the ABI System SHALL provide responses for 95% of submitted transactions per the values in Table 37. Response time to be measured from the beginning of the submission's ingest through the final response and the transmission of a response back to the submitting site, with no error-burdened transactions in the mix.

Table 38 Response Time Requirements

4.3 ACCURACY REQUIREMENTS

The matcher accuracy will vary as a function of the class of service (identification, forensic, and tactical) and the quality of the input images. Identification service accuracy requirements are typically higher than those for forensic services as the input images are typically of better quality for livescan enrollments than for latent lifts.

Accuracy terms-of-art have been undergoing an evolutionary change for the past few years. While reliability, true accept rate, false reject rate, and other terms are often used for access control systems and other biometric modalities (such as facial recognition), a consensus has developed in the international standards community around the terms **true match rate** and **failure to match rate** when discussing friction ridge matching on a large-scale.

For this project, accuracy will have four accuracy terms:

True Match Rate – (TMR) the probability that a true match will be found when it is in the background reference file (also known as a repository). This term replaces older terminology such as matcher reliability or true accept rate.

Failure to Match Rate – (FTMR) the probability that a search will not return a true mate when the true mate is in the reference file. The failure to match rate is 100% minus the True Match rate. While not explicitly stated in the requirements, it will be calculated during testing and reported on.

Selectivity – the number of candidates that will be examined to determine the true match rate. While the Cal-ID Administrator will be able to selectively change the length of candidate lists by transaction class and by threshold scores, during testing, system accuracy will be measured using the selectivity numbers in Table 39.

False Match Rate – (FMR) the probability that an incorrect false mate can be identified as an automated true mate regardless if the true mate is or is not in the background reference file .

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Transaction Types	Selectivity	True Match Rate	Minimum # of Congruent Minutiae
TP-TP	1	99.9%	N/A
Other ID Slaps-TP	1	99.9%	N/A
TP-LT	10/25	93%/100%	12
LT-TP	10/25	93%/100%	12
PLT-KP	10/25	93%/100%	12
KP-PLT	10/25	93%/100%	12
Tactical TP-TP (with fewer than 10 prints, search records will be System Acquisition profile (SAP)-30 or better)	8	99.9%	12

673 Table 39 Accuracy Rates by Transaction Type

674 The accuracy requirements are listed in Table 40.

Requirement ID #	Requirement
AccuracyReq001	The ABI System SHALL provide accuracy for submitted transactions per the values in Table 39 while conforming to the response times in Table 38. The accuracy will be measured with Provider Best practices being used.

675 Table 40 Accuracy Requirements

676 4.4 SAFETY REQUIREMENTS

677 There are two requirements for the electrical safety of the ABI System. They are
 678 specified in Table 41. The intent is to ensure that safe equipment is used and that it is
 679 installed properly in terms of grounding (e.g., any power strips used at the ABI System
 680 workstations must be certified and be installed and used correctly).

Requirement ID	Requirement
SafetyReq001	All hardware configuration items delivered as part of the ABI System SHALL conform to the appropriate US Underwriters Lab standards for electronic devices and be so certified.
SafetyReq002	All required grounding SHALL conform to the manufacturer's specifications and recommendations.

681 Table 41 Safety Requirements

682 4.5 SECURITY REQUIREMENTS

683 All configuration items that process, transmit, or store digital information delivered as
 684 part of the ABI System will require some level of Information Security (InfoSec), as the
 685 System is connected to the FBI's criminal justice network. The CJIS security

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requirements must be complied with, including user and administrator log in rules, audit trail requirements, and reporting capabilities.

InfoSec includes ensuring data Confidentiality, Integrity, and Availability (CIA) of the data and thus anti-virus protection is to be included in the Systems to the extent that there are commercial anti-virus packages available for the operating Systems selected by the Provider.

The InfoSec requirements are listed in Table 42.

Requirement ID	Requirement
InfoSecReq001	The ABI System design SHALL conform to the CJIS Security Policy v 5.0 or later.
InfoSecReq002	Anti-virus software SHALL be loaded on all processors that run operating Systems where there are commercial anti-virus packages available.
InfoSecReq003	The anti-virus software SHALL automatically virus scan all files on portable data storage devices (i.e., CDs, DVDs, USB devices with memory, and floppy disk media) presented to a System [InfoSecReq002] and report alerts and other problems.
InfoSecReq004	The anti-virus software SHALL automatically log all virus alerts and action taken.
InfoSecReq005	The ABI System SHALL support the updating of anti-virus software Repositories of virus information without compromising the security of the System.
InfoSecReq006	Confirm Viability of NIST Package. The ABI System SHALL : Only accept transactions from pre authorized systems, as defined and maintained by the Cal-ID Administrator. The ABI System SHALL return a reject notice back to unauthorized systems.
InfoSecReq006	Reserved
InfoSecReq007	The ABI System SHALL Process Transactions from Internal and External Systems: Only when submissions InfoSecRq001-006 has been met Only when the ingested TOT and ORI has been identified as “current” in the authorized Cal-ID Administrators Processing parameters (i.e. the request is within the activation and termination dates for same TOT and ORI). Retain a copy of the Processing Parameters used for each submission in the ANSI/NIST Archive and in the system logs.

Table 42 InfoSec Requirements

4.6 ENVIRONMENTAL REQUIREMENTS

There are OCCL Cal-ID imposed environmental requirements on all workstations (workstation / peripherals such as printers).

The System design will include the capability to meet the following power / voltage conditioning and related availability requirements as well as noise level requirements in Table 43. These requirements address sustainment of power during blackouts and brownouts and noise levels in an office environment.

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Requirement ID #	Requirement
EnvrnReq001	Each workstation SHALL have an Uninterruptable Power Supply (UPS) that can support the workstation for up to 20 continuous minutes in the event of a loss of building power.
EnvrnReq002	Each workstation UPS SHALL provide the user with a signal in cases where the UPS has been the only source of power to the device for 10 continuous minutes.
EnvrnReq003	Each workstation SHALL automatically shut down properly based upon the receipt of a ten-minute warning if the operator does not initiate a shutdown within 15 minutes of the signal if the UPS has continuously remained the only source of power to the device for that time.
EnvrnReq004	The verification stations SHALL be able to operate in an office environment, without any requirement for supplemental air conditioning or noise suppression: 68° to 72° temperature with a relative humidity between 40% and 60%. Noise below 70 decibels (dBA) measured at the workstation site.

701 Table 43 Power Requirements

702 4.7 FORM & FIT REQUIREMENTS

703 This section provides the form and fit requirements for the ABI System in Table 45.
 704 OCCL anticipates having fewer personnel on duty at any given time than they have
 705 workstations. To control software license costs the system requirement includes
 706 functionality to permit dynamic allocation of licenses within two groups of workstations:

- 707 1. OCCL Tenprint workstations
- 708 2. OCCL Latent workstations

709

Requirement ID	Requirement
DASLReq001	The ABI System SHALL be able to dynamically allocate software licenses within each of the two groups of OCCL workstations listed above.

710 Table 44 Dynamic Allocations of Software Licenses

711 The requirements in Table 45 are for the workstations and card printers to be delivered to
 712 OCCL Cal-ID sites.

Requirement ID	Requirement
F&FReq001	Each tenprint workstation SHALL have: 1. A microprocessor with at least 2.8 GHz clock speed and at least 4 cores. 2. Built in graphics or a graphics board with at least 512 MB of on board memory 3. 8 GB of internal RAM 4. One 24-inch or larger LED flat panel display with at least 94 ppi resolution and Digital Visual Interface 5. 1 Gigabit Network Interface Card

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Requirement ID	Requirement
	- At least one 500 GB hard disk drive - Wireless, silent, and backlit keyboard and wireless mouse - FBI EBTS Appendix F certified flatbed scanner at 1000 ppi (can be shared with adjacent tenprint workstation) - Adobe Photoshop CS5 - ULW – the most current version.
F&FReq002	Each latent workstation SHALL have: - A microprocessor with at least 3.2 GHz clock speed and at least 4 cores. - Built in graphics or a graphics board with at least 1 GB of on board memory 8 GB of internal RAM - One 24-inch or larger LED flat panel display with at least 94 ppi resolution and Digital Visual Interface (DVI) 1 Gigabit Network Interface Card - At least one 750 GB hard disk drive - Wireless, silent, and backlit keyboard and wireless mouse - FBI EBTS Appendix F certified flatbed scanner at 1000 ppi (can be shared with an adjacent latent workstation) - Adobe Photoshop CS5™ - ULW – the most current version.
F&FReq003	Each administrative workstation SHALL have: - A microprocessor with at least 2.4 GHz clock speed and at least 4 cores. - Built in graphics or a graphics board with at least 256 MB of on board memory 8 GB of internal RAM - One 24-inch or larger LED flat panel displays with at least 94 ppi resolution and Digital Visual Interface 1 Gigabit Network Interface Card - At least one 500 GB hard disk drive - Wireless, silent, and backlit keyboard and wireless mouse - Microsoft Office™ (Version 2007 of Word and Excel only) - ULW – the most current version.
F&FReq004	Each card printer SHALL have: - At least three drawers /trays to support fingerprint and palmprint card stock simultaneously without having to physically change trays - FBI EBTS Appendix F Certified at 1000 ppi - Two sided print capability - Performance metric of 3 cards/min when operating in a one-sided mode 1 Gigabit Network Interface Card - At least 256 MB of memory - Color and grey scale capability
F&FReq005	Each Automatic Document Feed (ADF), two sided scanner SHALL have: Double sided scan capabilities

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Requirement ID	Requirement
	2. FBI EBTS Appendix F Certified at 1000 ppi 3. Performance metric of 2 minutes or less for a 1000 ppi fingerprint card scan – measured to the availability of the scanned image for workstation viewing

Table 45 Form and Fit Requirements for Workstations

4.8 RELIABILITY, MAINTAINABILITY, AND AVAILABILITY REQUIREMENTS

This section provides the Reliability, Maintainability, and Availability (RMA) requirements for the ABI System. To support RMA, there are requirements for the ability to backup and restore the System or any of the major data components of it. This is considered necessary, for instance, for availability considerations at the ABI System level.

There are two sets of requirements:

- Backup and recovery
- Availability and restoration

4.8.1 Backup and Recovery

The ABI System will need to be backed up (data and System configurations) routinely for Continuity of Operations considerations. Copies of the backup media will be stored off-site from the central site to increase the likelihood of their availability in case of a natural or man-made disaster.

The requirements for Backup and Recovery are listed in Table 46.

Requirement ID	Requirement
BackupReq001	The ABI System SHALL permit the Cal-ID Administrator to selectively create full and incremental backups of any or all files and its workstations to include administrative files, temporary ANSI/NIST Archive files, master identity indexes, transaction results, and logs without impacting functionality of the System.
BackupReq002	The ABI System SHALL permit the Cal-ID Administrator to selectively support the recovery of any or all files from the backups [BackupReq001] to the appropriate locations.
BackupReq003	The ABI System SHALL permit the Cal-ID Administrator to selectively create full and incremental backups of any or all files on the ABI System to include administrative files, ANSI/NIST Archive files, transaction files, master identity indexes, transaction results, and the back-end matcher files to include feature sets and matcher identity indexes without impacting functionality of the System.
BackupReq004	The ABI System SHALL permit the Cal-ID Administrator to selectively support the recovery of any or all files from the backups [BackupReq003] to the appropriate locations.

Table 46 Backup & Recovery Requirements

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4.8.2 Service Availability and Restoration Requirements

The availability of all ABI System services is set at one and a half (1.5) hours of unscheduled down time per month. An additional four (4) hours per month are permitted for backups, upgrades and preventive maintenance without impacting the measurement of availability.

Table 47 describes the availability requirements.

Requirement ID #	Requirement
RMAReq001	During the life of this contract, to include any optional extensions, the ABI System SHALL provide functional support 24 hours a day, seven (7) days a week, with no more than a cumulative four (4) hours of scheduled outage time per any calendar month for routine maintenance, diagnostic tests, and upgrades.
RMAReq002	During the life of this contract, to include any optional extensions, the ABI System SHALL provide functional support 24 hours a day, seven (7) days a week, with no more than 1.5 hours unscheduled outage of ABI System services – measured monthly, but not to include as unavailable time: 1) Up to four (4) cumulative hours of scheduled outages per month [RMAReq 001] 2) Any facility-wide power outages
RMAReq 003	Reserved
RMAReq 004	Reserved
RMAReq 005	Reserved

Table 47 ABI System Availability Requirements

4.9 NETWORK REQUIREMENTS

The ABI System network will meet the security requirements specified in the FBI Criminal Justice Information Services (CJIS) CJISD-ITS-DOC-08140-5.0, CJIS Security Policy.

