NIST Special Publication 1155

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U.S. Department of Commerce
Rebecca Blank, Acting Secretary

National Institute of Standards and Technology
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Writing Guidelines for Requests for Proposals for Automated Fingerprint Identification Systems

Latent Print AFIS Interoperability Working Group

Law Enforcement Standards Office (OLES)

Helping law enforcement, corrections, criminal justice, and public safety agencies ensure that the equipment they purchase and the technologies they use are safe, dependable, and effective.

A division of

National Institute of Standards and Technology

Enter Once, Search Many

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Contents

FOREWORD

This is one of a series of documents prepared by the Latent Print Automated Fingerprint Identification System (AFIS) Interoperability Working Group. The purpose of these documents is to provide guidance and a framework to those involved in the identification process who may serve as a project leader or member of a working group for an AFIS purchase, replacement, upgrade, or move to a more biometrics-based identification process.

Each agency has its own procedures as well as policies and laws that are applicable in the procurement process. The information contained in these documents should be considered as complementary.

The Latent Print AFIS Interoperability Working Group

The lack of latent print search interoperability and the subsequent missed opportunities to make identifications have been long recognized as serious issues within the examiner community. Latent print examiners, AFIS managers, vendors, governmental agencies, and professional organizations have explored opportunities to improve interoperability. Since the introduction of AFIS systems in the 1980s and the Federal Bureau of Investigation's (FBI's) Integrated Automated Fingerprint Identification System (IAFIS) in the late 1990s, latent print identifications have risen on a hierarchical level but not on a peer-to-peer basis.

As part of a National Institute of Justice (NIJ)/National Institute of Standards and Technology (NIST) effort to address the lack of AFIS interoperability, the Law Enforcement Standards Office (OLES) formed the Latent Print AFIS Interoperability Working Group. The mission of this working group is to improve latent print AFIS interoperability by developing a clear understanding of the issues with and challenges to latent print AFIS interoperability and to identify collaborative ways to actively address this national problem.

The working group first met in April 2008. The release in February 2009 of the National Academy of Sciences' report, *Strengthening Forensic Science in the United States: A Path Forward*,[1] gave further support to the issue at a national level.

The working group consists of federal, state, and local representatives as well as vendors and other members of the identification community. These include the following:

[1] National Academy of Sciences, National Research Council, Committee on Identifying the Needs of the Forensic Science Community, *Strengthening Forensic Science in the United States: A Path Forward,* (National Academies Press, 2009).

State and Local Representation

Broward County, Florida, Sheriff's Office
Culver City, California, Police Department
Illinois State Police, Forensic Science Center at Chicago
Los Angeles County, California, Sheriff's Department
New Hampshire Division of State Police Forensic Laboratory
New York State Division of Criminal Justice Services
Nlets
San Francisco, California, Police Department
Santa Monica, California, Police Department
South Carolina Crime Information Center
Texas Department of Public Safety
Western Identification Network, Inc.

Federal Representation

Department of Homeland Security
FBI Criminal Justice Information Services Division
NIJ Office of Science and Technology
NIST Information Technology Laboratory
NIST Law Enforcement Standards Office

AFIS Technical Advisors and Vendor Representatives

While many individuals contributed to the success of this project, the following are noted for having made significant contributions of their time, talent, and vision:

Susan Ballou	National Institute of Standards and Technology
Anthony Clay	United States Secret Service
Joi Dickerson	Culver City, California, Police Department
Mike Garris	National Institute of Standards and Technology
Peter T. Higgins	Higgins & Associates, International
Janet Hoin	New York State Division of Criminal Justice Services
Lisa Jackson	Santa Monica, California, Police Department
Peter Komarinski	Komarinski and Associates
Mike Lesko	Texas Department of Public Safety
Joe Morrissey	New York State Division of Criminal Justice Services
Leo Norton	Los Angeles County, California, Sheriff's Department
Beth Owens	Franklin County, Ohio, Sheriff's Office
Joe Polski	International Association for Identification (Retired)
Melissa Taylor	National Institute of Standards and Technology

The objectives of the working group in the preparation of these documents were to:

- ❑ define the issues and challenges to latent print AFIS interoperability,
- ❑ identify opportunities to actively address latent print interoperability, and
- ❑ develop guidelines to provide guidance on technical and administrative issues.

The working group developed this and other documents to meet the needs of latent print examiners, AFIS users, managers, vendors, and policy makers to establish interagency latent AFIS interoperability. This document is one in a series of NIST OLES reference documents to help agencies achieve interoperability, located at http://www.nist.gov/oles/afis_interoperability.cfm.

INTRODUCTION

This document incorporates input from AFIS practitioners, examiners, users, and vendors. It is intended to provide agencies with an overall guide to critical conditions and decisions, allowing agencies the best opportunity to have clear and succinct request for proposals (RFPs), detailed responses for evaluation, and the implementation of the new AFIS with a minimum amount of frustration and delay.

The document uses the term AFIS, but the reader may substitute automated biometric identification system (ABIS), AFIS upgrade, or another term that will convey an enhancement over the identification technologies currently used by the agency.

Nothing in this document is intended to supersede the legal, financial, and administrative authority of the requesting agency. It is intended to provide a framework for developing the management team and for identifying the technical aspects of building a proposal, evaluating the responses, and creating a more complete and integrated identification process.

There are five major sections of this document.

- ❑ Overview of the Procurement Process
- ❑ AFIS Upgrade Phases
- ❑ Attachment I: Request for Information Template
- ❑ Attachment II: Request for Proposals Essentials
- ❑ Attachment III: Abbreviation List

Each section can stand alone, but the reader is encouraged to review the entire document for a better understanding of the proposal process and some of the specific items that should be considered for system improvements. An AFIS upgrade or new system is expensive in terms of both human capital and government dollars. The more complete and succinct the planning, procurement, testing, and acceptance, the better the system will be.

Because it is valuable for the reader to have a clear understanding of the proposal process, the following paragraphs will serve as a primer to better apply the concepts found in the next section, *Overview of the Procurement Process*.

Each procurement goes through a process or life cycle. The example text in this document will summarize the four phases that:

- ❑ establish leadership,
- ❑ create the RFP,
- ❑ evaluate proposals and award contract, and
- ❑ manage procurement and implementation.

Critical to success is the assignment of a talented project leader and working group coupled with a clear vision of the needs of all stakeholders.

Successful projects are built upon team efforts in which each person contributes. The RFP may result in a system that will cost hundreds of thousands, if not millions, of dollars. Commitments of funding, access to legal and administrative resources, as well as the political environment are essential for success. The agency may consider the need for an outside consultant to represent interests if the agency is not strong in these areas.

The agency should specify any administrative requirements that will affect the review of the proposal. The agency can identify key submission dates, the format and content requirement for proposals, and mandatory conditions of the final product. The agency should identify desirable requirements with the words “should” or “could” and mandatory requirements with the terms “must,” “will,” or “shall.”

In its specifications and requirements, the agency describes in very clear terms the current operating system and requirements for the next system. The more clearly the agency can describe the current operation and its vision for a new or upgraded system, the better the resulting proposals will be.

