

SUPPORTING STATEMENT

A. JUSTIFICATION

1. Necessity of Information Collection

Latent fingerprints used in criminal investigations are often crucial pieces of evidence to link a suspect to a crime. These latent fingerprints are typically collected from a crime scene by specialists trained in forensic science techniques to reveal or extract fingerprints from surfaces and objects using chemical or physical methods. The fingerprint images can then be photographed, marked up for distinguishing features by latent examiners, and used to search an automated fingerprint identification system (AFIS).^{1,2} An AFIS is a computer system that stores fingerprint images in an organized, searchable data structure and are widely utilized by Federal, State, local, and tribal criminal justice agencies to maintain fingerprint databases of individuals who have been arrested or incarcerated. The databases typically contain rolled fingerprints from each finger (“tenprints”) and fingerprints with all the fingers extended in parallel (“slaps”). The AFIS can later be searched when an individual has a future encounter with the criminal justice system to establish identity and a linkage with a particular criminal record.

If a criminal investigator matches a latent print to a fingerprint in the AFIS, that individual may be linked to the crime under investigation. An AFIS can also house repositories of latent fingerprints that remain unidentified, typically referred to as an “unsolved latent file” (ULF). The ULF can be periodically searched in case a match turns up from new fingerprints added to the AFIS from someone arrested or incarcerated for another crime in the future. Certainly a match like this could happen within one jurisdiction over time, however an unsolved latent fingerprint collected in one jurisdiction may match a tenprint record stored in the AFIS of another jurisdiction. Whether or not the wanting agency in Jurisdiction A can search the database in Jurisdiction B to make the match will depend on the *interoperability* between the two jurisdictions. Maximizing AFIS interoperability can help maximize the value of latent fingerprint evidence.

Interoperability can be influenced by both technology and policy. Through secure network connections, the AFIS in Jurisdiction A can be networked to the AFIS in Jurisdiction B so that either jurisdiction can search the fingerprints in the other. The two jurisdictions typically must have an AFIS manufactured by the same vendor or have a way for two different systems to communicate. The two agencies typically also must have some official agreement such as a memorandum of understanding (MOU) that defines the terms of the information sharing, otherwise the searching will be done on an *ad hoc* basis.

¹See for example the following two monographs for a background on AFIS:

Komarinski, Peter, *Automatic Fingerprint Recognition System (AFIS)*, Elsevier, Amsterdam, 2005.

² Ratha, Nalini K. and Ruud Bolle, eds., *Automatic Fingerprint Recognition Systems*, Springer, New York, 2004.

The total national infrastructure of AFIS systems maintained by Federal, State, local, and tribal agencies can be thought of as the national criminal justice AFIS enterprise and how the AFIS systems communicate with each other will depend on the network architecture and access controls. Fingerprint searches can be done in either a vertical (e.g., local to State, State to Federal) or horizontal (e.g., local to local, State to State) manner and, as a result, interoperability can be considered at different levels of geographic or jurisdictional granularity: local, regional intrastate, state, regional interstate, and national. The extent to which an authorized AFIS user such as a criminal investigator can launch a latent fingerprint search at a point of service in the national criminal justice AFIS enterprise and search for a fingerprint match in databases maintained in other jurisdictions can be thought of as the level of interoperability.

The proposed collection, the **Latent Fingerprint Interoperability Survey (LFIOS)**, is the only comprehensive effort that provides an ability to establish the level of interoperability of automated fingerprint identification systems maintained by State and local law enforcement agencies regarding the electronic exchange of latent fingerprint data to support criminal investigations. This collection will enable Federal, State, local, and tribal law enforcement and government administrators; legislators; and researchers; to understand the technological and regulatory barriers affecting automated, cross-jurisdictional interoperability. Information collected in the core survey and survey addenda will provide critical data on the types and functionalities of fielded AFIS systems in State and local agencies; the current policy agreements among jurisdictions to permit the sharing, exchange, and searching of latent fingerprints electronically; and the technological and regulatory factors which impact electronic sharing, exchange, and searching of latent fingerprints across various jurisdictions at the National, State and local levels.