The network will be able to deal with the protocols used by the non-ABI System components as specified in the OCCL Cal-ID Network Environment Technical Specification. The network will be designed to support the communications capacities, as calculated by the selected Provider during the requirements and analysis Milestone of the implementation contract.

Table 48 describes the network requirements.

Requirement ID #	Requirement
NWReq001	The ABI System SHALL provide a network that conforms to the FBI Criminal Justice Information Services (CJIS) CJISD-ITS-DOC-08140-5.0, CJIS Security Policy while connecting all of the devices identified in the OCCL Cal-ID Network Environment Technical Specification.

OC ABI System Requirements Specification

Requirement ID #	Requirement
NWReq002	The ABI System SHALL provide a network with sufficient capacity to handle the peak communication transaction rates as calculated from this Requirements Specification with a 50% design margin.

Table 48 Network Requirements

5 Qualification Requirements

5.1 VERIFICATION METHODS

This section establishes requirements for formal verification of the design and performance requirements set forth in Section III of this specification.

The specified methods of verification are inspection, analysis, demonstration, test and productive combinations of these methods. These methodologies are defined below:

Inspection: Verification by inspection will show through visual means, physical manipulation, gauging, or measurement that specified requirements have been met. For software, inspection includes physical examination of documentation, a listing of program code, or both to verify conformance to specified requirements.

Analysis: Analysis will verify the item meets specified requirements by technical evaluation of equations, charts, graphs, models, diagrams, and representative data, or by evaluation of previously qualified equipment and software to equivalent or more stringent criteria.

Demonstration: Demonstration will verify the item meets specified requirements by operations, manipulation, or adjustment of the item to produce a correct operational state for the item. Instrumentation (e.g., code) and monitoring may be used to verify attainment of the specified operational state.

Test: Test will verify the item meets specified requirements by use or operation of the item with instrumentation to record quantitative data, and by comparison of the resultant quantitative data with established quantitative standards or criteria. Test differs from demonstration in the measurement of quantitative data and the comparison of results to predicted criteria. Any requirement that does not contain a measurable item will not be verified by test.

5.2 VERIFICATION CONDITIONS

Verification Conditions are specific conditions under which the requirement will be verified. For testing of Accuracy and Response Time requirements, the following conditions will be set.

The converted repositories (known and unknown friction ridge files as well as related feature sets, pointers, and tables) will be audited as part of the central site technology Factory Acceptance Test (FAT). Accuracy tests will employ these repositories, while the search records will be data sets prepared by OCCL Cal-ID and having known image

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quality (tenprint only), minutiae counts (latents and their mates only) and mate or no-mate status information. FAT will include two accuracy tests: one with minimal intervention (known as lights out) and one with expert intervention following the vendor's recommended best practices. There will be appropriate levels of performance required for each of these two accuracy tests.

Table 49 shows the anticipated parameters for FAT accuracy matching, with examiner assistance limited to orientation of latent images and marking the boundary (a.k.a. the region of interest) of the latent image area to be searched. This is referred to as Lights Out accuracy testing. Table 50 shows the anticipated parameters for best practices accuracy matching.

Ref #	Field	TP-TP	TP-LT	LT-TP	KP ² -PLT	PLT-KP
1	Search Records	10,000	10,000 ³	200	5,000	100
2	Mated Records	50%	100	100	10	40
3	NFIQ Average of Mated TPs	3.1 or better	3.1 or better	3.1 or better	N/A	N/A
4	Minimum Number of Simultaneous Minutiae of Mated Items	N/A	16	16	16	16
5	Selectivity ⁴	1	10 / 25	10 / 25	10 / 25	10 / 25
6	True Match Rate ⁵	99.8%	45% / 60%	45% / 60%	45% / 60%	45% / 60%
7	Non-Mated Search Records	50%	9,900	100	4,990	60
8	Background Repository	All converted TP records	All converted LT records	All converted TP records	All converted Palm LT records	All converted KP records

Table 49 Lights Out Accuracy Verification Conditions

REF #	Field	TP-TP	TP-LT	LT-TP	KP-PLT	PLT-KP
1	Search Records	10,000	10,000	200	5,000	100
2	Mated Records	50%	100	100	10	40

² The abbreviation KP stands for Known Palm.

³ These transactions will be cascaded from the 10,000 TP-TP searches.

⁴ Selectivity is a measure of allowed candidate list length.

⁵ Assumes a true mate is in the searched file.

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REF #	Field	TP-TP	TP-LT	LT-TP	KP-PLT	PLT-KP
3	NFIQ Average of Mated TPs	1	1	1	N/A	N/A
4	Minimum Number of Simultaneous Minutiae of Mated Items	N/A	12	12	12	12
5	Selectivity	1	10 / 25	10 / 25	10 / 25	10 / 25
6	True Match Rate	99.9%	93% / 100%	93% / 100%	93% / 100%	93% / 100%
7	Non-Mated Search Records	50%	9,900	100	4,990	60
8	Background Repository	All converted TP records	All converted LT records	All converted TP records	All converted Palm LT records	All converted KP records

793 Table 50 Best Practices Accuracy Verification Conditions

*OC ABI System Requirements Specification*794 **Appendix A: Glossary of Terms**

TERM	DEFINITION
ABI System	Automated Biometric Identification System
AFIS	Automated Fingerprint Identification System
AFIS ANSI/NIST Archive	NEC (q.v.) ANSI/NIST Archive attached to the AFIS-21 (q.v.)
AFIS-21	Version of NEC AFIS (q.v.)
AL/CC	Alameda/Contra Costa Counties combined AFIS (q.v.)
AMN	Amnesia Victim TOT (q.v.)
ANSI	American National Standards Institute (a governing body for US national standards)
ANSI Standard	Shorthand for the American National Standard for Information Systems – Data Format for the Standard for the Interchange of Fingerprint Information, Facial, and Other Biometric Information – Part 1
ANSI/NIST	A standard developed by NIST’s Information Technology Lab (ITL) using the ANSI procedures and registered with ANSI (q.v.)
APP	CalDOJ (q.v.) Applicant Tenprint submission
CalDOJ	California Department of Justice
CalDOJ ANSI/NIST Archive	NEC (q.v.) NIST (q.v.) ANSI/NIST Archive attached to AFIS (q.v.)
Cal-ID	Orange County California Identification Division
CAR	FBI (q.v.) Criminal Tenprint TOT – Response Required
CDI	Computer Deductions Incorporated, a company
CEMS	Cal-ID (q.v.) Electronic Management System
CHP	California Highway Patrol
CII	California Criminal Investigation and Identification number
CLETS	California Law Enforcement Telecommunications Network
Composite	A Feature Set made up with the features from the highest quality images from a subject’s fingers when there is more than one set of fingerprints for a subject.
CRM	CalDOJ (q.v.) Criminal Tenprint – Response Required
DAI	Destination Agency Identifier
DHS	Department of Homeland Security
DOB	Date Of Birth
Domain	A group of organizations that define an implementation of the ANSI/NIST-ITL 1-2011 exchange standard, which includes the Type-2 Fields. In this case the Domain is the North American domain (1.013:NORAM).
DVI	Disaster Victim Identification

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TERM	DEFINITION
EBTS	Electronic Biometric Transmission Standard – adopted by a Domain (q.v.) as their implementation of the ANSI/NIST (q.v.) Standard
EFS	Extended Feature Set – a vendor-neutral set of descriptors used for latent encoding and searching across dissimilar ABI Systems
EFSG	EFS User Guidelines for Markup
EFTS	Electronic Fingerprint Transmission Standard – a term used when only fingerprints were being exchanged – now replaced by the term EBTS for ABI System systems; a Domain’s implementation of the ANSI/NIST Standard
FAT	Factory Acceptance Test
FBI	Federal Bureau of Investigation
FIQ	Fingerprint Image Quality
FMR	False Match Rate – the probability that an incorrect false mate can be identified as an automated true mate regardless if the true mate is or is not in the background reference file (also known as a repository).
FTMR	Failure to Match Rate – the probability that a search will not return a true mate when the true mate is in the reference file. The failure to match rate is 100% minus the True Match Rate for closed systems (i.e., where the true mate is in the reference file). While not explicitly stated in the requirements, it will be calculated during testing and reported on.
GB	Gigabytes
IAFIS	Integrated Automated Fingerprint Identification System – the FBI’s system for integrating fingerprint comparisons with criminal history record processing
ICE	U.S. Immigration and Customs Enforcement
ID	Identification
IDN	CalDOJ Tenprint Identification only
IRQ	Image Request
Known	A friction ridge sample purposefully collected from a body. As opposed to unknown (q.v.)
KP	Known Palmprint
KP-PLT	Known Palmprint searched against the Unsolved latent Palmprints
KST	Known and Suspected Terrorists
LAN	Local Area Network
LARS	Local Arrest Records System
LCMS	Latent Case Management System
LIMS	Laboratory Information Management System
LITS	Latent Interoperability Transmission Specification

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TERM	DEFINITION
LT	Latent
LT-LT	Latent-to-Latent Search: Single Latent searched against the Unsolved Latent file.
LT-TP	Latent to Known (q.v.) Tenprint Search: Single Latent searched against the Tenprint Repository.
MCI	Master Cross Index
MTBF	Mean Time Between Failures
NCIC	National Crime Information Center – an FBI Data System
NDR	Next Designation Repository
NEC	Nippon Electric Corporation, AFIS-21 Vendor
NGI	Next Generation Identification– the FBI’s multi-modal replacement for IAFIS
NIST	National Institute of Standards and Technology – part of the US Department of Commerce
OC	Orange County
OC ANSI/NIST Archive	This is the Orange county NIST ANSI/NIST Archive that is attached to the S&F (q.v.) that stores the 1000 ppi records with palmprints captured since 2006.
OCATS	Orange County Automated Telecommunications System
OCCL	Orange County Crime Laboratory
OCN	Orange County (subject) Number
OCSD	The Orange County Sheriff-Coroner’s Department
OCSDN	The Orange County Sheriff Department’s Network
ORI	Originating Agency Identification
PIV	Personal Identity Verification
PLT-PLT	Unsolved Palmprints searched against unsolved palmprints
PP	Processing Parameters
ppi	Pixels per inch
QC	Quality Control
QID	Quick Identification
REG	CalDOJ Violent Criminal Tenprint Registration
RFP	Request for Proposal
RISC	Repository of Individuals of Special Concern – an FBI ABI System and file
RMA	Reliability, Maintainability, and Availability
S&F	Store and Forward
SAP	Subject Acquisition Profile

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TERM	DEFINITION
SAT	Systems Acceptance Test
SB/RV	San Bernardino/Riverside Counties combined AFIS
SDCO	San Diego County AFIS
SEL	Selectivity – (SEL) the number of candidates that WILL be examined to determine the true match rate.
SEX	Gender Code
SFPD	San Francisco Police Department AFIS
SID	State Identification Number
TAR	True Accept Rate
TBD	To Be Determined
TCN	Transaction Control Number
TCR	Transaction Control Reference
TMR	True Match Rate – (TMR) the probability that a true match will be found when it is in the background reference file (also known as a repository). This term replaces older terminology such as matcher reliability or true accept rate.
TOT	Type of Transaction
TP	Tenprint
TPIS	Tenprint Image Search. This is a lights out search that accepts less than ten fingers, no QC or operator verification intervention.
TP-LT	Tenprint to Unsolved Latent file search
TP-TP	Tenprint to Tenprint 1:n search
TRR	True Reject Rate
ULW	Universal Latent Workstation
Unknown	Friction ridge samples collected from objects that are the result of contact with that object.
UPS	Uninterruptable Power Supplies
USL	Unsolved Latent Repository – a file
WIN	Western Identification Network
WSQ	Wavelet Scalar Quantization – a compression method used for Type-4, Type-14, and Type-15 records collected at 500 ppi.

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795 **Appendix B: Type of Transactions**

796 For California (CA) EBTS, specific response TOTs will be provided after OC ABI System Contract Award. Therefore there are no
 797 specific CA TOTs identified in the following table.