The agency must be very clear on the criteria used to evaluate the proposals, such as the relative merit of cost and the technical response, the importance of the experience of the vendor, and the composition of the evaluation team. Each vendor has an expectation of fairness and recognizes that only one contract will be awarded, but it is critically important that the evaluation process be honest, thorough, and well documented.

In addition to the technical and administrative requirements, there are other requirements that must be met for a successful agency/vendor relationship. These include governing laws, payments and warranties, and insurance. While the agency’s administrative or procurement office may already incorporate these considerations into its standard procedures, it is important to be reminded of these essential elements for success.

OVERVIEW OF THE PROCUREMENT PROCESS

It is not unusual for government procurements to face a multitude of challenges. The development of a successful RFP, proposal review, contract award, and project implementation will require the talents of many individuals with specialized training and backgrounds.

The AFIS operations staff members must concern themselves with accuracy, throughput, and record keeping. The finance office needs to know how much the project will cost, the source of funds, and the payout schedule. The legal team needs to identify relevant state and federal laws. To direct this amalgam of dedicated professionals, agency managers must appoint a project administrator to oversee the process and to report on progress.

Key partners in the process may be overextended, overcommitted, or unfamiliar with the level of specificity required for an AFIS RFP. As a result, there can be a tendency to rely too heavily on vendor recommendations. A well-developed working group under the direction of a competent project leader is necessary to maintain objectivity. The working group should consider the use of a request for information (RFI) to the vendor community to collect information prior to developing the RFP. The RFI can help the working group to clarify issues, to get a better sense of new technologies, and to frame the RFP in a better way. The working group can make the RFI response a condition for further consideration in the RFP process.

AFIS purchases are frequently limited to a specific political boundary without any attempt at interoperable solutions. However, collaboration with another agency may provide greater benefit to the participants than either could achieve alone, frequently at a reduced cost. In addition, the move to collaboration in latent print searches should allow the agency to mandate conformance to the *Latent Interoperability Transmission Specification* (LITS).[2] Agencies may also require open architecture in new systems to minimize the dependency on specific hardware and the amount and type of support that must be available as backup.

Staff members have to anticipate the impact the new AFIS will have on existing and future operations and must be prepared to handle the administrative and human effects. Recognizing the impact of a new AFIS in its totality and conveying that vision through a carefully defined RFP will benefit the agency, the prospective bidders, and the identification process.

It is important to understand the four phases of the procurement life cycle. While there are many examples, the Department of Homeland Security's SAFECOM project will be referenced in this section to provide the reader with a relatively simple concept that contains the major elements of a very complex process. [3]

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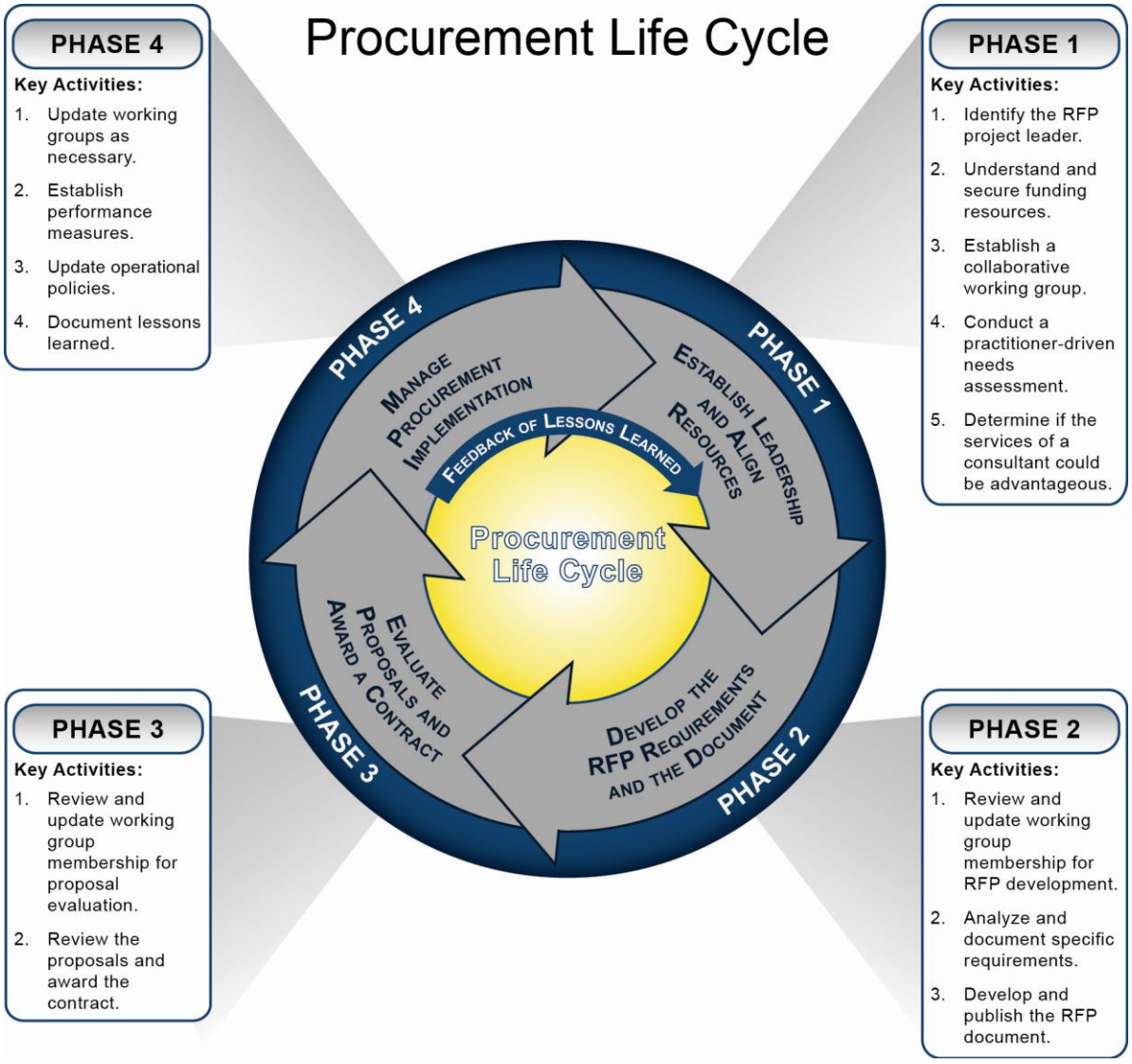
[2] Melissa K. Taylor, Will Chapman, Austin Hicklin, George Kiebuzinski, Peter Komarinski, John Mayer-Splain, and Rachel Wallner, *Latent Interoperability Transmission Specification*, (National Institute of Standards and Technology, 2013), http://www.nist.gov/manuscript-publication-search.cfm?pub_id=913170.

[3] See SAFECOM, *Enhancing Communications Interoperability: Guidelines for Developing Requests for Proposals (RFPs),*(SAFECOM, Department of Homeland Security, March 31, 2006), 3, http://www.safecomprogram.gov/SiteCollectionDocuments/GuidelinesforRFPDevelopmentCW62806.pdf.