In line with a core mission objective to improve the criminal justice system at the State and local levels, the National Institute of Justice (NIJ) proposes this data collection to provide timely information regarding the level of interoperability of automated fingerprint identification systems maintained by State and local law enforcement agencies regarding the electronic exchange of latent fingerprint data to support criminal investigations. The results of the data collection will help shape strategic planning to support research, development, testing, training, and evaluation of tools and technology for Federal, State, and local law enforcement agencies to improve interoperability related to latent fingerprints and maximize the value of this type of forensic evidence.

NIJ is authorized to pursue this activity by the Omnibus Crime Control and Safe Street Act of 1968, as amended (42 U.S.C. 3722) (see Attachment 1), which provides for NIJ to improve the functioning of the criminal justice system and to develop new methods for the prevention and reduction of crime and the detection and apprehension of criminals, including the development of programs to facilitate cooperation among the States and units of local government. As a consequence of this proposed data collection, NIJ is authorized to make recommendations for action which can be taken by Federal, State, and local governments and by private persons and organizations to improve and strengthen criminal and civil justice systems and to engage in research and development

of tools and technologies relating to prevention, detection, investigation, and prosecution of crime.

The Office of Science and Technology (OST) within NIJ is authorized by the Homeland Security Act of 2002 (6 U.S.C. 162) (see Attachment 2) To work with other entities within the Department of Justice, other Federal agencies, and the executive office of the President to establish a coordinated Federal approach on issues related to law enforcement technology. Furthermore, OST is authorized to carry out research, development, testing, evaluation (RDT&E), and cost-benefit analyses in fields that would improve the safety, effectiveness, and efficiency of law enforcement technologies used by Federal, State, and local law enforcement agencies, including, but not limited to tools and techniques that facilitate investigative and forensic work to help maximize the value of forensic evidence like latent fingerprints.

2. Needs and Uses

The proposed data collection is motivated in response to the identified need for improved AFIS interoperability. According to the 2009 National Research Council (NRC) report entitled *Strengthening Forensic Science in the United States: A Path Forward*:

“Great improvement is possible with respect to AFIS interoperability. Many crimes no doubt go unsolved today simply because investigating agencies cannot search across all the individual databases that might hold a suspect’s fingerprints or contain a match for an unidentified latent print from a crime scene. It is possible that some perpetrators have gone free because of the limitations on fingerprint searches.

The committee believes that, in addition to the technical challenges noted above, a number of other critical obstacles to achieving nationwide AFIS interoperability exist involving issues of practical implementation. These include (1) convincing federal and state policymakers to mandate nationwide AFIS interoperability; (2) persuading AFIS equipment vendors to cooperate and collaborate with the law enforcement community and researchers to create and use baseline standards for sharing fingerprint image and minutiae data and interfaces that support all searches; (3) providing law enforcement agencies with the resources necessary to develop interoperable AFIS implementations; and (4) coordinating jurisdictional agreements and public policies that would allow law enforcement agencies to share fingerprint data more broadly.

Given the disparity in resources and information technology expertise available to local, state, and federal law enforcement agencies, the relatively slow pace of interoperability efforts to date, and the potential gains that would accrue from increased AFIS interoperability, the committee believes that a new emphasis on achieving nationwide fingerprint data interoperability is needed..”³

The criticism outlined above is vast in scope and requires redress, however achieving nationwide AFIS interoperability will require government action combined with some level of investment to close the technical and regulatory gaps. For governments to make

³ *Strengthening Forensic Science in the United States: A Path Forward*, Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council, The National Academies Press, Washington, DC, 2009, 276-277. Available at: http://www.nap.edu/catalog.php?record_id=12589.

effective use of resources, especially in a fiscal climate of constrained budgets, they must have access to basic quantitative information on a national scale to gain a deeper understanding of the current situation before making tactical decisions regarding where and how to improve interoperability.

The purpose of the Latent Fingerprint Interoperability Survey (LFIOS) is to collect the information to assess the current status of AFIS interoperability by State and local law enforcement agencies as it pertains to latent fingerprints. LFIOS is targeted at State and local law enforcement agencies across the United States that maintain an AFIS to obtain facts related to the workflow focusing on latent fingerprint searching in support of criminal investigations. It is the only comprehensive effort that provides an ability to establish the level of interoperability of AFIS systems maintained by State and local law enforcement agencies regarding the electronic exchange of latent fingerprint data to support criminal investigations.