	OC ABI Service	Work flow #	Inbound EBTS TOT(s)	Outbound EBTS TOT(s)	EBTS Error TOT	To: CA/ FBI/ Other EBTS	Forward Outbound TOT(s)	Forward Inbound TOT(s)
Known Submittal Identification Services								
1	Tenprint Fingerprint Identification Searches	WF01	APP, CRM, CUS, DCD, DNS, IDN, REG	SRE	ERRT	CA	APP, CRM, CUS, DCD, DNS, IDN, REG	CA: FBI:SRE/ ERRT DHS: SRE ERRT
2	Tenprint Fingerprint Identification Search (FBI)	WF01	AMN, MPR	SRE	ERRT	FBI/ Other CA	AMN, MPR CA	SRE/ ERRT CA
3	Reserved							
4	Fingerprint, Palmprint, Record Deletion, Seal Request	WF03				FBI CA	CA	CA
5	Supplemental	WF03	SUP	SRE	ERRT	CA	CA	CA
Known Submittal Identification: Tactical Services								
6	TACTICAL Fingerprint Identification Search (FBI EBTS)	WF02	RPIS	RPISR	ERRT	FBI/ Other CA	RPIS CA	RPISR ERRT CA
7	Tenprint Image Search, lights out (FBI EBTS)	WF02	TPIS	SRT	ERRT	FBI/& Other CA	TPIS CA	SRT/ ERRT CA
8	Tenprint Image Search, lights out (CA EBTS)	WF02	QID	SRT	ERRT	CA	QID	CA
9	Personal Record Identifier	WF02	PIR	SRT	ERRT	CA	CA	CA

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	OC ABI Service	Work flow #	Inbound EBT TOT(s)	Outbound EBT TOT(s)	EBTS Error TOT	To: CA/ FBI/ Other EBTS	Forward Outbound TOT(s)	Forward Inbound TOT(s)
10	CalDOJ Mobile ID	WF02	TFS	SRT	ERRT	CA	CA	CA FBI. RPISR
	Image Services							
11	Fingerprint, Palmprint, Latent Supplemental Image/Features Retrieval Request	WF04	IRQ	IRR, ISR	ERRI	FBI CA	IRQ CA	FBI: IRR/ISR/ ERRI CA
12	Subject Photo Request	WF04	CPR	PRR	ERRI	FBI CA	CPR CA	FBI: PRR/ERRI CA
	Forensic Services							
13	Latent Print Image Investigation Search Request	WF06	LFIS	SRL	ERRL	FBI CA	LFIS CA	FBI: SLR/ ERRT CA
14	Latent Print Feature Investigation Search Request	WF06	LFFS	SRL	ERRL	FBI CA	LFFS CA	FBI: SLR/ ERRT CA
15	Unsolved Biometric Notification	WF05	n/a	ULM	n/a	FBI CA	n/a	ULM
16	Unsolicited Unsolved Latent Record Delete Notification	LCMS	n/a	UULD	n/a	FBI CA	n/a	UULD
17	Reserved							
18	Unsolved Latent File Delete Request	LCMS	ULD	ULDR	ERRL	FBI CA	ULD CA	FBI: ULDR/ ERRL CA
19	Latent Decision Request	LCMS	BDEC	BDECR	ERRI	FBI CA	BDEC CA	FBI: BDER/ ERRI CA

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798 Appendix C: Table of Processing Parameters (PP)

799

PP#	Processing Parameter Description	WF01	01Resp	01 Err	WF02	02Resp	02 Err	WF03	03Resp	03Err	WF04	04Resp	04Err	WF05	WF06	06Resp	06Err
PP01	TOT	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP02	ORI	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP03	Workflow Number	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP04	Activation Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP05	Termination Date	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP06	FP Records in Matcher	X			X			X									
PP07	Palm Records in Matcher	X			X			X									
PP08	DAI	X			X			X			X			X	X		
PP09	Response TOT (*)	X			X			X			X			X	X		
PP10	Response Error TOT(*)	X			X			X			X			X	X		
PP11	Scan Image(s)	X			X			X							X		
PP12	Tenprint/Latent Input Key Entry Form	X			X			X			X				X		
PP13	Create NIST Package	X			X			X			X				X		
PP14	Ingest NIST Package	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP15	Parse NIST Package	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP16	Feature Extraction	X			X	X		X				X		X	X		
PP17	Quality Control (QC) * 2X	X			X			X				X		X			
PP17-A	Sequence Check	X			X			X				X					
PP17-B	Sequence Check REJECT	X			X			X				X					
PP17-C	Image Placement Check	X			X			X				X					
PP17-D	Minimum Minutia Count Check	X			X			X				X					
PP17-E	Pattern Call Check	X			X			X				X					
PP18	1:1 LARS Interface	X			X			X									
PP18-A	1:1 TOT	X			X			X									
PP18-B	1:1 DAI	X			X			X									
PP18-C	1:1 TCN	X			X			X									
PP18-D	TP-TP 1:1 Search	X			X			X									
PP18-D1	Default Matcher Priority	X			X			X									
PP18-D2	1:1 Auto Match Threshold (1)	X			X			X									
PP18-D3	1:1 Auto No-Match Threshold (4)	X			X			X									
PP18-D4	1:1 Mandatory Match	X			X			X									
PP19	TP-TP 1:n Search	X			X			X									
PP19-A	Default Matcher Priority	X			X			X									
PP19-B	1:n Auto Match Threshold 2	X			X			X									
PP19-C	1:n Auto No-match Threshold 3	X			X			X									
PP19-D	1:n Mandatory Match	X			X			X									
PP20	TP-LT Search	X			X			X									
PP20-A	Default Matcher Priority	X			X			X									
PP20-B	1:n Auto Match Threshold 5	X			X			X									
PP20-C	1:n Auto No-match Threshold 6	X			X			X									
PP21	KP-PLT Search	X			X			X									
PP21-A	Default Matcher Priority	X			X			X									
PP21-B	1:n Auto Match Threshold 7	X			X			X									
PP21-C	1:n Auto No-match Threshold 8	X			X			X									
PP22	TP-TP 1:1 Auto Verification	X			X			X									
PP23	TP-TP 1:n Auto Verification	X			X			X									
PP24	1:1 Examiner Verification	X						X									
PP25	1:n Examiner Verification	X						X									
PP26	Combined 1:1 & 1:n Examiner	X			X			X									

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PP#	Processing Parameter Description	WF01	01Resp	01 Err	WF02	02Resp	02 Err	WF03	03Resp	03Err	WF04	04Resp	04Err	WF05	WF06	06Resp	06Err
	Verification																
PP27	Consolidation(s)	X			X			X									
PP27-A	Examiner Verification Determination	X			X			X									
PP27-B	Auto Consolidation(s)	X						X									
PP27-B1	Use Oldest OCN	X						X									
PP27-B2	Use Newest OCN	X						X									
PP28	Assign new OCN for new enrollees	X						X									
PP28-A	Assign from Series (A,B,C,D,etc.)	X						X									
PP29	Use Ingested OCN for new enrollee	X						X									
PP30	Repository Update	X						X									
PP31	MCI Update	X						X									
PP32	ANSI/NIST Archive Update	X			X			X									
PP33	Return Response to Originator	X			X			X									
PP33-A	Default Return DAI;	X			X			X			X				X		
PP33-B	Default Return TOT				X			O			X				X		
PP33-C	Default Return Error TOT	X			X			X			X				X		
PP33-D	Set of Return Type 1 Fields	X			X			X			X				X		
PP33-E	Set of Return Owner/Authorized Type 2 Fields	X			X			X			X				X		
PP33-F	Set of Return Non Owner/Generic Type 2 Fields	X			X			X			X				X		
PP34	ANSI/NIST Archive Update	X															
PP35	Forward to CalDOJ	X			X			X			X				X	X	
PP35-A	Default forward DAI to CALDOJ	X			X			X			X				X	X	
PP35-B	Default forward TOT to CALDOJ	X			X			X			X				X	X	
PP35-C	Map Type 1 Fields Instruction set	X			X			X			X				X	X	
PP35-D	Map Type 2 Fields Instruction set	X			X			X			X				X	X	
PP35-E	ANSI/NIST Archive Update	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
PP35-F	Receive Response from CalDOJ	X			X			X			X				X		
PP35-G	Forward CALDOJ Response to Originator	X			X			X			X				X		
PP35-H	Default forward Response DAI	X			X			X			X				X		
PP35-I	Default forward Response TOT	X			X			X			X				X		
PP35-J	Default forward Error Response TOT	X			X			X			X				X		
PP35-K	ANSI/NIST Archive Update	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PP36	Forward to FBI/Other AFIS	X			X			X			X				X	X	
PP36-A	Default forward DAI	X			X			X			X				X	X	
PP36-B	Default forward TOT	X			X			X			X				X	X	
PP36-C	Map Type 1 Fields Instruction set	X			X			X			X				X	X	
PP36-D	Map Type 2 Fields Instruction set	X			X			X			X				X	X	
PP36-E	ANSI/NIST Archive Update	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X
PP36-F	Receive Response from CalDOJ	X			X			X			X				X		
PP36-G	Forward CALDOJ Response to Originator	X			X			X			X				X		
PP36-H	Default forward Response DAI	X			X			X			X				X		
PP36-I	Default forward Response TOT	X			X			X			X				X		
PP36-J	Default forward Error Response TOT	X			X			X			X				X		
PP36-K	ANSI/NIST Archive Update	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

800

801

*OC ABI System Requirements Specification***Appendix D: Table of Dissemination Fields**

The fields in this Appendix are limited to those that have conflicting FBI/CJIS and CalDOJ use.

Mne (mnemonic)	Field Name	FBI Field#	CA Field #	Subset#
AGE	Age	2.023		
AKA	Alias	2.019	2.151	
CRI	Controlling ORI	2.073(1-3)	2.073 (1)	
CTZ	Citizenship	2.021	2.159	
DAI	Destination Agency Identifier	1.07		
DAT	Input Date	1.05	2.117	2
DOA	Date of Arrest	2.045	2.113	
DOB	Date of Birth	2.022	2.153	
EYE	Eye Color	2.031	2.156	
FBI	FBI Identification number	2.015	2.003	
HGT	Height	2.027	2.165	
LSID	Livescan ID		2.105	
NAM	Name	2.018	2.150	1
OCA	BKN - Booking Number		2.112	1
OCA	OCN		2.112	2
ORI	Originating Agency Identifier	1.08	2.111	1
POB	Place Of Birth	2.020	2.158	
SCN	State Control Number	1.09	2.103	
SEX	Gender	2.024	2.154	
SID	State Identification number	2.015	2.170	
TCN	Transaction Control Number	1.09		
TCR	Transaction Control Reference	1.10		
TOT	Type of Transaction	1.04	2.106	
WGT	Weight	2.028	2.167	

OC ABI System Requirements Specification

807 **Appendix E: Reserved**

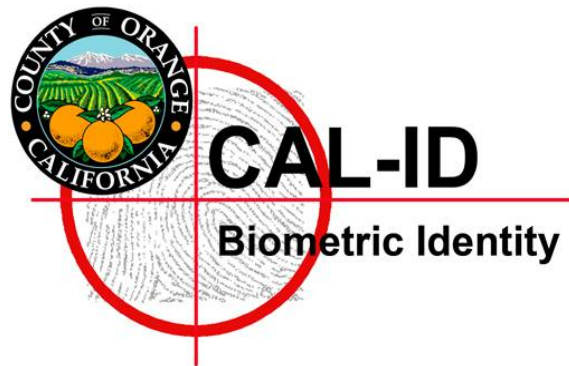
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*OC ABI System Requirements Specification***810 Appendix F: Table of Requirements**

811

Concept of Operations
for the
Orange County
*Automated Biometric Identification
System (OC ABI System)*



Deliverable Document 06
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08 July 2011

Version 2.0

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OCCL OC ABI System Concept of Operations

1 Introduction

The Orange County Sheriff Department Crime Lab (OCCL) has been operating a NEC Automated Fingerprint Identification System (AFIS) for 11 years, providing services to its own members, local police departments within the county, the California Highway Patrol, and others. The services offered include:

- Identification of subjects with prior criminal histories through searches of the fingerprints through the AFIS
 - o As part of the booking process for criminals
 - o As part of the background investigation of people applying for positions of trust within the county
 - o In response to ad-hoc requests from investigators
- Assignment of local file numbers (the Orange County Number or OCN) for new arrestees and registrants. These OCNs are used in numerous county business processes
- Support to the identification of criminals by searching latent fingerprints from crime scenes through the AFIS and analyzing the candidates
- Connectivity to the CalDOJ AFIS and through it access to the Federal Bureau of Investigation's (FBI) AFIS system, which is currently migrating from their Integrated Automated Fingerprint Identification System (IAFIS) to the Next Generation Identification (NGI) System
- Support to the Secure Communities program – where arrest records are forwarded through the FBI to the Department of Homeland Security (DHS)

The current system is serving Orange County (OC) well, but over time new functionality and interface standards have been introduced at the State and Federal level that the current system cannot offer. In 2009, the Orange County Remote Access Network (RAN) Board voted to replace the aging system and OCCL began the process to competitively replace the current AFIS with a multi-modal Automated Biometric Identification System (ABI System) that can match fingerprint and palmprints as well as support the latest interoperability standards.