Phase 1: Establish Leadership and Align Resources

Phase 1 sets the foundation for the entire project. If this phase is not well developed, the success of the project will be reduced. By clearly identifying potential legal, administrative, and personnel issues at the beginning of the process, the working group and project leader will build a successful enterprise and will meet the expectations of project stakeholders.

1. Identify the RFP Project Leader

The agency's management team identifies the project leader who will manage and oversee the project, protect the interests of the stakeholders, and work collaboratively with other agency and non-agency personnel. This step is the most crucial in this phase.

The project leader will have to understand the political environments of stakeholder organizations that the project will affect. The project leader must build working relationships with other leaders in the administrative, budget, and legal offices. This person will be responsible for the project schedule and the review periods, understanding the contracting and procurement process, and reporting on progress to agency management. The project leader should also understand budget cycles, regulations, and standard or "boilerplate" language used in every RFP and contract.

2. Understand and Secure Funding Resources

The project leader will be responsible for cost estimates, budgetary issues, and the rules and regulations associated with government procurement. The agency budget office will have overall responsibility for financial matters, but the project will advance more smoothly if the project leader can identify, correct, and resolve budget issues.

3. Establish a Collaborative Working Group

The working group consists of relevant stakeholders to support all phases of the procurement and implementation processes. The working group can provide overall guidance and direction, ensuring early buy-in and easing possible delays. By producing a written charter, the working group identifies the project objectives, timeline, and issues. This becomes invaluable to keeping the project on track and provides a reference point for both inside and outside interests.

4. Conduct a Practitioner-Driven Needs Assessment

After the appointment of a working group and creation of a charter, the group will turn its attention to developing a needs assessment. While there may be a consensus that the current system needs to be upgraded or replaced, a well-developed needs assessment will identify the specific requirements of a new system and potential services and solutions that will meet these requirements. The assessment must not only address current needs, but it must also look toward the future. For example, even if the current AFIS does not collect palm prints or mug shots, this functionality might be desirable in a future system as agencies embrace more biometrics in the identification realm.

5. Determine if the Services of a Consultant Could be Advantageous

Creating an RFP for an AFIS may be a once-in-a-career event. As such, agency individuals who participated in the original project may no longer be available, resulting in a project that could

be challenging and possibly filled with avoidable pitfalls. Agencies should consider the value of an experienced consultant to provide guidance.

Phase 2: Develop the RFP Requirements and the Document

After the appointment of the project leader, movement to secure funding sources, and the completion of the needs assessment, the RFP writing can begin in earnest. The critical steps in this phase are as follows.

1. Review and Update Working Group Membership for RFP Development

The team that was established at the beginning of Phase 1 may have changed by this point in the process. Other assignments, administrative changes, and retirements are just a few of the reasons why membership may change. As a result, it is important that the project leader and working group re-examine its membership periodically and make changes as necessary. The skills needed for Phase 2 may differ from the skills needed in Phase 1. New people brought into the working group will have to be briefed on the mission, their responsibilities, and the status of the project to date.

2. Analyze and Document Specific Requirements

The requirements documents explain to prospective vendors what issues the agency seeks to address with the new AFIS. These documents outline the scope of the problems the agency seeks to resolve with newer technology. The working group should be mindful of the needs of all stakeholders, particularly the identification operations group, which includes practitioners from the latent and ten-print communities. It may be useful to identify specific terms or definitions in a glossary of AFIS terms[4] to make the intent more easily understood by other members of the working group and prospective vendors.

The working group may also wish to consider the use of an RFI to collect information from vendors about possible solutions. The RFI is a formal request for specific information about current technologies and processes. This information may be useful to the agency in finalizing the RFP. An RFI may be beneficial because it:

- ❑ identifies technical challenges and cost drivers,
- ❑ identifies potential vendors and their capabilities,
- ❑ allows appropriate adjustments to mandatory and optional requirements,
- ❑ obtains cost estimates,
- ❑ obtains scheduling estimates,
- ❑ updates the budget cycle, and

[4] Latent Print AFIS Interoperability Working Group, *Glossary of AFIS Terms*, (National Institute of Standards and Technology, 2013).

- ❑ updates vendor-qualification requirements.

The project leader and working group must determine if the expected benefit of an RFI is worth the investment in resources to develop the RFI and to review the responses. More detail is available in Attachment I.

3. Develop and Publish the RFP Document

Using the information gathered, the working group will prepare the RFP according to the agency requirements. It may prove useful to contact colleagues in other agencies to learn from their experience in developing an RFP and to solicit suggestions for improvements. More detail on the essential elements of an RFP is included in Attachment II.

Phase 3: Evaluate Proposals and Award a Contract

A well-crafted RFP should result in well-crafted proposals from vendors. The more clearly the working group can define its vision and support it with dates, tables, and charts, the more succinct the proposals will be.

1. Review and Update Working Group Membership for Proposal Evaluation

The working group will need to shift from a developmental role to an evaluative role. The membership of the working group may change as this new role is developed, or the working group may charter a special subcommittee to evaluate the proposals.

2. Review the Proposals and Award the Contract

When reviewing proposals, evaluators must ensure and fully document fairness, consistency, and confidentiality. Some evaluations have two review teams: one for the technical aspects and another for the cost analysis. The evaluation methods, scoring, forms, and weighting should be agreed to prior to beginning the evaluations. At the conclusion, the agency should announce the winning proposal and debrief the vendors not selected.

Phase 4: Manage Procurement Implementation

1. Update Working Groups as Necessary

As the project moves from the planning stage to the implementation stage, the working group and any subcommittees may want to re-evaluate membership and make changes as appropriate.

2. Establish Performance Measures

Performance measures ensure that the project is on track, on schedule, and beneficial to all parties. The agency makes a commitment to the vendor to test and accept the system if the measures are met. The vendor makes a commitment, backed by a performance bond, that the system installation will meet the contractual requirements on performance and installation time.

3. Update Operational Policies

The new system will require new operations and tasks. Updating the operational policies to embrace the new processes will codify tasks and expectations and will serve as a reference point to resolve issues.

4. Document Lessons Learned

The procurement life cycle could last a few months or several years. It will be useful to document the lessons learned in the process. This documentation can prove beneficial in the next procurement or upgrade, particularly if there are changes in the working group membership or an entirely new working group.

By understanding the procurement life cycle, the project leader and members of the working group will have a clearer understanding of the complexity of procurement and the opportunities to make the process more efficient. As a cycle, the end of the process leads to the beginning of the process. The end of the AFIS procurement may lead to another procurement process, and the lessons learned will prove valuable in future efforts.

AFIS UPGRADE PHASES

In other sections of this document, the reader has been introduced to the procurement life cycle, a template for an RFI (Attachment I), and the essentials of an RFP (Attachment II). This section contains very specific information that should be considered when developing an AFIS upgrade RFP and managing the phased implementation.

The team preparing the RFP must secure a funding commitment, gain support of the requesting agency's management, and collaborate with other specialists (e.g., legal) who will be critical in the successful implementation of the project.