Respondents will encounter questions that include which vendor manufactures the AFIS systems they use, AFIS usage patterns, and jurisdictions with which they currently share information. LFIOS is not targeted at vendors or researchers, although the data gathered from this survey will be valuable to a wide variety of stakeholders. Some of the outcomes of analysis of the survey data will be to quantify and understand interoperability at different levels of geographic or jurisdictional granularity as well as vertical and horizontal search patterns. This collection will enable Federal, State, local, and tribal law enforcement and government administrators; legislators; and researchers; to understand the technological and regulatory barriers affecting automated, cross-jurisdictional interoperability.

Proposed Survey Instrument: Content Development

LFIOS is divided into a core survey (**LFIOS-C**) and two addenda, one for State respondents (**LFIOS-S**) and one for local respondents (**LFIOS-L**). Respondents will be asked to complete the LFIOS-C (see Attachment 3) and either the LFIOS-S Addendum (see Attachment 4) or the LFIOS-L Addendum (see Attachment 5) depending on where the respondent agency is a State-level agency or local-level agency (e.g., town, city, county). Information collected in the core survey and survey addenda will provide critical data on the types and functionalities of fielded AFIS systems in State and local agencies; the current policy agreements among jurisdictions to permit the sharing, exchange, and searching of latent fingerprints electronically; and the technological and regulatory factors which impact electronic sharing, exchange, and searching of latent fingerprints across various jurisdictions at the National, State and local levels.

NIJ has engaged a variety of stakeholders over the past few months from the target respondent community to develop and refine the survey questions and structure over the course of several months. Personnel from the Enterprise Integration Center (e-IC) in the Mission, Cyber, and Technology Solutions Group from ManTech International Corporation who staff the NIJ Sensors, Surveillance, and Biometrics Center of Excellence have developed the online and print survey questionnaire using input

provided iteratively from Federal, State, and local latent examiners, AFIS managers, criminal justice practitioners and administrators, and subject matter experts. In particular, the Latent Fingerprint AFIS Interoperability Task Force discussed below have been instrumental in providing guidance and expertise.

The primary manner to complete LFIOS is online, however print or portable electronic document formats are available to respondents who request them. Due to the complex nature of the subject matter, each respondent agency will likely require more than one person to complete the survey. As a result, the preferred online format has integrated into it functionality to save answers and return later to questions with no response indicated to make it easy for multiple individuals to complete the survey if necessary.

The three LFIOS sections are described below:

LFIOS-C

The Core survey has 83 questions and some of these questions have supporting sub-questions. Questions are given in a multiple choice format with some fill in the blank responses required. The survey asks respondents for information regarding the following topics:

- General Information: Includes name, agency/organization, size of agency/organization, and the type of jurisdiction.
- AFIS Information: Includes AFIS vendor, software version, number of records, and use of Federal funds.
- AFIS Capabilities (Criminal and Civil): Includes database size, type of fingerprint records utilized, biometric standards, Universal Latent Workstation (ULW) use, and the number of searches conducted over time.
- Latent Print Examiners: Includes number of examiners employed, AFIS services available to internal examiners, and AFIS services available to external agencies.
- AFIS Interoperability: Includes modes of searching, searching or enrolling in other jurisdictions, being searched by other jurisdictions, use of official agreements such as Memoranda of Understanding, reasons that prohibit searching or exchange of latent prints, effect of dissimilar vendors on searching or exchange, *ad hoc* searching, percentages of fingerprints that are searchable in the database (i.e., “penetration”), and participation in regional AFIS networks.
- Interoperability with Federal Government: Includes Federal databases searched, technology used for search, use of and retention in IAFIS, reasons that prohibit exchange of latent prints with Federal databases, rescanning or re-encoding prints for Federal submission.

LFIOS-S

The State addendum has 15 questions with some supporting subquestions. It will be taken only by respondents that indicate they represent a State level agency in the core survey. Questions are given in a multiple choice format and are crafted for the

perspective of the State level law enforcement agency. It includes questions about the State's interactions with local law enforcement on an intrastate basis, interactions with other States, and interactions with local law enforcement on an interstate basis. LFIOS-S includes questions about the technologies used, compatibility with other State and local agencies, and hindrances to and opportunities for interoperability with a specific focus on the interaction at the State-to-State and State-to-local levels.