The new services to be offered by the replacement ABI System include:

- Searching of latent palms collected at crime scenes
- Fully standards-compliant, image-based transactions from data collection through final processing
- The beginnings of a continuity of operations (COOP) capability to include analysis for an eventual backup or alternate site capability
- Support for Mobile ID devices that would permit patrol officers, jail staff, and investigators to collect and search fingerprints from traffic stops, interviews, and movement of prisoners – with two minute local criminal searches and subminute FBI responses against their RISC system

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The OCCL and their support contractor have evaluated their current services and have established goals and objectives for the future OC ABI model via a gap analysis. The purpose of this document is to provide the appropriate technical framework and direction by which OC can achieve the desired future OC ABI System model and to provide a reference point for the development of the solicitation package. This document can also be used by the Orange County community to better understand the intended operational concepts and to help plan for the delivery of and transition to the system in the 2012 – 2013 timeframe.

1.1 CURRENT ENVIRONMENT

Figure 1 below depicts the myriad of systems that interface to form the current AFIS Environment.

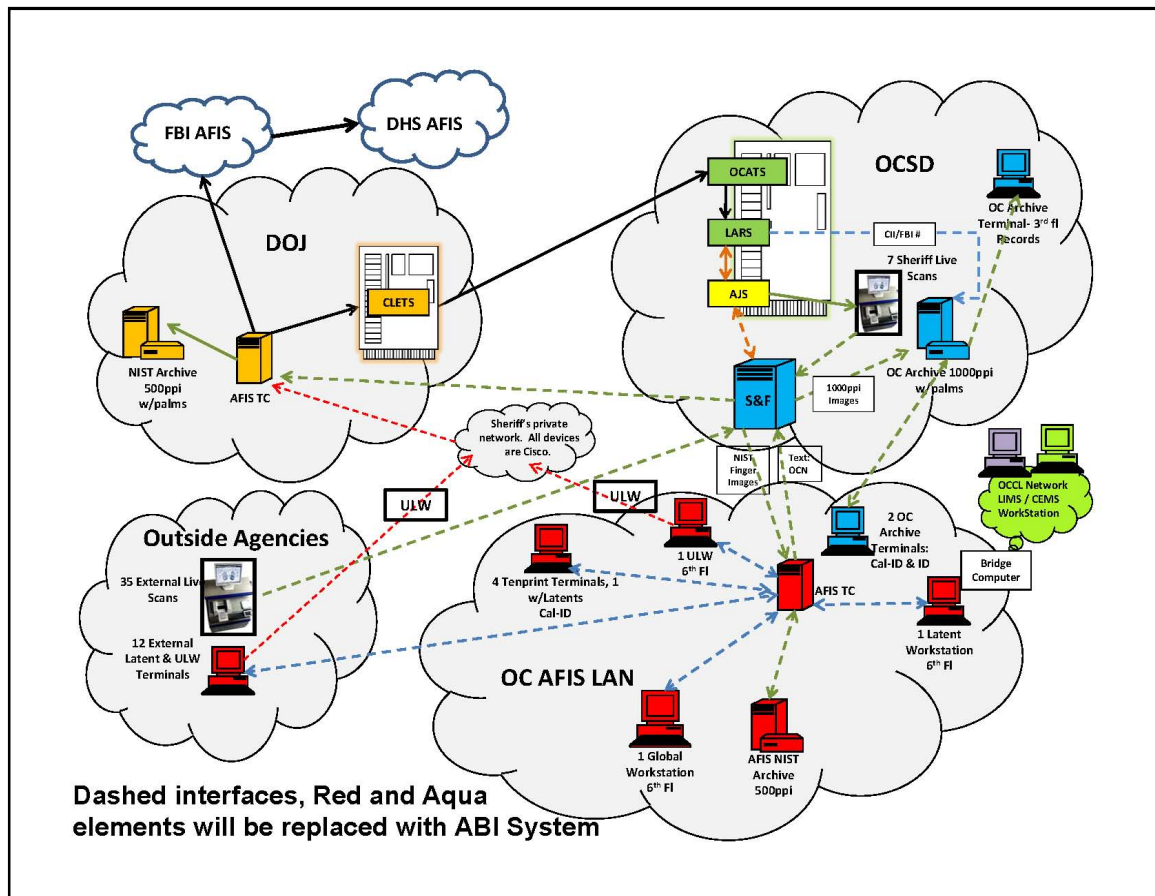


Figure 1 OCCL Current AFIS System Environment

Table 1 depicts the systems legend for Figure 1 and Figure 2.

OCCL OC ABI System Concept of Operations

Color	System/Terminal description
Red	Current provider specific AFIS21 environment. Dashed interface lines indicates the interfaces that are to be replaced with the new ABI System
Yellow	OCSD Automated Jail System (AJS) services
Aqua	CDI Store and Forward (S&F) and interfaced OC Archive, to be replaced with the new AFIS capability. The S&F is a Computer Deductions, Inc. system that runs in the Sheriff's Department data center, but is owned and operated by Cal-ID. It is on the Sheriff's Department network.
Green	OC Sheriff's Local Arrest Records System (LARS)
Lime Green	OCCL Laboratory Information Management Systems (LIMS)
Lavender	Cal-ID Electronic Management System (CEMS) is part of a suite of OCCL in-house software
FBI Cloud	FBI and any FBI/NIST compliant cross-jurisdictional system identification systems, non-provider specific. The LSR and ULM responses network back to Latent terminals/ULWs.
Purple	New ABI system environment; pending decisions on some of legacy S&F capability which may or may not be retained on the S&F, but will be separated from the Cal-ID AFIS environment and not deemed part of this procurement
Orange	OC Automated Telecommunication System
Dark Blue	CalDOJ AFIS Transaction Controller, AFIS and NIST archive

57 **Table 1 System Legends**

58 **1.2 FUTURE SYSTEM**

59 The Orange County Crime Lab (OCCL) has decided to acquire a new Automated
 60 Biometrics Information System that will meet the future needs of their user community.
 61 This document is aimed at providing an overview as to what the new system will offer.

62 Looking forward over the life of the anticipated contract, there are forecasted changes to
 63 the ABI System services driven by various forces of change.

64 The change drivers leading OCCL to move forward with the acquisition of a new OC
 65 ABI System processing environment can be generally characterized as either external or
 66 internal forces of change, outlined as follows:

- 67 • External forces of change:
 - 68 o Compliance with updates to the national standards – The American

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- 69 National Standards Institute/National Institute of Standards and
70 Technology (ANSI/NIST) standard and the FBI's interpretation of that
71 standard: a revised Electronic Biometric Transmission Specification
72 (EBTS).
- 73 o Conformance to the revised (February 2011) FBI Criminal Justice
74 Information Services (CJIS) information security policy.
- 75 o The CJIS evolutionary movement from the Integrated Automated
76 Fingerprint Identification System (IAFIS) to the Next Generation
77 Identification (NGI) system.
- 78 o The introduction of a common set of fingerprint minutiae (called the
79 Extended Feature Set [EFS]) that supports interoperability across different
80 vendor systems with less examiner effort and higher accuracy.
- 81 • Internal forces of change:
- 82 o Addition of palm matching.
- 83 o Addition of segmented slap processing.
- 84 o Ability to ingest, store, process, and display 1000 pixels per inch (ppi)
85 images while still supporting 500 ppi image sets.
- 86 o Need for a fully NIST-standard commercial off-the-shelf (COTS) baseline
87 system to reduce or eliminate costs associated with future changes to the
88 system.
- 89 o Flexibility in responding to the natural evolution of automated biometric
90 identification functionality, standards, and technology.
- 91 o Need for additional electronic types of transactions (TOTs) (i.e., amnesia,
92 missing persons, request for criminal photo, etc.).
- 93 o Addition of latent case management to the OC ABI System processing.
- 94 o Need for a new secure interface with the laboratory systems and its
95 applications to transfer latent data to the new latent case management
96 system.
- 97 o Desire for eventually introducing a continuity of operations capability to
98 possibly include a backup or alternate site capability.
- 99 o Trend toward deployment of Mobile ID devices that require very short
100 turn around on local OC ABI System with less than 10 finger identity
101 checks.
- 102 o New technologies which will enable faster turn-around for criminal, civil
103 and latent searches.
- 104 o Support of Latent print images via mobile capture, through the normal
105 OCCL submittal mechanisms but with a higher priority.
- 106 o Minimizing of the current manually intensive workflows.

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- 107 o Ability to add new reports and types of transactions to capabilities without
108 going back to provider.
- 109 o Addition of administrative controls that will enable OCCL to track
110 changes and control software and hardware.
- 111 o Simplify and streamline the communication and data transfers between
112 outside Agencies, OCCL, DOJ and the ABI System.
- 113

2 OC ABI System Architecture & Workflows

115 The ABI System will employ a modern, standards-based architecture that will permit the
116 integration of new services over time. The selected vendor will design a system based on
117 the requirements and goals in the solicitation package. The new design will integrate the
118 store and forward functions, the archive, the matchers, a latent case management system,
119 and a new secure network.

120 The ABI System will offer criminal and some civil identification services, forensic
121 services, and administrative services, each expanded to include capabilities not currently
122 available with the baseline AFIS. The ABI System will be connected electronically with
123 the CalDOJ criminal justice environment and, through it, with the FBI and other external
124 agencies.

2.1 ANTICIPATED ABI SYSTEM HIGH-LEVEL ARCHITECTURE

126 The high-level architecture will offer more user flexibility and capability than the current
127 architecture. Figure 2 shows the conceptual OC ABI System high-level architecture.
128 Many of the current communications paths and the store and forward will migrate to new
129 infrastructure to be provided by the selected ABI System provider.