Developing a Business Case for a New Procurement

There are many reasons why an agency might be considering an upgrade to its existing AFIS. Some of these reasons include:

- ❑ age of installed system (e.g., obsolescence),
- ❑ new functionality (e.g., latent interoperability, improved accuracy, or more biometrics), or
- ❑ growth in the number of transactions needed (e.g., system capacity).

Phases of the Upgrade

1. Project Management Phase

Successful projects, like successful companies, are a combination of good staff members and good management. Having the right mix of talents, abilities, and skills is essential to completing a successful upgrade or acquisition on time, within budget, and meeting the expectations of stakeholders.

Stakeholders

There are many parties interested in the current and future AFIS. Their interest and participation are vital to the overall success of the project. These stakeholders include:

- ❑ policy makers,
- ❑ customers,
- ❑ key influencers, and
- ❑ outside stakeholders (e.g., chief of police, advisory boards, or chief information officer).

The chart below can help agencies determine and agree upon who their key stakeholders are. Depending on the agency type, not all the sources in the chart may need to provide input.

	Decision-Makers	Requirements Developers	Reviewer
Finance			
Legal			
Contracts			
Information Technology			
Ten-Print			
Latent			
Outside Stakeholders			
Consultants			
Corrections			

Use of Consultants

As stated in a previous section, the working group should consider hiring a consultant when specialized expertise and experience are not available within the working group. A consultant can provide varying levels of input ranging from an advisory role to full-time management support of the procurement process. This expertise can be useful in:

- ❑ market and trend research;
- ❑ needs assessment development;
- ❑ RFP development, evaluation, and/or award;
- ❑ RFP compliance oversight; and
- ❑ implementation oversight.

Project Leader

The selection of the project leader may be one of the most important activities in the project life cycle. The project leader can seek information about the procurement from other sources such as peers, vendor user groups, professional associations, and trade shows.

Work Products of the Working Group

Source Selection Plan

The evaluation team should adhere to an approved Source Selection Plan that includes

- ❑ evaluation schedule;
- ❑ roles and responsibilities (with specific names of those involved);

- evaluation plan, which includes
  - adherence to submission instruction (e.g., page limits and graphics),
  - inclusion of mandatory items (checklist),
  - structure scoring plan (relative weight of major categories and individual requirements),
  - development of rating criteria (such as the example provided in Example of a Rating Criteria Form), and
  - if feasible and needed, scheduling of:
    - benchmark testing,
    - oral presentations by the vendors, and
    - demonstrations;
- approval authority (structured approval process that includes several groups reviewing different sections); and
- contract negotiation plan (usually focused on schedule, weaknesses identified in the proposal evaluation, and Bill of Material [BoM] details).

The Example of a Rating Criteria Form on the following page illustrates one way in which the working group can organize the strength of the responses. The working group evaluates and scores each requirement based upon responses given.

Example of a Rating Criteria Form

Factor	Section	Requirement	Criteria	Weight	Score
Technical/ Management	RFP—C-102	**Workflow Document—** Allocation of tasks for ten-printing, latent, and administrative use for remote users, other investigative users, forensic users, and system administrators to include backup and restoration of system and its databases	**Non-responsive –** Not fully responded to; omitted, misunderstood, or is closer to a repetition of the original requirement than to a clear, thoughtful response	0.01	
			Satisfactory response – Shows that the intent of the requirement has been satisfied	0.05	
			Well-defined response – Provides a strong level of confidence that the vendor can and will satisfy this requirement quite well	0.08	
			Outstanding response – Provides a very strong level of confidence that the vendor can and will more than satisfy this requirement	0.10	

2. Planning Phase

The planning process may require a minimum of 6 months and can last as long as several years. Much of the time depends on political support for the project and the budgetary cycle.

Planning

Planning for a new AFIS is a lengthy process that can begin as early as 2 years before an RFP is released. The working group may need this time to develop budget estimates, to visit other sites that have a newer AFIS, and to look for differentiators. The working group has to be cognizant of procurement regulations regarding commercial off-the-shelf (COTS) hardware and software and must identify tradeoffs for integrating government-furnished COTS hardware and software. These tradeoffs include:

- ❑ impact to schedule,
- ❑ delivery cost,
- ❑ hidden management costs, and
- ❑ maintenance responsibilities.

The working group should develop a concept of pperations document and have a written acquisition strategy.

Budgeting

The agency's budgetary cycle can be 1, 2, or 3 years long depending on the legislative process. The funding can be contingent on many factors, including:

- ❑ user fees, such as driver's licenses, applicant processing, court fees, parking tickets, criminal history searches, and lottery taxes;
- ❑ government budget; and
- ❑ perceived value to the community, which is connected to the business case for procuring a new system, such as a reduction in crime shown as a result of a cost-benefit analysis.

The key document is the budget submittal (cost-benefit analysis, if required).

3. Solicitation Phase

Depending on an agency's procurement policies, the vocabulary may vary (i.e., RFP, request for offer, etc.). The steps include the following:

1. Prepare draft RFP.
2. Review with working group.
3. If appropriate, release RFI.
4. Review RFI responses, and update RFP.
5. Gain necessary approval, which will vary by locality (the time needed to obtain approvals can vary from 1 to 6 months or longer).
6. Ensure that the requirements are complete, including
    a. Functional requirements, including the ability to search and match fingerprints and to maintain current case management data;
    b. Performance requirements, such as the ability to search 100 fingerprint records per hour;
    c. Interface requirements, such as the ability to ingest and process National Police Services – NIST – Interface Control Document (NPS-NIST-ICD) transactions;
    d. Form and fit requirements (type, make/model, or physical size/capacity), such as specifying an Intel® dual-core processor that runs on Windows 7® with a 500-gigabyte hard drive and a 20-inch monitor;
    e. Reliability, maintainability, and availability requirements, such as a 10,000-hour mean (or median) time to failure of the disk drive; and
    f. Environmental requirements, such as a specification that the system shall operate in a range of 0 degrees Celsius to 37 degrees Celsius.

7. Release the RFP through the appropriate government representative (most likely a contracting officer).
    a. The approved released RFP package usually contains
        i. Statement of work (SOW),
        ii. Requirements specifications,
        iii. Schedule,
        iv. Terms and conditions, including legislative mandates and local policies and standards, and
        v. Outline of source-selection factors.
    b. Manage bidder inquiries, by scheduling
        i. Question and answer period (mandatory), which is typically conducted via the Internet and limited to no more than 25% of the proposal response period (questions and answers are sent to all registered bidders);
        ii. Bidder's conference (optional); and/or
        iii. Site visit by vendor to deployment locations (optional).

4. Evaluation/Negotiation Phase

As described above, the evaluation team should adhere to an approved Source Selection Plan.

The evaluation of submissions must be fair and consistent. The following are examples of aspects to consider for evaluation.