LFIOS-L

The local addendum has 19 questions with some supporting subquestions. It will be taken only by respondents who indicate they represent a local level law enforcement agency and not a State agency. Questions are given in a multiple choice format with some fill in the blank responses required. The local addendum explores the view from the "bottom up" and focuses on local-to-local and local-to-State interactions. It includes questions about the local agency's interaction with other local agencies on an intrastate basis, interactions with their own State agency, and interactions with other States and local agencies on an interstate basis. Similar to the state survey, LFIOS-L includes questions about the technologies used, compatibility with other State and local agencies, and hindrances to and opportunities for interoperability with a specific focus on the interaction at the local-to-local and local-to-State levels.

Users of NIJ Latent Print AFIS Interoperability Data

A wide variety of stakeholders in Federal, State, local, and tribal government administration, criminal justice operations, and legislative bodies will be able to use the data collected to understand the technological and regulatory barriers affecting automated, cross-jurisdictional interoperability to help guide decision making going forward. The beneficiaries of this information include NIJ, who is supporting this effort, as well as other Federal Executive Branch agencies, U.S. Congress, the Federal Judiciary, and State, local, and tribal counterparts, especially as it pertains to regulatory issues. Vendors and developers of AFIS and fingerprint analysis technologies developers in industry and academia will also gain a clearer understanding of latent fingerprint interoperability, especially as it pertains to technological issues. Examples of users and uses of these data include the following:

U.S. Congress—Congress provides support to NIJ to perform functions related to criminal justice system research, development, and evaluation. In fact, the FY 2012 Appropriations Bill (H.R. 2112) recently signed into law directs NIJ to support activities that maximize the value of forensic evidence. Developing a rich and full understanding of nationwide AFIS interoperability to fully leverage all available AFIS resources to match latent prints is directly related to that goal. This survey and analysis of the LFIOS data can be used to inform Congress to provide a better sense of what sort of Federal support might be required to enhance AFIS interoperability to improve criminal justice processes to protect the American public.

National Institute of Justice—NIJ will be a primary consumer of the information provided by the proposed data collection to help identify research priorities in the areas of biometrics, interoperability, and information sharing by criminal justice practitioners as it continually updates priorities for RDT&E and other investments. NIJ maintains a primary emphasis on the needs and requirements of Federal, state, local and tribal criminal justice systems in how it prioritizes a balance between basic and applied research to support improved outcomes for practitioners.

To meet the operational challenges encountered by criminal justice practitioners, NIJ seeks input and information from representative stakeholders across the criminal justice enterprise. This material is used in part to determine technological gaps which can benefit from investment in RDT&E or other activities. NIJ has well-established programs in biometrics, forensics, and information led policing which are the primary program areas that will scrutinize the information provided by the proposed data collection. NIJ regularly releases competitive solicitations that address identified gaps from which Cooperative Agreements are generally awarded after peer review of applications to performers who provide innovative proposals that address the requirements identified in the solicitations.

NSTC Subcommittee on Forensic Science—The Subcommittee on Forensic Science (SoFS) serves as the Federal interagency coordinating body to advise and assist the Committee on Science (COS), the National Science and Technology Council (NSTC), and other coordination bodies of the Executive Office of the President on policies, procedures, and plans related to forensic science in the national security, criminal justice, and medico-legal death investigation systems at the federal, state, and local levels. This Subcommittee was created to assess the practical challenges of implementing recommendations in the 2009 NRC report *Strengthening Forensic Science in the United States: A Path Forward* and to advise the White House on how best to achieve the goals outlined in that report. The SoFS is charged with developing practical and timely approaches to enhancing the validity and reliability of the forensic sciences. This includes assisting regional, state and local entities to recognize and adopt best practices in forensic sciences, and to facilitate a strong coordinated effort across federal agencies to identify and address important federal policy, program, and budget matters.