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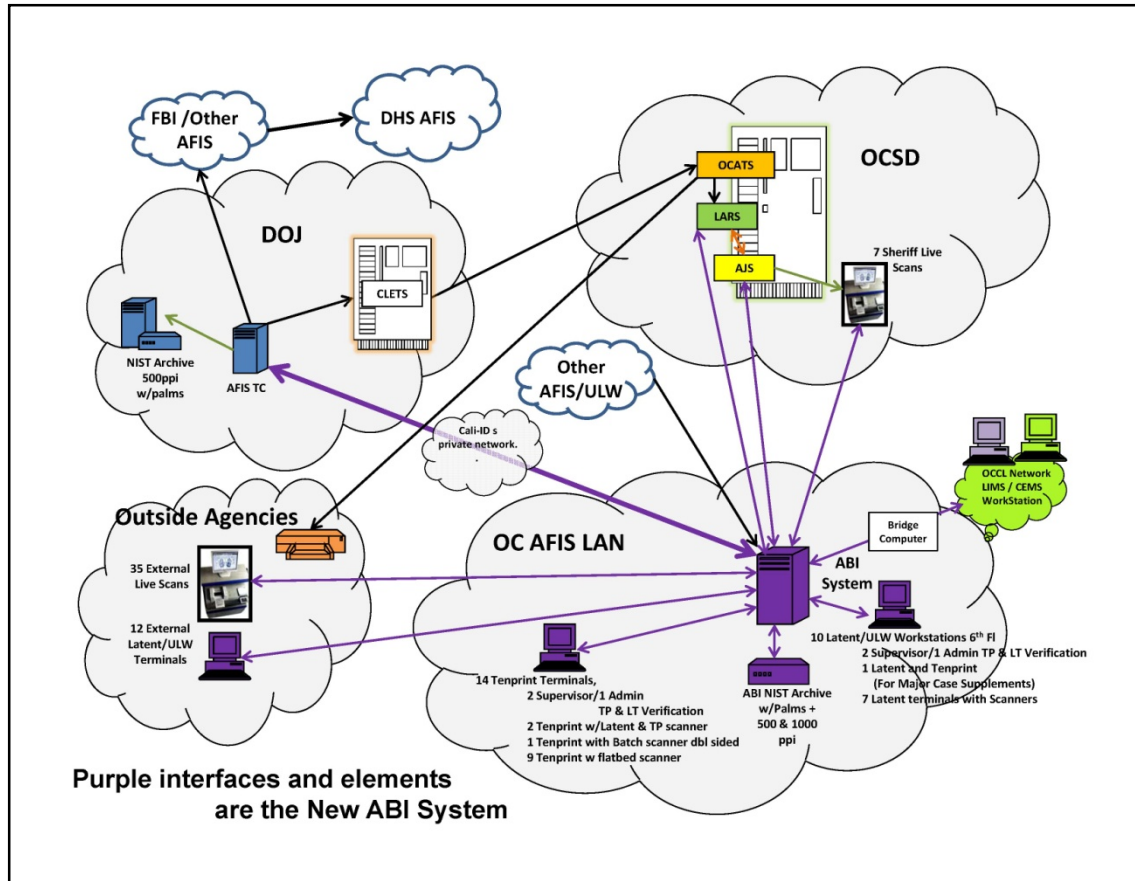


Figure 2 Conceptual OC ABI System Architecture

The provider will perform a study to address continuity of operations planning. This will permit the OCCL to develop a Continuity of Operations Plan (known as a COOP) for the ABI System and related systems to ensure service when the primary OC ABI System site is unavailable. COOP planning is intended to permit, within budget constraints, implementation of a disaster recovery capability to permit:

- Rapid resumption of critical operations following the loss of the primary operating location's hardware or power – the OCCL.
- A high level of confidence (through ongoing use and robust testing) that critical continuity arrangements are effective and compatible.

There are two major ways to provide for continuity of central computer facilities:

- An “active” operating site with a corresponding recovery/backup site. This strategy generally relies on maintaining backup copies of technology and data at an alternate site.
 - o The inherent challenge is to keep the backup site data and procedures up to date and to ensure that personnel at the primary site can get to the backup site or connect remotely during a disruption at the primary site or a region-wide disruption.

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- 149 o The backup system is not normally turned on except during recovery
150 exercises. Thus there is a startup lag to recover normal operations using
151 this system.
- 152 o Providers could propose more frequent synchronization.
- 153 • Split operation – known as “active-active” operation, where the load is shared
154 between the primary and backup sites.
- 155 o This approach provides for load balancing between the two sites as a
156 normal operating mode.
- 157 o All transaction updates must be applied in near real time at both sites so
158 that work in process does not miss an update that was posted only on the
159 other active site.
- 160 o This solution requires two full suites of technology and thus could carry a
161 higher cost than the single active site solution.

162 Both approaches suffer from the challenge of getting provider staff access to the alternate
163 site system in person or electronically during a loss of the central site. If there is a
164 region-wide power outage (such as the North East suffered in 2003), then the staff will
165 not be able to connect electronically. If there is a shutdown of transportation networks
166 (such as after 9/11), then staff will not be able to move to the alternate site.

167 The plan is to require the bidders to provide a trade-off study for alternative approaches
168 for the OCCL to consider.

169 **2.2 OPERATIONAL DATA FLOWS**

170 The operational data flows in the RFP will conform to the OC ABI System Requirements
171 Specification (SRS). The SRS contains a set of high-level requirements designed to meet
172 the needs of OC while permitting the providers to employ the flexibility inherent in
173 modern ABI System designs.

174 The interfaces between remote devices (e.g., livescans) and the S&F will all be required
175 to conform to the ANSI/NIST Standard (CalDOJ/FBI EBTS), as will all transactions
176 saved in the NIST Archive File on the ABI System.

177 For both criminal and civil workflows, the OC ABI System will add the functionality for
178 personnel to scan paper forms and create virtual fingerprint cards¹ and electronic
179 transmissions. These electronic transactions will enter the workflows just like those from
180 livescans.

181 **2.2.1 Criminal Workflows**

182 Criminal transactions normally follow a hierarchical transaction path. The path starts
183 with a booking (typically at the local level) or other appropriate event (e.g., sex offender
184 registration) that is submitted electronically to the ABI System for processing. As

¹ Virtual card is a term of art for electronic transactions that contain the digital information (text and images) that can be used to create a physical fingerprint card.

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185 appropriate, the ABI System subsequently forwards the transaction to the state system,
186 which then processes it and forwards it to the national systems (FBI and DHS).

187 At the Cal-ID level, the OC Sheriff's Local Arrest Record System (LARS) might suggest
188 a candidate based on name, DOB, and other subject non-biometric characteristics. A 1:1
189 search will be performed as well as a broader 1:n search of the entire Cal-ID repository.

190 These transactions will contain a collection of records that conform to the CalDOJ EBTS:

- 191 • Type-1 record with header type information (mandatory)
- 192 • Type-2 subject and event-related information (mandatory)
- 193 • Type-4 or Type-14 for fingerprints (mandatory)
- 194 • Type-10 for facial images and scars, marks, and tattoos (SMTs) (optional)
- 195 • Type-15 for palms (optional)
- 196 • Type-20 for manual scanning of tenprint cards only (optional).

197 Note: The Type-10 is only for criminal transactions, and if present they will be saved at
198 the NIST Archive for possible future use and forwarded to the FBI as part of any
199 transactions forwarded there. The FBI/CJIS will be collecting face, SMT and iris images
200 and by the mid-decade will be using them for biometric matching in their NGI system.
201 The new ABI System design will not preclude the inclusion of face and SMT matching at
202 a later date.

203 Transactions may or may not be submitted to FBI/CJIS (by 2014 CJIS will have migrated
204 from IAFIS to the NGI system) based on tables of TOTs, crime types, and any Compact
205 Council or Interstate Identification Index (III) rules as they relate to California and
206 CalDOJ. The FBI will return either a tenprint transaction error (ERRT) or a submission
207 response-electronic (SRE) response to OCCL via CalDOJ (possibly with reformatting by
208 CalDOJ). These responses will be directed to the ABI System for processing, archiving,
209 and disseminating the response to the original submitting agency or department.

210 The FBI, in turn, can submit transactions to the Department of Homeland Security (DHS)
211 Identification (IDENT) system for a further search, based on Secure Communities
212 program agreements and other rules. DHS will respond through NGI, in which cases the
213 FBI will send a second response (either an ERRT or SRE) to OCCL via CalDOJ
214 (possibly with reformatting by CalDOJ) that will be directed to the ABI System for
215 processing, archiving, and disseminating.

216 The OC ABI System shall be able to accept CalDOJ EBTS formatted criminal
217 transactions from any connected device (e.g., a Livescan).

218 The OC ABI System will perform one of the following functions in the criminal
219 workflow, as appropriate:

- 220 • Enroll matched transactions so that they are added to the matchers using the
221 previously assigned OCN.
- 222 • Save a non-matched transaction so that it is added to the matchers as a new
223 transaction under a new OCN.

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- Conditionally save the transaction only in the NIST Archive but not adding it to the matchers.

2.2.2 Civil Workflows

The civil workflow for applicants to work in OCSD is described below. All other applicant transactions will be ingested, parsed, and then rejected (as in error) or forwarded to CalDOJ for searching.

Applicants for OCSD will have their fingerprints collected and submitted to Cal-ID. These fingerprints will be processed locally as well as forwarded to CalDOJ for a routine state, and possibly a national, fingerprint-based criminal records check. The processing by the Cal-ID Bureau will be to determine if there are any local fingerprint-based criminal records associated with the applicant. This does not require the retention of the record.

2.2.3 Latent Workflows

Latent transactions will be submitted from the OC ABI System provider-supplied latent workstations as well as from Universal Latent Workstation (ULW) software running on those or other computers. For those submitted from OC ABI System supplier workstations, latent case management will be provided. For those submitted via a separate ULW device, the use of the latent case management system (LCMS) will be optional.

The LCMS will offer multiple functional capabilities to include:

- Ability to open cases and assign attributes to them or import attributes from external OCCL systems
- Ability to manage cases and close cases
- Ability to assign images to cases
- Ability to digitally prepare cases for searching and to save the processed (e.g., region of interest marked) images along with the original image
- Launch searches and review search results
- Change search parameters and reprocess the image prior to launching a subsequent search
- Select cross jurisdictional or hierarchical searches and launch them
- Maintain a record of all activities
- Prepare court charts or other graphics

The RFP will require that the bidders include the EFS as a baseline capability. NIST and Noblis Corporation, Inc. have developed the EFS in cooperation with the FBI and all the large-scale biometric identification system providers. The NGI latent capability will be based on the EFS set. The EFS will permit searching of any and all large-scale systems without re-encoding the features to send to other systems, as they implement this capability.

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2.2.4 Tactical Workflows

Tactical workflows are used to rapidly identify a subject. They can be launched from Mobile ID devices or from livescans as part of a pre-booking cycle. Mobile ID is offering law enforcement the opportunity to identify subjects lacking identity documents or appearing to have false identity documents, without having to transport them to a booking station. This saves resources and permits officers to rapidly identify subjects that pose immediate threats to officer and public safety.

Mobile ID transactions require rapid search responses. The FBI offers three levels of Mobile ID services – all related to their Repository for Individuals of Special Concern (RISC), specifically:

- SNFR157 – Where NGI shall respond to a RISC Rapid Search within ten seconds after receipt by NGI when no additional identity information is requested.
- SNFR244 – Where NGI shall respond to a RISC Rapid Search within 20 seconds after receipt by NGI when additional identity information is requested.
- SNFR158 – Where NGI shall respond to RISC Maintenance requests within 15 minutes after receipt by NGI.

The related transactions for tactical or rapid identification searches and their responses are shown in Table 2 below.

TOT	Transaction
TPIS	Tenprint Image Search
RPIS	Rapid Fingerprint Identification Search Submission
SRT	Search Result Tenprint (to TPIS search)
RPISR	Rapid Fingerprint Identification Search Response (to RPIS)
ERRT	Tenprint Transaction Error

Table 2 Tactical Service TOTs

The new OC ABI System will offer local TPIS searches against the entire OC repository with 2-minute or better responses as well as forwarding the transactions to the FBI's NGI system if no identification is made locally. This is different from Rapid Fingerprint Identification Search Submission (RPIS) searches, which can be submitted to the FBI in parallel with any local searches.

Consequently, RPIS TOTs would result in two separate responses – one from the OC ABI and another from CJIS. The NGI RPIS searches are performed against their RISC system not the significantly larger NGI identification system. CalDOJ will have to process these transactions.

2.2.5 Administrative Workflows

There will be numerous administrative workflows associated with tasks, such as:

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- 292 • Managing user accounts and permissions
- 293 • Generating reports
- 294 • Managing system settings for quality control (QC), auto-no-hit, lights-out hits,
295 etc.
- 296 • Conducting file management to include bulk extraction of known and unsolved
297 records for any purpose
- 298 • Running master test cases and measuring current performance in terms of
299 response time, throughput, capacity, and accuracy

300

301 **3 Procurement Approach**

302 The procurement will be a full and open competition run by OCSD Purchasing using the
303 on-line service BidSync™.

304 **3.1 TIMEFRAME**

305 It is anticipated that the RFP will be released early in the summer of 2011. After the
306 contract award, the selected provider will have 12 to 16 months to develop and integrate a
307 solution though the transition to the new system.

308 **3.2 INITIAL DATA LOAD**

309 Prior to deployment of the OC ABI System, the selected provider will be responsible for
310 converting friction ridge images and some paper forms (that will first have to be scanned
311 into image files) into ANSI/NIST-compliant files and loading them into the OC ABI
312 System with all appropriate transaction-related information. The files will be available in
313 the operational environment for search, retrieval, record management (e.g., consolidation
314 or deletion), and exporting as ANSI/NIST transactions or as ANSI/NIST Record Types
315 (individually or in batches) based on selectable fields, per the following approach.