- ❑ Management
    - Should include: Approach to operations and maintenance (O&M) support to fielded system, etc.
    - Potential weakness: Vague or insufficient sample plan
- ❑ Technical support
    - Should include: Approach to priority management
    - Should include: Results of a benchmark
    - Potential weakness: Failure to respond to all requirements
- ❑ Prior experience
    - Should include: Degree of satisfaction reported by appropriate references who have been called
    - Potential weakness: Hyperbolic claims
- ❑ Cost, which is usually evaluated separately from the technical proposal
    - Should include: Amount of total cost
    - Potential weakness: Too expensive

5. Development or Integration Phase

Design

Working groups should consider requesting a preliminary Design Specification, also known as a Technical Specification, in the SOW section of the RFP. After selecting a successful proposal, the agency and vendor should work together to develop the Design Specification by taking the following steps:

1. The vendor will develop the Design Specification document, which should include system architecture, workflows, BoM, and user interface design and should map the agency requirements to the proposed solution. The agency should provide feedback during this process through meetings or draft review.
2. The agency will conduct a formal design review to receive approval from an appropriate government representative.
3. Once approved, the Design Specification is put under configuration control, which requires changes to be formally documented and implemented only with appropriate approval.
4. The agency should deliver government-furnished equipment (GFE) to the vendor prior to next phase

Vendor Integration

The following steps will assist the vendor and agency in preparing the proposed system.

1. BoM commodities
    a. Vendor – Purchase BoM items through internal procurement process.
    b. Agency – Verify receipt of materials (consider creating checklist).
        i. This process may involve the accounting department, project lead, or Information Technology (IT) representatives.
        ii. Documentation is usually required for audit purposes.
2. Software customization
    a. Vendor – Implement and test requirements in conformance with Design Specification.
    b. Agency – Track progress and respond promptly to questions.
3. Integration of GFE, if applicable
    a. Vendor – Provide detailed product specifications to government representative.
    b. Agency – Procure the items as agreed (e.g., software licenses, hardware).
4. File scanning

a. Vendor – Using FBI-certified scanners and at a minimum of 500 pixels per inch, scan fingerprint and palm print cards while maintaining chain of custody and demonstrate that images can be exported in an American National Standards Institute (ANSI)/NIST – Information Technology Laboratory (ITL) standard non-proprietary format.[5]
b. Agency – Provide the vendor with fingerprint and palm print cards.

5. Electronic conversion of existing AFIS database to new vendor format (Note: If the legacy database is stored in a proprietary manner that is inconsistent with new vendor technology, this option may not be available. It will become necessary to rescan all existing paper files as in step 4.)
    a. Vendor – Conduct file conversion and demonstrate data integrity.
    b. Agency – Conduct audit to ensure data integrity.
6. Unsolved latent file conversion (Note: If the legacy database is stored in a proprietary manner that is inconsistent with new vendor technology, this option may not be available. It will become necessary to rescan all existing paper files as in step 4. The project leader will need to coordinate with the current vendor to convert the AFIS records into a standard format. Also, note that this process may lead to the loss of case management data.)
    a. Vendor – Conduct file conversion and demonstrate data integrity.
    b. Agency – Conduct audit to ensure data integrity.
7. Building of system at vendor site
    a. Vendor – Build system, load database, and test functionality and performance.
    b. Agency – Track progress and respond promptly to questions.

Factory Acceptance

The Factory Acceptance Test (FAT) allows the vendor to run a test of the proposed system at its own site with its own staff members. Both parties have responsibilities for the test. The vendor develops and submits a FAT plan, runs the test, and provides a plan and timeline for remediating deficiencies, if needed. The agency reviews and approves the FAT plan, prepares test data for the FAT, oversees the test (during which an agency representative must be present), develops a system deficiency list, and approves the system shipment, if appropriate. Depending on the severity of the items identified in the deficiency report, the agency may need to conduct a second FAT.

[5] American National Standards Institute, National Institute of Standards and Technology – Information Technology Laboratory, *ANSI/NIST-ITL 1-2011, NIST Special Publication 500-290 Data Format for the Interchange of Fingerprint, Facial & Other Biometric Information*, (National Institute of Standards and Technology, 2011), http://www.nist.gov/customcf/get_pdf.cfm?pub_id=910136.

Delivery of System

For system delivery, the vendor prepares an inventory and packs and ships components. The agency prepares the site and supports receiving, clearance, and storage.

Installation of System

When the system is ready for installation, the vendor installs the hardware, sets up initial user accounts, connects the system to local and national networks and remote devices, and conducts an informal system readiness test. The vendor also converts and adds new AFIS records.

The agency provides local logistical support (e.g., IT, access to facility, etc.) and provides new AFIS records for conversion.

Site Acceptance Test

During the Site Acceptance Test (SAT), the vendor tests functionality and performance. The agency updates the FAT plan to include testing of issues identified during the previous test, ensures that interface testing is included, conducts the SAT (during which an agency representative must be present), develops a system deficiency list if needed, documents test results, and approves the SAT if appropriate.

Training

To maximize the benefits of the new system, examiners need to be well trained on the system. Again, both the vendor and agency have responsibilities to ensure the process is thorough and complete. The vendor must submit a training plan and deliver training and manuals, including forensic user training, ten-print examiner training, manager training, system administrator training, and training on basic report generation capabilities. The agency must review and approve the training plan and materials and handle logistics and scheduling for personnel.

6. Operations and Maintenance

The O&M phase is also known as the “burn in” or “user acceptance testing” phase. This phase typically starts 30 days after the SAT. All training and test data should be removed. During this period, the system should be restored from backup files to test functionality.

Warranty services and onsite support begin per the requirements outlined in the contract. The vendor-provided help desk services should be online and tested.

The successful conclusion to the user acceptance testing marks the end of the procurement process. Staff and management should conclude the process with a lessons learned document

that will be relevant for the next upgrade or procurement. Each person now carries the unique knowledge that can only come through participating in the procurement process.

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Attachment I:

Request for Information Template

This template contains specific information and suggestions that can be inserted into a Request for Information (RFI). The working group should consider the merits of an RFI as well as the work required to develop a successful one. The working group must be committed to a thorough review of the responses and to maintaining confidentiality and trade secrets.

Example Language

1. Purpose of the RFI

The purpose of this RFI is to gather information about how best to approach the replacement of the current automated fingerprint identification system (AFIS) with a more robust system or an automated biometric identification system (ABIS) for the *[insert agency name]*, hereafter referred to as the Requesting Agency.

To acquire an AFIS that best meets the needs of stakeholders, the Requesting Agency is seeking information from integrators and/or AFIS vendors who have the capability and experience to bring this large-scale, mission-critical project to successful completion.