Latent Print AFIS Interoperability Task Force—In response to the NRC’s recommendation related to AFIS interoperability, SoFS chartered an interagency task force on latent print AFIS interoperability. The overarching goal of the Latent Print AFIS Interoperability Task Force (the “Task Force”) is to coordinate the development and execution of a strategic plan and roadmap that identifies long and short-term goals which enhances latent print AFIS interoperability in the United States. The plan will identify and propose solutions to address critical issues such as technology, training, governance, usage, and standard operating procedures. The Task Force supported an AFIS interoperability policy round-table to identify opportunities to enhance interagency cooperation and cross-jurisdictional information sharing, which will enhance the information provided by the proposed data collection. The Task Force will also coordinate the adoption of standards related to latent print AFIS interoperability.

The Task Force has expressed immediate interest in the information collected to help develop its strategic plan to enhance latent print AFIS interoperability in the United States. The SoFS Standards, Practices and Protocols Interagency Working Group (SPP-IWG) identified subject matter experts from organizations such as the Scientific Working Group on Friction Ridge Analysis, Study and Technology (SWGFAST), the National Institute of Justice Working Group on AFIS Interoperability, and the NIST Biometrics Technology Information Access Division. Other members will include nominations from the SoFS to appropriately complement expertise and perspective on the Task Force.

The Task Force roster includes the following personnel (current as of November 16, 2011):

Lauren Cooney (Co-Chair)
U.S. Army Biometrics Identity Management Agency

Melissa Taylor (Co-Chair)
National Institute of Standards and Technology

Wesley Grose
Los Angeles County Sheriff's Department

John "Dusty" Clark
Western Identification Network

Charlie Schaeffer
Florida Department of Law Enforcement

Terry Green
FBI Laboratory Division

Mike Lesko
Texas Department of Public Safety

Randy Hanzlick
Emory University

Leo Norton
Los Angeles County Sheriff's Department

Mark Greene
National Institute of Justice

Mark Zabinski
Rhode Island State Crime Laboratory

Lisa Vincent
FBI Criminal Justice Information Services (CJIS) Division

Kenneth Blue
Tennessee Bureau of Investigation

Anne May
Department of Homeland Security, US-VISIT

Michael Garris
National Institute of Standards and Technology

Joe Polski
International Association for Identificaiton

Kathryn Suchma
FBI Terrorist Explosive Device Analytical Center (TEDAC)

The Task Force has also consulted additional subject matter experts from NIST:

Mike Indovina
National Institute of Standards and Technology

Martin Herman
National Institute of Standards and Technology

The Task Force is developing a latent print AFIS interoperability strategic plan which will include interagency collaboration related to existing AFIS interoperability efforts. Latent print AFIS community needs will be identified and prioritized and specific recommendations will be made for addressing those needs which can serve to enhance interagency cooperation and cross-jurisdictional information sharing.

State and local law enforcement agencies—Law enforcement and public safety agencies including State Investigation Bureaus and forensics laboratories that maintain an AFIS will not only provide the respondent population but would also benefit from the information provided by the survey. Other State and local law enforcement agencies that may not have AFIS resources in house will also benefit by better understanding the current state of interoperability revealed by the survey data.

Federal Bureau of Investigation—The FBI has invested heavily over the years to develop and deploy AFIS technology and latent collection and examination methods. Components within the FBI that would benefit from the information provided by the survey include the Criminal Justice Information Services (CJIS) Division which is responsible for fingerprint storage and searching. The Integrated Automated Fingerprint Identification System (IAFIS) and Next Generation Identification (NGI), which incorporates IAFIS with improved functionalities, are both CJIS systems. Other components including the field offices would benefit as appropriate.

State legislatures, municipal councils, and city and county managers—Policymakers and budget planners would also benefit from the information provided by the survey. Interoperability can be influenced by both policy and technology, and any improvements suggested by the survey data will require close assessment by State and local government bodies to coordinate efforts to improve AFIS interoperability.

Federal, State, local, and tribal correctional institutions—Corrections administrators would benefit from the information provided by the survey. Correctional institutions often maintain an AFIS to keep track of offenders processed and housed in their facilities. These AFIS systems can also be included in latent fingerprint searches to resolve criminal cases.

Federal, State, local, and tribal medical examiners and coroners—Medical examiners and coroners would benefit from the information provided by the survey as it pertains to connecting deceased individuals to unsolved latent fingerprints.