316 **3.2.1 Known Tenprints**

317 There are multiple classes of tenprint records that will require processing as part of the
318 initial data load:

- 319 1. Original inked forms where the data is not available digitally – to be scanned at
320 1000 ppi and compressed with JPEG2000
- 321 2. Livescan forms that were printed out and are not available digitally – if the paper
322 records are available they will have to be scanned with no compression at 500ppi
323 (some pre-2000 transactions).
- 324 3. Card scanned forms that are stored in the current AFIS in a proprietary format –
325 where the original inked paper records are available they will have to be scanned
326 at 1000 ppi and compressed with JPEG2000

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- 327 4. Livescan records that are stored in the current AFIS (or CalDOJ system) that have
328 fully ANSI/NIST conformant Type-4, Type-14, or Type-15 information

329 For all cards scanned, the front and back will be scanned at 250 or 300 ppi and saved as
330 Type-20 records in the newly generated transactions and saved in the ANSI/NIST
331 Archive.

332 For all cards and digital records ingested, the provider will use the NIST Fingerprint
333 Image Quality (NFIQ) software to quality rate each finger and save the data for a report
334 at the end of the data conversion. The NFIQ scores will also be added to each Type-14
335 record in the newly created transactions for scanned records – they should already be
336 there for livescan Type-14 records.

337 After performing feature extraction on all tenprint records for use in the matchers, the
338 selected provider will cross-search all of them to determine all transactions that share
339 unique identities and link them together as single identities. They will use existing OCCL
340 person ID codes and will retain all booking numbers in indexing the tenprint repository.
341 Where new matches are found, the list of candidates will be presented to OCCL Cal-ID
342 for review and approval prior to completion of the data load.

343 For cases where multiple transactions are present for a subject in the repository, the
344 provider will use the NFIQ image quality scores, to develop a “best image set” as a
345 composite record for each of the current or proposed identities. Images from sealed
346 records can be used as a best image as long as the link to the sealed information is not
347 accessible other than by special permissions selectively assigned to supervisors.

348 The provider will load feature sets for up to three transactions for each identity – the
349 composite and the two most recent transactions if there are more than three. The known
350 tenprint file (up to three transactions per subject) will be loaded into the matchers for
351 testing and operational use, with pointers to the appropriate TCNs, SIDs, and identities
352 within the ANSI/NIST Archive. All fingerprints per enrollment record (i.e., up to 20
353 fingerprints) for the composite and up to the three most recent transactions (or two plus a
354 composite) will be loaded into the matchers and will be searchable for tenprint to tenprint
355 (TP-TP) and “forward” latent to tenprint (LT-TP) transactions. This can be thought of as
356 a 20-finger, latent cognizant system with multiple records per subject.

3.2.2 Known Palms

358 The current system stores palmprints externally to the NEC AFIS and the AFIS cannot
359 search palms. There are digital palm image sets available for the majority of arrest cycles
360 since early 2006 and they are stored in the CDI archive at their original 1000 ppi capture
361 rate. All other palm records are on paper forms that will be scanned at 1000 ppi and
362 compressed using JPEG2000.

363 For cases where multiple palm transactions are present for a subject, the provider will
364 propose methodology for conversion of palms to optimize matching accuracy, such as
365 enrolling multiple palm sets or enrolling the best palm partitions (e.g., use both palms
366 from the first arrest cycle and just replace the right palm from a subsequent arrest cycle,
367 if it is of better quality). After performing feature extraction on all palm records for use

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368 in the matchers, they will use existing OCNs and will retain all pointers in indexing the
369 palmprint repository. The known palm file will be loaded into the matchers for testing
370 and operational use, with pointers to the appropriate OCNs, TCNs, any CII/FBI numbers,
371 and identities.

372 **3.2.3 Latent Prints**

373 The unsolved latent images are in OCCL hard copy or digital databases. Many of them
374 are stored in the NEC AFIS in “.tiff” files. The selected provider will ingest all unsolved
375 finger and palm latent images and generate feature sets, either by auto-extracting them or
376 by converting the corresponding, existing feature sets to the currently-under-final-review
377 EFS format. The preference is the use of the already encoded feature sets in the NEC
378 system as the basis of re-encoding into the EFS format. Cal-ID is in conversations with
379 NEC to determine what latent encodings can be saved from the current AFIS system.

380 EFS has been integrated into ANSI/NIST ITL-1 2011. This fully interoperable feature
381 set will be further defined in two documents to be released in 2011, in concert with the
382 release of ANSI/NIST ITL-1 2011:

- 383 • Latent Interoperability Transmission Specification (LITS)
- 384 • The User Guidelines for Markup (EFSG).

385 The unsolved latent file will be loaded into the matchers as an integrated file (i.e., finger
386 and palm in one file with a field indicating finger, palm, or unknown source) or as two
387 separate files – based on provider design. These latents, once feature extracted and loaded
388 in the matchers, will be used for testing and operational use, with pointers to the
389 appropriate latent case numbers from LIMS and any related case information. The
390 records will be searched against the known tenprint and palmprint files and against one
391 another; all strong candidates will be documented for OCCL latent examiners to review
392 after the system goes operational.

393 There will be a latent case management system (LCMS) on the latent workstations at
394 OCCL. The 12 other agencies that submit latents will have the option of using the LCMS
395 or not. The LCMS will be integrated with the LIMS system via a to-be-developed
396 capability. Each latent image in the initial load will have an entry in the LCMS. After
397 contract award, the provider will work with OCCL to determine their preferences for
398 creating these initial case related entries in the LCMS.

399 **3.3 DELIVERABLES**

400 The new AFIS provider will replace all NEC installed equipment at the OCCL central
401 site as well as at all PD sites served. In addition they will develop and install an
402 integrated S&F system. The type of equipment includes:

- 403 • An ABI System with all data loaded and an integrated S&F capability
- 404 • Workstations with appropriate hardware and software:
 - 405 o PC – CPUs/disks/network cards

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- 406 o Monitors
- 407 o Printers
- 408 o UPS
- 409 o Scanners / cameras
- 410 They will also provide the following services and items – the details can be found in the
- 411 Scope Of Work for the project, which will be in the ABI System Request For Proposals.
- 412 • Services:
 - 413 o Backfile conversion (paper forms and digital records)
 - 414 o Installation
 - 415 o Training
 - 416 o Transition support
 - 417 o Testing support
 - 418 o Maintenance services
 - 419 o Warranty services
- 420 • Other Items:
 - 421 o Documentation
 - 422 o Software licenses
 - 423 o Training material

424 3.4 TEST APPROACH

425 An Automated Biometric Identification System is a complex software-based system that
 426 has many attributes that must be tested. Of critical concern is the appropriate test regimen
 427 to follow to ensure that all appropriate aspects are tested in a reasonable sequence. To
 428 understand the OC ABI System Testing area, there is a need for a common vocabulary.
 429 The correct term of art for what we call testing is verification, as in verifying that a
 430 product meets or exceeds a stated set of requirements. When implemented in a system,
 431 we will also validate that the stated requirements meet the requirements of the users.

432 The to-be-tested requirements fall into several classes, as shown in Table 3. The
 433 requirements samples shown in the table are intended merely to show the type of
 434 requirement often found in each class – they are not necessarily OCCL requirements. The
 435 actual requirements are specified in the OC ABI System Requirements Specification.

Ref.	Classes	Sample Requirements
1	Accuracy	The system shall have a true match rate of 99.9% for ten-print images at 1000 ppi, with an NFIQ average score better than 2.1, averaged across the fingers searched and the corresponding fingers on the mated repository record.

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Ref.	Classes	Sample Requirements
2	Functional	The Latent Case Management System shall support an examiner in generating a court display for a latent hit.
3	Capacity	The System shall have the capacity to store 6,000,000 tenprint transactions in the Archive in 2019.
4	Security	Anti-virus software shall be loaded on all processors that run operating systems where there are commercial anti-virus packages available.
5	Performance	The system shall be able to search 120 fingerprint records per hour against the full repository.
6	Form and Fit	The workstations shall have an Intel quad core processor, at least a 500 GB disk, at least a 24-inch LCD display, and run on Windows™ 7 (or a later version) or some version of Linux.
7	RMA	[Reliability, maintainability, availability, etc.] The Mean Time Between Failures (MTBF) of the workstation disk drives shall be at least 100,000 hours.
8	Environmental	The verification stations shall be able to operate in an office environment without any requirement for supplemental air conditioning or noise suppression beyond what is found in a normal office environment (i.e., 68° to 72° with a relative humidity between 40% and 60% and noise below 70 decibels (dBA) measured at the workstation).

Table 3 Classes of Requirements with Examples

OCCL intends to perform multiple tests as part of the move to a new OC ABI System. These tests will verify functional, performance, interface compliance (i.e., to the associated EBTS specification), file integrity, and other requirement classes as listed in Table 3 above. The tests will include:

3.4.1 Factory Acceptance Test (FAT)

The purpose of the FAT is to ensure that the basic capabilities are available and work in a factory setting; and that the documentation associated with the system reflects the design and is useable (e.g., one typically uses the start-up and shut-down procedures to verify they can be used, as written, to perform the intended function). These tests are oriented toward verifying as much functionality, form and fit, interface requirements, performance requirements, accuracy requirements, and documentation as possible.

The FATs are typically run with scripts so there is agreement among the stakeholders on the input and expected results and so the tests are repeatable. After successful passage of the FAT, the provider is given permission to ship the system to the various operational sites in Orange County.

Given that the other portions of the overall new OC ABI System's production environment (e.g., a link to CalDOJ) might not be available at the location of the FAT, the provider will employ simulators or comparable equipment they own, lease, etc. to make the FAT as robust as is practicable. The testing is to be done on stand-alone hardware (to include any necessary simulators or other equipment) not connected to any provider networks or to equipment not under test.

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The converted repositories (known and unknown friction ridge files as well as related feature sets, pointers, and tables) will be audited as part of the FAT. Accuracy tests will employ these repositories, while the search records will be data sets prepared by Cal-ID and having known image quality (tenprint only), minutiae counts (latents and their mates only) and mate or no-mate status information. FAT will include two accuracy tests: one with minimal human intervention (known as lights out) and one with expert human intervention following the provider's recommended best practices. There will be appropriate levels of performance required for each of these two accuracy tests.

Table 3 shows the anticipated parameters for FAT accuracy matching, with examiner assistance limited to orientation of latent images and marking the boundary (a.k.a. the region of interest) of the latent image area to be searched. This is referred to as Lights Out accuracy testing in Table 4. OCCL reserves the right to change the number of search, background, and mated records.

Element	TP-TP	TP-LT	LT-TP	KP ² -PLT	PLT-KP
Search Records	10,000	10,000 ³	200	5,000	100
Mated Records	50%	100	100	10	40
NFIQ Average of Mated TPs	3.1 or better	3.1 or better	3.1 or better	N/A	N/A
Minimum Number of Simultaneous Minutiae of Mated Items	N/A	16	16	16	16
Selectivity ⁴	1	10 / 25	10 / 25	10 / 25	10 / 25
True Match Rate ⁵	99.8%	45% / 60%	45% / 60%	45% / 60%	45% / 60%
Non-Mated Search Records	50%	9,900	100	4,990	60
Background Repository	All converted TP records	All converted LT records	All converted TP records	All converted Palm LT records	All converted KP records

Table 4 Lights Out Accuracy Test Information

Table 5 shows the anticipated parameters for best practices accuracy matching. OCCL reserves the right to change the number of search, background, and mated records.

² The abbreviation KP stands for Known Palmprint.

³ These transactions will be cascaded from the 10,000 TP-TP searches.

⁴ Selectivity is a measure of allowed candidate list length.

⁵ Assumes a true mate is in the searched file.

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Element	TP-TP	TP-LT	LT-TP	KP-PLT	PLT-KP
Search Records	10,000	10,000	200	5,000	100
Mated Records	50%	100	100	10	40
NFIQ Average of Mated TPs	1	1	1	N/A	N/A
Minimum Number of Simultaneous Minutiae of Mated Items	N/A	12	12	12	12
Selectivity	1	10 / 25	10 / 25	10 / 25	10 / 25
True Match Rate	99.9%	93% /100%	93% /100%	93% /100%	93% /100%
Non-Mated Search Records	50%	9,900	100	4,990	60
Background Repository	All converted TP records	All converted LT records	All converted TP records	All converted Palm LT records	All converted KP records

Table 5 Best Practices Accuracy information**3.4.2 Site Acceptance Test (SAT)**

The purpose of the SAT:

- To demonstrate that the equipment was installed correctly and operates at the functional and performance levels verified at FAT.
- To verify the requirements that could not be verified at the factory (such as operations flowing all the way through CJIS and back – via CalDOJ).
- To verify the performance requirements (throughput, accuracy, and reliability) with the full initial data load, multiple workstations, etc. to the extent that they have not already been signed off on at FAT.
- To verify that the integrated sum is at least as functional as the sum of the individual parts and to verify that end-to-end workflows execute as anticipated – the actual verification of the correctness of the end-to-end workflows, to include all the processing at each step, is normally deferred to UAT.