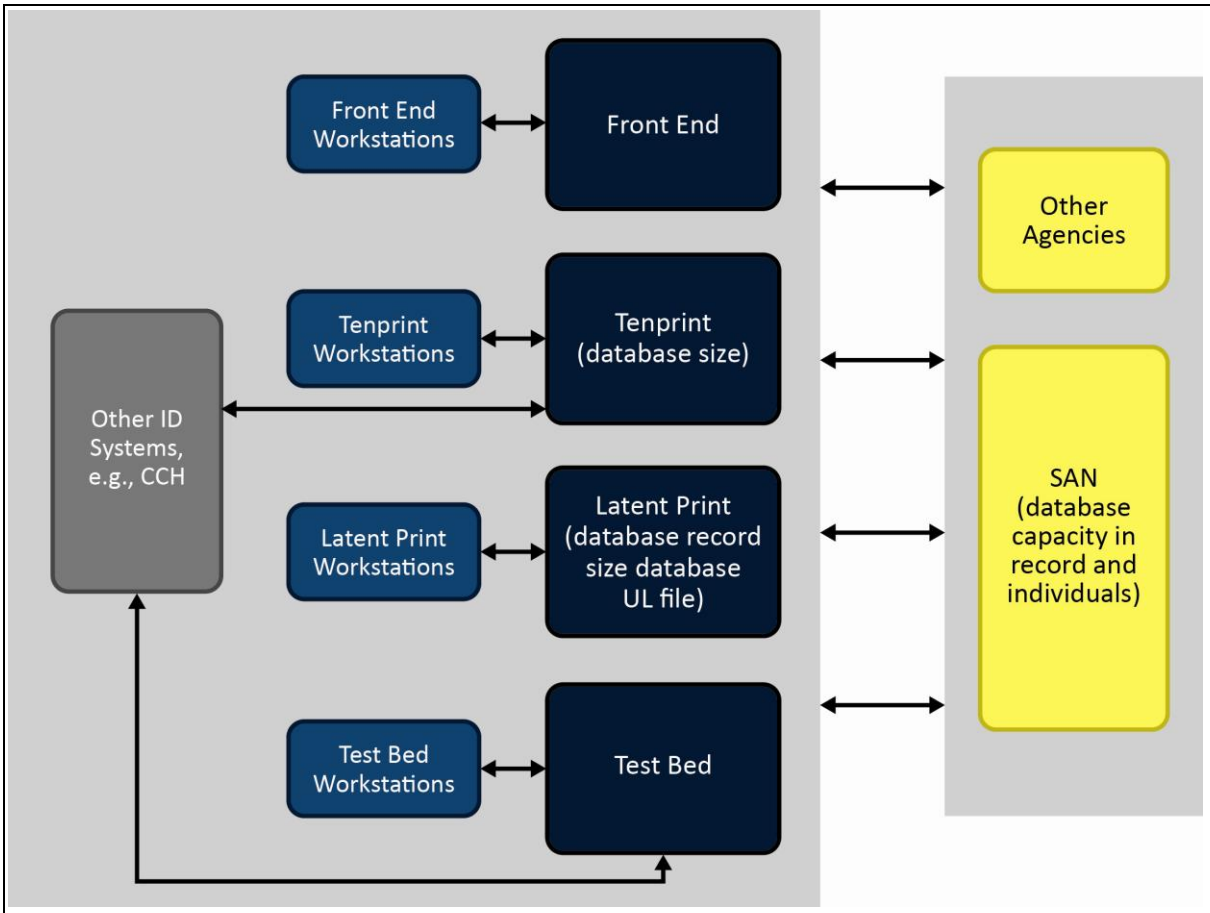
Using information gathered from responses to this RFI, the Requesting Agency may issue a Request for Proposals (RFP) to bidders interested in providing an AFIS. **Nothing in this document shall be construed as obligating the Requesting Agency to issue an RFP. No contract will be awarded based on responses to this RFI.**

2. Introduction

The Requesting Agency is requesting information on replacing the current AFIS that is used in conjunction with other systems to process ten-print identification and latent print identification transactions. The Requesting Agency is also requesting information on additional biometrics to be used in a multimodal (palm, facial recognition, etc.) system. Interoperability with international, federal, state, and local AFIS databases will be a requirement for the new AFIS.

3. Current AFIS Description

The current AFIS is heavily integrated with the Requesting Agency's computer system. The AFIS hardware is composed of *[specify #]* servers and *[specify #]* workstations, which will not be used in a new AFIS. All networking is the responsibility of the Requesting Agency. The following diagram provides an overview of the current AFIS configuration in the Requesting Agency.



Ten-Print Identification Subsystem

The ten-print identification subsystem processes over *[specify #]* criminal and civil fingerprint transactions per year. More than *[specify #]* of the fingerprint transactions are received digitally, with the remainder received on paper fingerprint cards. For all transactions, the paper cards or printed copies of the digital cards are stored for archival purposes. Digital transactions are sent to the AFIS front end workstation using *[specify how sent]*. Digital processing includes the assignment of fingerprint patterns and an image quality rating by both a fingerprint examiner and the AFIS front-end workstation. The AFIS front-end workstation also performs sequence checking and minutia encoding. If quality control (QC) is necessary, a fingerprint examiner performs QC editing on an AFIS workstation.

Each transaction is launched against the identification target database that contains the *[specify #]* fingerprints of approximately *[specify #]* individuals, one record per person. It searches the minutiae of the *[specify #]* fingerprints against those individuals with the same fingerprint pattern on all ten fingers. Gender may also be used as a search criterion. A fingerprint examiner verifies the match candidates, and a second fingerprint examiner independently validates the first fingerprint examiner's decisions. AFIS relays the results to a Requesting Agency system.

Latent Print Identification Subsystem

The latent print identification subsystem performs more than *[specify #]* latent print searches per year. The latent prints are entered from *[insert locations]*. A latent print examiner uses AFIS to enhance the image, and minutia placement is performed automatically or manually. Non-AFIS software from *[specify vendor]* provides case management, image enhancement, and export capabilities.

The latent print target database contains all ten fingers of approximately *[specify #]* individuals, one record per person. Criminal fingerprints are stored in the latent print target database. A latent print examiner can filter a search by such demographic data as *[specify filters, if any]*.

If a latent print is not identified to an individual, the latent print and associated data can be placed into the unsolved latent print database. This database contains *[specify current storage]* and can hold up to *[specify capacity]*.

As new images are placed in the latent print target database during ten-print identification processing, AFIS searches them against all unsolved latent prints with the same demographic data. Candidates are queued for latent print examiner verification.

Examiners may choose to search a latent print against the unsolved latent print database.

[State any other latent print activities that are relevant.]

Other Agency Subsystem

[Describe any subsystem that utilizes either ten-print or latent print searches, e.g., jail, state corrections, or Department of Motor Vehicles.]

Test Bed Subsystem

[Include description if the Requesting Agency currently has a smaller replica of its system that is used as a test bed.]

Data

AFIS has mirrored copies of the target databases; however, the images are stored on a Requesting Agency Storage Area Network. AFIS logs and produces reports on transaction processing including user and workstation utilization.

4. Current AFIS Performance

The ten-print identification subsystem is able to process at a peak throughput of *[specify #]* transactions per hour. At least *[specify #]* percent of the high-priority transactions have a complete identification and statewide criminal history response in less than 1 hour, and at least *[specify #]* percent are responded to in less than *[specify #]* hours. High-priority transactions comprise more than *[specify #]* percent of total transactions. The Requesting Agency estimates that the AFIS ten-print search has an accuracy rate of at least *[specify #]* percent.

The latent print system is able to process a peak throughput of *[specify #]* transactions per hour.

The system currently grows at approximately *[specify #]* new individuals per year.

The system is available 24/7 with an uptime exceeding *[specify #]* percent. Each portion of the system is recoverable from any failure within a *[specify #]*-hour period.