The SAT is also script-based, with scripts built up from those used at FAT – care will be taken to ensure that all additional requirements are allocated to specific test scenarios and that the scripts still ensure repeatability. Repeatability often requires cleaning out files and buffers that were changed, as the result of a previous test step when the changed data is no longer needed in the system.

After the SAT, the users will be switched to the new OC ABI System and the current system hardware suite will be run in parallel for a period of 30 days.

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3.4.3 User Acceptance Test (UAT)

The purpose of the UAT is the final verification of the required business function and flow of the system, under real-world usage of the system. This 30-day period will ensure that the system is working properly and that the users are in agreement with the new system as far as the stated requirements are concerned. The UAT procedures will include both scripts and normal operations to see how the end-to-end workflows operate across the entire system to include the interfaces to CalDOJ, et al. UAT will be planned to provide a realistic and adequate exposure of the system to all reasonably expected events. This includes things that might not happen in a normal 30-day period, such as a full backup and restore, a full suite of report generation events, etc.

Prior to this point in the contract, OCCL will have verified most or all of the accuracy, performance, and capacity requirements. UAT will not focus on spelling and major system problems (e.g., software crashes all the time), as those issues will have been successfully addressed before OCCL permits operational use of the “new” system.

3.5 TRANSITION SUPPORT

The provider will provide a transition plan that the county can build on to migrate services and clients (e.g., local police departments) from the NEC AFIS21 to the new system. This plan will address parallel operations, synchronization of the current and new repositories up to the final minutes, timing of training relative to hardware installation, and sequence of switching services (e.g., perhaps latents might be switched before tenprints or vice-versa).

4 Hours of Operation and Support

The new OC ABI System central site will be available 24 X 7 to support livescan submittals of fingerprints. Cal-ID tenprint examiners will be on duty around the clock to provide support to submitting agencies and departments. The latent functionality will be available 24 X 7 to search latents and to reverse search all criminal tenprints and palms against unsolved latents. Candidate lists will be queued for review by the latent unit staff during their normal working hours.

Provider technical support services will be available on-call 24 X 7 and shall acknowledge the problem report telephonically or by email within one (1) hour, respond on site within 12 hours or less for beginning on-site remediation of problems, and respond in 4 hours or less to begin remote-access remediation (if such access is permitted). The provider will provide a Help Desk 24 X 7.

5 System Attributes

This Concept of Operations describes OC ABI System attributes by transaction class for the daily and peak transaction rates (Table 6), the cumulative transaction storage levels (Table 7), best practice accuracy levels (Table 8), and response times (Table 9).

The transaction classes are:

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- 535 • Criminal TP-TP
- 536 • Civil TP-TP
- 537 • Civil ID Slaps-TP
- 538 • Mobile ID TP-TP
- 539 • TP-LT
- 540 • LT-TP
- 541 • Palm LT-KP
- 542 • Criminal KP-LT

543 The system workload requirements will be defined in detail in the System Requirements
 544 Specification portion of the Request for Proposal (RFP). The following sections reflect
 545 high-level summaries by year.

546 5.1 WORKLOADS BY TRANSACTION TYPE

547 The peak values are intended to be used in the design of the system and will be tested in
 548 Factory Acceptance Test (FAT) and Systems Acceptance Test (SAT).

Ref.	Transaction Type	2012	2013	2014	...	2019
1	Criminal TP-TP – Daily Average	300	321	343		482
2	Peak 30 Minutes	24	26	27		39
3	Civil TP-TP – Daily Average	20	21	23		32
4	Peak Hour	3	3	4		5
5	Civil ID Slaps-TP – Daily Average	10	11	11		16
6	Peak Hour	2	2	2		3
7	TP-LT – Daily Average	300	321	343		482
8	Peak 30 Minutes	24	26	27		39
9	LT-TP – Daily Average	50	55	61		97
10	Peak 2 Hours	16	18	19		31
11	Palm LT-KP – Daily Average	20	22	24		39
12	Peak 2 Hours	6	7	8		12
13	Criminal KP-LT – Daily Average	240	257	275		385
14	Peak 30 Minutes	19	21	22		31
15	Mobile ID TP-TP – Daily Average	300	405	547		2,452
16	Peak 5 Minutes	4	5	7		33

549 **Table 6 Average and Peak Throughput rates**

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5.2 TRANSACTION STORAGE CAPACITIES

The system capacities shown below reflect the OCCL cumulative transaction rates, including the records to be converted. The ABI System ANSI/NIST Archive will accommodate these numbers of stored records. Given that the replacement system will have up to three tenprint enrollments per subject, the actual matcher capacities will be different than the values in this table. Additionally, some of the tenprint transactions are search-without-add. The anticipated rates will be detailed in the System Requirements Specification portion of the RFP.

Ref.	Stored Record Types	2012	2013	2014	...	2019
1	Tenprint Transactions	1.3 M	1.4 M	1.6 M		2 M
2	Palm Transactions	0.6 M	0.64 M	0.68 M		0.96 M
3	Latent Print Images (finger and palm)	40 K	44 K	48 K		80 K
4	Mobile ID Print Transactions	25 K	33 K	45 K		200 K

Table 7 Cumulative Transaction Rates

5.3 ACCURACY RATES BY TRANSACTION CLASS

The best practice accuracy rates will be used in the acceptance testing of the system. Actual performance will depend heavily on image quality, quality control, system threshold setting in operational use, and examiner performance. Selectivity is defined as the maximum number of candidates that may be returned at these accuracy rate requirements.

Ref.	Transaction Types	Selectivity	True Match Rate
1	TP-TP	1	99.9%
2	Civil ID Slaps-TP	1	99.9%
3	TP-LT	10/25	93%/100%
4	LT-TP	10/25	93%/100%
5	Palm LT-KP	10/25	93%/100%
6	Criminal KP-LT	10/25	93%/100%
7	Mobile ID TP-TP (with fewer than 10 prints)	5	99%

Table 8 Best Practice Accuracy Rates

5.4 RESPONSE TIMES BY TRANSACTION CLASS

The response time requirements below are stated at the level of 95 percent of all transactions being processed in no more time than the values shown below when the system is under a full load (i.e., a period where all transaction types are at their respective peaks, as described above).

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Ref #	Transaction Types	OCSD Requirements
1	Criminal TP-TP	5 minutes
2	Civil TP-TP	60 minutes
3	Civil ID Slaps-TP	10 minutes
4	TP-LT	5 minutes
5	LT-TP	30 minutes
6	Palm LT-KP	30 minutes
7	Criminal KP-LT	10 minutes
8	Mobile ID TP-TP	2 minutes

Table 9 Response Times by Class

6 Transition Approach

The overall transition approach is intended to minimize the risk of changing too many things simultaneously and thus making it harder or impossible to recover from any unexpected problems. The mitigation approach to the risk of a non-recoverable situation is to transition the central OC ABI System site first but with parallel operations with the current AFIS central site for 30 days to:

- Verify accuracy and compatibility with existing livescan and latent transactions
- Maintain synchronized repositories during transition
- Permit local systems (e.g., remote latent workstations) to be switched to the new central site hardware individually
- Compare the matcher results between the old and new AFIS matchers

After the successful transition to parallel central site operations, the OCCL workstations will be installed and tested. After a successful transition of the first user device, the provider will be authorized to start transitioning the other user locations individually.

All currently ANSI/NIST and CalDOJ EBTS compliant transactions (i.e., all transactions other than NEC proprietary transactions) can be submitted to the new OC ABI System with no changes.

The actual transition details will depend on the provider selected by OCCL, as the provider will have the leeway to propose an optimal sequence of transitioning to the new system by location (e.g., switch one or more users at a time) or by other reasonable approaches.

The transition will focus on moving the OC supported activities and technology to a fully digital and fully standards-based environment. The local agencies will be responsible for any changes required to their own operating procedures and interfaces to the extent to which they want to take advantage of these enhanced services.

*OCCL OC ABI System Concept of Operations***7 Training**

The provider will conduct training in a classroom environment for all OCCL employees and the other users (e.g., local PDs) who rely on the system to perform their jobs. This will be a rigorous effort to ensure that all the users will be ready to assume their new system responsibilities. In addition to the classroom training, the provider support will be available during the UAT and as needed during the first few weeks of the operational system. New employees will be provided similar training as needed, by internal super users.

8 Security

OCCL supports local law enforcement and maintains connectivity to state and federal law enforcement systems. The award provider(s) will comply with OCCL security policies that include the FBI CJIS Security Policy by reference. This means that:

- At award, provider will sign and comply with the FBI-CJIS Security Addendum.
- All employees and third parties having direct access to OC ABI system and records shall be required to sign the FBI-CJIS employee certification.
- All provider employees and subcontractors that have direct access shall also be fingerprinted for purposes of a fingerprint-based criminal history background check by OCSD.
- Primary and remote sites must comply with OCCL Security Policies.
- All work on the project must be performed in the United States; with the one exception that provider algorithm development and algorithm maintenance can occur at the provider's facilities independent of where they are located.

*OCCL OC ABI System Concept of Operations*622 **Appendix A: Glossary of Terms**

<u>TERM</u>	<u>DEFINITION</u>
OC ABI System	Orange County Automated Biometric Identification System
AFIS	Automated Fingerprint Identification System
ANSI	American National Standards Institute (a governing body for US national standards)
ANSI Standard	Shorthand for the <u>American National Standard for Information Systems – Data Format for the Standard for the Interchange of Fingerprint Information, Facial, and Other Biometric Information – Part 1</u>
ANSI/NIST	A standard developed by NIST’s Information Technology Lab (ITL) using the ANSI procedures and registered with ANSI
CalDOJ	California Department of Justice
Cal-ID	California ID Bureau – a unit of the OCCL (q.v.)
CAR	Criminal Tenprint – Response Required
COOP	Continuity of Operations Plan: The degree or state of being continuous in the conduct of function, tasks, or duties.
Composite	A feature set made up with the features from the highest quality images from a subject’s fingers when there is more than one set of fingerprints for a subject.
DHS	Department of Homeland Security
EBTS	Electronic Biometric Transmission Standard – adopted by a Domain (q.v.) as their implementation of the ANSI/NIST Standard
EFS	Extended Feature Set – a provider-neutral set of descriptors used for latent encoding and searching across dissimilar AFIS systems
EFSG	EFS User Guidelines for Markup
EFTS	Electronic Fingerprint Transmission Standard – a term originally used when only fingerprints were being exchanged – now replaced by the term EBTS for ABIS systems; a Domain’s implementation of the ANSI/NIST Standard
FAT	Factory Acceptance Test
FBI	Federal Bureau of Investigation
FIQ	Fingerprint Image Quality

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<u>TERM</u>	<u>DEFINITION</u>
IAFIS	Integrated Automated Fingerprint Identification System – the FBI’s system for integrating fingerprint comparisons with criminal history record processing
ID	Identification
KP	Known Palmprint
LCMS	Latent Case Management System
LIMS	Laboratory Information Management System
LITS	Latent Interoperability Transmission Specification
LT	Latent
MTBF	Mean Time Between Failures
NGI	Next Generation Identification system – the FBI’s multi-modal replacement for IAFIS
NIST	National Institute of Standards and Technology – part of the US Department of Commerce
OCCL	Orange County Crime Lab
OCSD	Orange County Sheriff-Coroner Department
ORI	Originating Agency Identification
PIV	Personal Identity Verification
QC	Quality Control
RFP	Request for Proposal
RISC	Repository of Individuals of Special Concern – an FBI automated biometric identification system file
RMA	Reliability, Maintainability, and Availability
RPIS	Rapid Fingerprint Identification Search submission
S&F	Store and Forward
SAT	Systems Acceptance Test
SID	State Identification Number
TCN	Transaction Control Number
TBD	To Be Determined
TP	Tenprint
TOT	Type of Transaction

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<u>TERM</u>	<u>DEFINITION</u>
UAT	User Acceptance Test
UPS	Uninterruptable Power Supplies
ULW	Universal Latent Workstation – interactive and interoperable software released by the FBI for fingerprint searches of the FBI systems
USL	Unsolved Latent Repository – a file within an automated biometric identification system
WSQ	Wavelet Scalar Quantization – a compression method used for friction ridge images collected at 500 ppi and placed in Type-4, 14, & 15 records.

623

*OCCL OC ABI System Concept of Operations*624 **Appendix B: List of Livescans by Location**

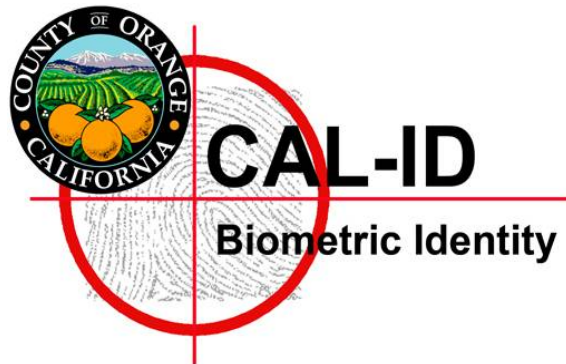
625

Department	# of Livescans
Aliso Viejo	2
Orange PD	2
Brea PD	1
Buena Park PD	1
Cal-ID	1
OCSD Civil Prints	3
Costa Mesa PD	1
Cal State University Fullerton PD	1
Cypress PD	1
Fountain Valley PD	1
Fullerton PD	2
Garden Grove PD	2
Huntington Beach PD	1
OCSD Jail Intake Release Center (IRC)	5
Irvine PD	1
Juvenile Hall	1
Laguna Beach PD	1
La Habra PD	1
La Palma PD	1
Los Alamitos PD	1
Newport Beach PD	1
Placentia PD	1
Probation	1
Santa Ana PD	1
Seal Beach PD	1
OCSD Theo Lacy Jail	2
Tustin PD	1
University of California Irvine PD	1
Westminster PD 2 locations	2
Totals:	41

*OCCL OC ABI System Concept of Operations***Appendix C: List of Latent Equipment by Location**

Department	# of Workstations
OCCL - ID	1
OCCL – Cal-ID	1
Anaheim PD	1
Buena Park PD	1
Costa Mesa PD	1
Fountain Valley PD	1
Fullerton PD	1
Garden Grove PD	1
Huntington Beach PD	1
Irvine PD	1
Newport Beach PD	1
Orange PD	1
Santa Ana PD	1
Westminster PD	1
Totals	14

Communications Infrastructure
Description for
Orange County's
Criminal Justice Environment - 2011



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*OC Criminal Justice System Communications Environment***1. Introduction**

The Orange County Sheriff's Department Crime Laboratory (OCCL) has been operating an NEC AFIS21 system for 11 years providing services to its own members, local police departments within the county, the California Highway Patrol, and others. The services offered include:

- Identification of subjects with prior criminal histories through searches of the fingerprints through the Automated Fingerprint Identification System (AFIS).
 - o As part of the booking process for criminals
 - o As part of the background investigation of people applying for positions of trust with the county
 - o In response to ad-hoc requests from investigators
- Assignment of local file number (the Orange County Number or OCN) for new arrestees. These OCNs are used in numerous county business processes.
- Support to the identification of criminals by searching latent fingerprints from crime scenes through the AFIS and analyzing the candidates.
- Connectivity to the CalDOJ AFIS and through it access to the Federal Bureau of Investigation's (FBI) AFIS system, which is currently migrating from their Integrated Automated Fingerprint Identification System (IAFIS) to the Next Generation Identification (NGI) System.
- Support to the Secure Communities program – where arrest records are forwarded through the FBI to the Department of Homeland Security (DHS).

The current system is serving Orange County well, but over time new functionality and interface standards have been introduced at the State and Federal level that the current system cannot offer. In 2009, the Orange County Remote Access Network (RAN) Board voted to replace the aging system and the OCCL began the process to competitively replace the current NEC AFIS21 with a multi-modal Automated Biometric Identification System (ABI System) that can match fingerprints and palmprints as well as support the latest AFIS interoperability standards.

The new services to be offered by the replacement ABI System include:

- Searching of latent palms collected at crime scenes
- Fully standards-compliant, image-based transactions from data collection through final processing
- The beginnings of a continuity of operations (COOP) capability to include analysis for an eventual backup or alternate site capability.
- Support for Mobile ID devices that would permit patrol officers, jail staff, and investigators to collect and search fingerprints from traffic stops, interviews, and movement of prisoners – with two minute or better local criminal searches and

OC Criminal Justice System Communications Environment

38 sub minute FBI responses against the Repository of Individuals of Special
39 Concerns (RISC) system.

40 OCCL has started on a path to replace the current system. As part of that effort, a series
41 of documents are being prepared; some for use in a Request for Proposals (RFP) and
42 others as reference documents to be used by industry in preparation of responses to that
43 RFP.

44 The purpose of this document is to provide a description of the current (May 2011)
45 Orange County Sheriff's Department (OCSD) digital communications infrastructure
46 associated with criminal justice information processing. The scope includes lines to and
47 from client sites (i.e., local police department (PD) livescans and remote latent
48 workstations), the Cal-ID AFIS and its workstations in the OCCL, CalDOJ, the current
49 local Store and Forward (S&F) device, the county criminal records system, etc. The
50 selected vendor will use this reference document in the performance of an RFP task to
51 study, design, develop, test, and install an alternative communications infrastructure for
52 the Orange County (OC) Automated Biometrics Identification System.

53 **2. Communications Infrastructure**

54 The following table provides a list of the networks known to Cal-ID and used in the
55 OCSD criminal justice environment as of May 2011. The various systems and services
56 are subject to change over time. Table 1 is intended to provide a snapshot in time.

System A	System B	Network utilized	Bandwidth capacity # of Ports
AJS	S&F	Sheriff's Network	1Gbps
AJS	LARS	Sheriff's Network	Both within Mainframe computer
AJS	OCSD LIVESCANS	Sheriff's Network via OCSD WAN Server	45Mbps
CalDOJ TC	LARS	CLETS/OCATS	Both within Mainframe computer
Cal-ID AFIS	AFIS Latent Terminals in PDs	Sheriff's Network	1.5Mbps
Cal-ID AFIS	Cal-ID AFIS Tenprint Terminals @ OCCL	AFIS LAN	Unknown
Cal-ID AFIS	Cal-ID AFIS latent Terminals @ OCCL	AFIS LAN	Unknown
Cal-ID AFIS	Cal-ID AFIS latent Terminals @ PDs	Sheriff's Network	1.5Mbps

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System A	System B	Network utilized	Bandwidth capacity # of Ports
Cal-ID AFIS-TC	S&F	Sheriff's Network	1Gbps
Cal-ID AFIS TC (Vendor Specific interface for tenprint, latent and CalDOJ)	CalDOJ TC	CLETS/AFIS LAN	unknown
Cal-ID AFIS tenprint and latent	Cal-ID AFIS TC	AFIS LAN	unknown
Cal-ID AFIS tenprint and latent Terminals	WIN	CLETS/NLETS	unknown
Cal-ID NIST LIVESCANS submissions	Store and Forward	Sheriff's Network and County Network	1.5Mbps
CDI S&F	LARS	Sheriff's Network	1Gbps
CDI S&F	CalDOJ	CLETS	45Mbps
CEMS	OCCL	OCLN	unknown
FBI via DOJ CLETS	LARS	CJIS WAN/CLETS/OCATS	Both within mainframe computer
FBI	ULW	CJIS WAN TBD03	unknown
GWS OCCL Palm Latent Terminal	CalDOJ	CLETS	unknown
JIMS	CalDOJ	Web	Unknown
JADE	CalDOJ	Web	Unknown
LARS via S&F	OC Archive		1Gbps
LIMS	LIMS Terminal	Sheriff's Network	1.5Mbps
LIMS	AFIS Latent Terminal (one way)	Multi-homed client (2 NICs)	100 BaseT
LIMS	CalDOJ Latent Terminal (one way)	Multi-homed client (2 NICs)	100 BaseT

57 **Table 1 List of OC Cal-ID Interfaces and Networks Utilized**

*OC Criminal Justice System Communications Environment*58 **Appendix A: Glossary of Terms**

<u>TERM</u>	<u>DEFINITION</u>
ABI System	Automated Biometric Identification System
AFIS	Automated Fingerprint Identification System
AFIS Archive	NEC (q.v.) NIST Archive attached to the AFIS-21 (q.v.)
AFIS-21	Version of NEC AFIS
AJS	Automated Jail System
ANSI	American National Standards Institute (a governing body for US national standards)
CalDOJ	California Department of Justice
CalDOJ Archive	NEC (q.v.) NIST Archive attached to AFIS
Cal-ID	California Identification operational units
CDI	Computer Deductions Incorporated, a company
CEMS	Cal-ID Electronic Management System
CLETS	California Law Enforcement Telecommunications Network
COOP	Continuity Of Operations Plan: The degree or state of being continuous in the conduct of function, tasks, or duties.
DHS	Department of Homeland Security
FBI	Federal Bureau of Investigation
GWS	Global Workstation (an NEC term)
JIMS	Justice Identity Management System
JADE	Justice Automated Data Exchange
LAN	Local Area Network
LARS	Local Arrest Records System
LIMS	Laboratory Information Management System
NEC	Nippon Electric Corporation, AFIS-21 Vendor
NLETS	National Law Enforcement Telecommunications Systems
OC	Orange County

OC Criminal Justice System Communications Environment

<u>TERM</u>	<u>DEFINITION</u>
OC Archive	This is the Orange County NIST archive that is attached to the S&F (q.v.) that stores the 1000 ppi records with palms captured since 2006.
OCATS	Orange County Automated Telecommunications System
OCCL	Orange County Crime Laboratory
OCLN	Orange County Lab Network
OCSD	Orange County Sheriff's Department
RISC	Repository of Individuals of Special Concerns
S&F	CDI (q.v.) Store and Forward
TC	Transaction Controller
ULW	Universal Latent Workstation
UNK	Unknown
WAN	Wide Area Network
WIN	Western Identification Network combined 8 states AFIS

*OC Criminal Justice System Communications Environment***Appendix B: Workstation Site Location**

The workstations, printers, and Automated Document Feeder (ADF) scanners are defined in the OC ABI System Requirements Specification (Ref. 1) Form and Fit Requirements, Section 4.7.

Location	Number of Workstations	Number of Printers	Number of ADF Scanners
OCCL - ID	9	5	
OCCL – Cal-ID	11	5	1
Anaheim PD	1	1	
Buena Park PD	1	1	
Costa Mesa PD	1	1	
Fountain Valley PD	1	1	
Fullerton PD	1	1	
Garden Grove PD	1	1	
Huntington Beach PD	1	1	
Irvine PD	1	1	
Newport Beach PD	1	1	
Orange PD	1	1	
Santa Ana PD	1	1	
Westminster PD	1	1	
Totals	32	22	1

*OC Criminal Justice System Communications Environment***63 Appendix C: Livescans by Location**

Department	# of Livescans
Aliso Viejo	2
Orange PD	2
Brea PD	1
Buena Park PD	1
Cal-ID	1
OCCL Cal-ID Other Prints	3
Costa Mesa PD	1
Cal State University Fullerton PD	1
Cypress PD	1
Fountain Valley PD	1
Fullerton PD	2
Garden Grove PD	2
Huntington Beach PD	1
OCSD Jail: Intake Release Center (IRC)	5
Irvine PD	1
Juvenile Hall	1
Laguna Beach PD	1
La Habra PD	1
La Palma PD	1
Los Alamitos PD	1
Newport Beach PD	1
Placentia PD	1
Probation	1
Santa Ana PD	1
Seal Beach PD	1
OCSD Jail: Theo Lacy Facility (TLF)	2
Tustin PD	1
University of California Irvine PD	1
Westminster PD - 2 locations	2
Totals:	41

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Question and Answers for Bid #060-583784-SQ - RFI For Automated Biometric Identification System

OVERALL BID QUESTIONS

There are no questions associated with this bid. If you would like to submit a question, please click on the "Create New Question" button below.

Question Deadline: Aug 15, 2011 7:00:00 AM PDT