5. Information Requested

Respondent is to provide a narrative that explains the company's ideas for a new AFIS. The narrative should discuss approaches regarding a multivendor solution; models of ownership and operation of the system; system implementation, including transition plans; open interfaces and interoperability; system and user administration and security; accuracy versus cost ratios; high availability and disaster recovery; and an ideal identification workflow. Respondents should include an estimated level of effort and propose a process for converting digital and paper records.

Ideas and Suggestions

The Respondent's narrative may also include ideas regarding the storing and searching of:

- ❑ various fingers
- ❑ slaps/plain impressions
- ❑ composite/virtual cards
- ❑ multiple target records per person
- ❑ palm prints
- ❑ multimodal biometrics
- ❑ other

Opinions

Respondent may also include opinions on the use of:

- ❑ pattern and/or topological classification
- ❑ Level 3 Detail
- ❑ latent print image enhancement
- ❑ other

Current Customers

Respondents are asked to submit a list of customer sites with contact and system information.

6. Instructions for Responding to the RFI

Diverse insights are critical for the replacement of the AFIS. All integrators and/or AFIS vendors who have the capability and experience to bring this large-scale, mission-critical project to successful completion are encouraged to submit responses to this RFI.

Vendors must transmit their response by *[specify date]* via electronic mail to the Requesting Agency Procurement Officer at *[specify email address]*. The electronic copy should be in machine-readable format (typically American Standard Code for Information Interchange, Microsoft® Word, WordPerfect®, or Adobe® PDF format).

Any questions regarding the RFI may be directed only to the Requesting Agency contact listed above at any time before close of business *[specify date]*. Each question submitted by a vendor and the subsequent Requesting Agency answer will be available for all vendors to review.

The Requesting Agency requests that providers responding to this RFI designate a single contact within the organization for receipt of all subsequent information regarding this RFI. The Requesting Agency will not reimburse vendors for any costs in connection with their responses to this RFI.

To fully comprehend the information contained within a response to this RFI, the reviewing group may seek further clarification on selected areas of the response.

This is NOT a Request for Proposals. No contract will be awarded based on responses to this RFI.

Attachment II:

Request for Proposals Essentials

Purpose of the Request for Proposals

There are many models of a successful Request for Proposals (RFP). When writing an RFP for a new or updated automated fingerprint identification system (AFIS), the agency should be guided by the processes that proved successful in the past with a consideration for the unique requirements of the current identification community. Wherever possible, the RFP should cite collaboration and agency interoperability as a goal. The citations may include descriptions of desirable features as well as specific references to national standards and policies, such as the *Latent Interoperability Transmission Specifications* (LITS).[6]

1. Introduction Section

In the Introduction section, the agency should provide a description of the current system and explain what is expected from the new system. While this information may be well known to the agency, prospective vendors may have little or no knowledge of the operations. The more the agency can describe its current condition and expectations, the better the vendors can respond with a succinct proposal.

In the body of the RFP, the agency can provide more specificity as to its current and anticipated operations. The use of appendices can provide a vehicle for more details, such as standards, conversion plans, training, process descriptions, and relevant National Institute of Standards and Technology (NIST) standards. The vendor can respond to the questions/statements in the appendices, which will make the review and evaluation more complete.

The introduction to the RFP, at a minimum, should include the following:

- ❑ an overview of the agency's mission and role in the criminal justice process
- ❑ the purpose of the RFP
- ❑ a description of the current AFIS and subsystems to include:
  - ten-print identification processing
  - any other agency that relies on this ten-print processing
  - latent print processing
- ❑ an overview of what is desired in the new AFIS
- ❑ other information that may help the vendors to respond in a concise manner

2. Other Requirements and Information Section

This section of the RFP discusses the requirements that may not be technical or budgetary, but remain a critical part of the RFP. The agency must decide which requirements are mandatory

[6] Melissa K. Taylor, Will Chapman, Austin Hicklin, George Kiebuzinski, Peter Komarinski, John Mayer-Splain, and Rachel Wallner, *Latent Interoperability Transmission Specification*, (National Institute of Standards and Technology, 2013), http://www.nist.gov/manuscript-publication-search.cfm?pub_id=913170.

and which are optional. Once the RFP has been submitted, the agency is committed to the statements in the RFP.

For example, the RFP could have a mandatory requirement that the proposals be delivered as two paper copies and four electronic copies, one copy on each of four CDs. If a prospective bidder delivered four paper copies and only two electronic copies on CD, the bid has to be rejected outright for not meeting an RFP mandatory requirement. Among other requirements, information in this section could include the following:

- ❑ mandatory requirements
  - – pre-bid conference
  - – notice of Intent to Bid
- ❑ delivery time of proposals
- ❑ proposal format and content requirements
  - – technical proposal
  - – financial proposal
- ❑ contract term
- ❑ prime contractor and subcontractors
- ❑ costs incurred prior to contract approval
- ❑ price protection

3. Evaluation Criteria Section

The RFP should provide responders with information as to the elements on which the proposals will be evaluated. While price plays an important consideration, the lowest bid is not necessarily the most technically sound. By specifying this information in the RFP, the agency may avoid post-award challenges by pointing to these specifications for consideration in evaluation.

For example, the agency could require that the proposal include the following:

- ❑ technical specifications
  - – executive summary
  - – offerer experience and customer references
  - – mandatory base requirements for offerer's proposed AFIS solution
  - – optional features
  - – project plan
- ❑ cost specifications
  - – proposed fixed purchase price for mandatory base system
  - – maintenance and support price for mandatory base system

- optional professional services price list
- total proposed cost of ownership for offerer's mandatory base system
- proposed fixed-price milestone deliverable payment schedule
- detailed optional features price list
- component purchase and maintenance price list
- optional services price list

❑ administrative specifications

- firm offer letter and conflict of interest disclosure
- contract administration team
- mandatory requirement, e.g., bid bond, fair employment, etc.
- proposed subcontractors
- key subcontractor certification
- consultant disclosure

4. Evaluation and Scoring Methodology Section

In this section, the agency describes how the proposal will be reviewed and scored. This will ultimately determine which vendor's proposal is awarded a contract that could be worth millions of dollars.

The vendors not awarded the contract will have made a substantial investment in resources with no compensation and may initiate challenges or legal actions against the agency if there is a belief that the evaluation was not impartial. A challenge to an award could delay the project start by months, if not by years, and cost a great deal. The stakes are high, and adhering to the evaluation process will mitigate challenges and ensure fairness in the evaluation. Evaluation teams must ensure and fully document consistency and fairness throughout the evaluation process and must include the evaluation criteria in the RFP.

Elements in the evaluation and scoring section typically include the following:

❑ overall proposal evaluation process
❑ completeness review
❑ prior experience
❑ technical mandatory evaluation (pass/fail)
❑ technical preferred evaluation (e.g., 80 points)
❑ financial (cost) evaluation (e.g., 20 points)
❑ calculation of combined evaluation score

5. Other Terms and Conditions Section

This section addresses items that are not easily located in the previous sections but that are essential for a successful vendor/agency relationship.

Included in this section, for example, would be the following:

- ❑ governing law
- ❑ ongoing reports and documentation
- ❑ standby letter of credit
- ❑ maintenance bond
- ❑ insurance
- ❑ title and legal interests
- ❑ payments
- ❑ warranties
- ❑ escrow
- ❑ force majeure

6. Appendices to the RFP

The appendices provide venues for more specificity in current process description, e.g., processing flows, current hardware, NIST standards, Criminal Justice Information Services (CJIS) specifications, universal latent workstation and LITS. The appendices may also include the format in which the vendors are required to present the proposals.

While there are numerous items that can be included as appendices, this example will focus on the three most common: the contractual requirements, informational documents, and offerer response forms.

The *Contractual Requirements* appendices may include the following:

- ❑ standard clauses for agency contracts
- ❑ conversion plan requirements
- ❑ acceptance testing requirements
- ❑ training requirements
- ❑ production reports requirements
- ❑ new AFIS standby letter of credit form
- ❑ consultant disclosure legislation forms

The appendices for *Informational Documents* may include the following:

- ❑ agency contract award protest procedure
- ❑ customer reference questionnaire
- ❑ new AFIS informational tables
- ❑ diagrams
- ❑ current AFIS hardware
- ❑ change request form
- ❑ glossary of terms

The appendices included in *Offerer Response Forms* provide the form and format for the vendor to respond to the RFP. It may include pre-bid registration forms, non-disclosure forms, and forms for client references, among other items. The documents in this section allow the vendor to respond to mandatory requirements and optional features and, of course, to provide a price.

Other appendices in this section may include the following:

- ❑ maintenance and support price for mandatory base system
- ❑ optional professional services price list
- ❑ proposed fixed-price milestone deliverable payment schedule
- ❑ detailed optional features price list
- ❑ component purchase and maintenance price list
- ❑ optional services price list
- ❑ bid bond form
- ❑ proposed subcontractors
- ❑ key subcontractor certification
- ❑ addendum

7. Interoperability Requirement

To support latent print interoperability, the following information, provided by Noblis,[7] on compatibility with the Federal Bureau of Investigation's (FBI's) and CJIS's *Electronic Biometric Transmission Specification* (EBTS)[8] should be considered, and the suggested RFP compliance requirement should be included in the RFP.

[7] Information available at http://noblis.org/MissionAreas/nsi/Services/IdentityDiscoveryandManagement/BiometricsandForensics/Pages/Interop.aspx.

[8] Federal Bureau of Investigation, Criminal Justice Information Services, *Electronic Transmission Specification (EBTS)*, IAFIS-DOC-01078-9.2, (Federal Bureau of Investigation, Criminal Justice Information Services, May 13, 2011).

Compatibility with EBTS v9.3

LITS will provide interoperability with the FBI's Next Generation Identification (NGI) by being fully conformant with the CJIS EBTS v9.3 data exchange specification. This will allow the latent examiner to encode the latent friction ridge detail once and to search any LITS-compliant AFIS and NGI from one workstation without re-encoding the latent print.

The development of LITS is closely linked to EBTS development, and changes impacting latent transactions and processing are updated as they are received. EBTS v9.3 was published in final form in December 2011. The document contains the preliminary technical changes necessary for FBI/CJIS to execute NGI Increment 3 (latent processing capability), which is due to be implemented in 2013. While some changes are anticipated, the requirements for Profile 0 (Image Only Search—Latent Fingerprint Image Search [LFIS]) and Profile 2 (Quick Minutiae Search—Latent Fingerprint Feature Search [LFFS]) have been defined for use by NGI, and the LITS-compatible systems and are not expected to change.

Suggested RFP Language for LITS-Conformant AFIS

While the vendor community has participated in and supports the development of LITS, final implementation of LITS by the vendors has not yet been fully realized. It is expected that the vendors will incorporate LITS in response to requests for AFIS upgrades and replacements. To ensure that an agency obtains the interoperability capabilities enabled by LITS, it is recommended that the following model requirements be included in the agency's RFP.

Example Language

LITS Conformance Requirement

The vendor shall implement a data transmission format that is conformant with LITS v1.0 (or later). A LITS-conformant AFIS shall accept LFIS and LFFS transactions as latent searches and biometric decision transactions as decision notifications. LFIS searches shall comply with Extended Feature Set (EFS) Profile 0, and LFFS searches shall comply at a minimum with the EFS Profile 2 as defined in *EFS Profile Specification 1.0* (or later); other profiles may optionally be implemented. These capabilities shall be demonstrated at delivery. These transactions shall be implemented for latent fingerprints; implementation for palmprints, extreme fingertips, or lower joints of the fingers is optional.

Conformant latent print workstation software shall be capable of: 1) Importing LFFS latent feature searches conformant with LITS without loss of defined features; and 2) Exporting LFFS latent feature searches conformant with LITS without loss of defined features. Such import and export functions shall be incorporated into the software and will not rely on use of the FBI's Universal Latent Workstation software for translation. Note that LITS is a peer of the FBI's EBTS v9.3, and therefore the exported LFIS and LFFS files will be capable of being directly searched against the FBI's NGI system (when latent services are available in early 2013).

Suggested RFP Response Requirements

The vendor is requested to provide a brief description of the proposed implementation of LITS, which should address the following:

1. Which EFS Profile(s) in the proposed system will be implemented for daily latent print operations on the proposed AFIS?
2. Which EFS Profile(s) will be implemented for searches of NGI?
3. How will EFS be used in the conversion of the Unsolved Latent File?
4. How will the selection of the proposed profiles be implemented for cross-jurisdictional searches?
5. How will the implemented EFS Profile(s) be tested for accuracy as part of the Factory Acceptance Test?

8. Conclusion

The contents in this RFP description are only one of many options for developing an RFP. This is illustrative of the complexity of the RFP and the need for precision and clarity. The agency must have a clear vision for the new system, and this vision must be conveyed by the RFP. The vendors use the RFP in developing their proposals. The more clear and detailed the RFP, the better the proposals will be in response.

Attachment III:

Abbreviation List

ABBREVIATION LIST

ABIS—Automated Biometric Identification System
AFIS—Automated Fingerprint Identification System
ANSI—American National Standards Institute
BoM—Bill of Material
CJIS—Criminal Justice Information Services
COTS—Commercial Off-the-Shelf
EBTS—Electronic Biometric Transmission Specification
EFS—Extended Feature Set
FAT—Factory Acceptance Test
FBI—Federal Bureau of Investigation
GFE—Government-Furnished Equipment
IAFIS—Integrated Automated Fingerprint Identification System
ICD—Interface Control Document
IT—Information Technology
ITL—Information Technology Laboratory
LFFS—Latent Fingerprint Feature Search
LFIS—Latent Fingerprint Image Search
LITS—Latent Interoperability Transmission Standard
NGI—Next Generation Identification
NIJ—National Institute of Justice
NIST—National Institute of Standards and Technology
NPS—National Police Services
O&M—Operations and Maintenance
OLES—Law Enforcement Standards Office
QC—Quality Control
RFI—Request for Information
RFP—Request for Proposals
SAT—Site Acceptance Test
SOW—Statement of Work