Federal Judiciary, State and local courts—The various actors within the judicial system such as judges and attorneys who handle criminal cases involving latent fingerprints would benefit from the information provided by the survey for educational purposes. Outside of intelligence or national security operations, latent fingerprint evidence that is part of a criminal investigation will ultimately be adjudicated in a courtroom.

Office of Justice Programs—Components in OJP other than NIJ could benefit from the information provided by the survey. The Bureau of Justice Assistance (BJA) provides support at the State, local, and tribal levels to improve the criminal justice system. BJA provides national leadership in criminal justice policy, training, and technical assistance to further the administration of justice and coordinates and administers all state and local grant programs. The Bureau of Justice Statistics (BJS) can utilize the data in the context of the statistics it collects to better understand the criminal justice system. The results of this survey will provide baseline input for analysis and improvement of state and local AFIS interoperability over time.

Community Oriented Policing Services Office—The COPS Office could benefit from the information provided by the survey. COPS offers grants to help law enforcement agencies to hire more community policing officers, to acquire new technologies and equipment, to hire civilians for administrative tasks, and to promote innovative approaches to solving crime.

U.S. Department of Justice (other)—Other agencies within DOJ with a stake in criminal investigations that might benefit from information provided by the survey include the Criminal Division; the Office of the United States Attorneys; the Drug Enforcement Administration; and the Bureau of Alcohol, Tobacco, Firearms, and Explosives.

U.S. Department of Homeland Security—Different agencies within DHS collect fingerprints from individuals that are housed in databases against which latent fingerprints can be searched from within to meet DHS mission objectives or from without given appropriate sharing agreements are in place. Some DHS components also employ latent examiners. DHS can make use of the information provided by the survey to gain a better understanding of how their resources could be made more interoperable to support latent fingerprint searches. Some of the agencies within DHS that would benefit from the information provided by the survey include US-VISIT, Immigration and Customs Enforcement, Customs and Border Protection (which includes Border Patrol), the U.S. Coast Guard, and the Science and Technology Directorate.

U.S. Department of Defense—Different agencies within the DoD collect fingerprints from individuals that are housed in databases against which latent fingerprints can be searched from within to meet DoD mission objectives or from without given appropriate sharing agreements are in place. DoD components also employ latent examiners. DoD can make use of the information provided by the survey to gain a better understanding of how their resources could be made more interoperable to support latent fingerprint searches. Some of the agencies within DoD that would benefit from the information provided by the survey include the U.S. Army Biometric Identity Management Agency (BIMA), the U.S. Army Criminal Investigation Laboratory (USACIL), the Naval Criminal Investigative Service (NCIS), the Air Force Office of Special Investigations (OSI), Technical Support Working Group (TSWG) Investigative Support and Forensics, and Defense Biometrics and Forensics.

Intelligence Community—Various agencies within the IC that support intelligence and counter terrorism missions would benefit from the information provided by the survey.

National Institute of Standards and Technology—NIST has long been active in developing fingerprint standards and biometrics research and would benefit from the information provided by the survey.

Various stakeholders in industry and academia—Researchers and vendors in fingerprint and AFIS technology would benefit from the information provided by the survey. The RDT&E and subsequent operational deployment of such AFIS systems has required a sustained effort over the course of decades comprised of a community made up of criminal justice practitioners, forensic scientists, computer scientists, engineers, and technologists with specific training in biometrics, pattern recognition, algorithm design, network architecture, and related fields. The NRC report specifically called out vendors as being an integral part of achieving nationwide AFIS interoperability, which is an important issue since many of the algorithms and systems used to compare fingerprint patterns are proprietary. LFIOS will help illuminate the extent to which technical barriers are hindering interoperability by collecting data regarding actual AFIS usage by forensic practitioners.

3. Use of Information Technology

In an effort to reduce respondent burden, the Latent Fingerprint Interoperability Survey uses an online form that is straightforward and easy to comprehend. Both the content and form of the proposed data collection were developed over several months with the input and feedback of members of the Task Force, many of whom are from the targeted respondent population. Personnel from the Enterprise Integration Center (e-IC) in the Mission, Cyber, and Technology Solutions Group from ManTech International Corporation who staff the NIJ Sensors, Surveillance, and Biometrics Center of Excellence have developed the online and print survey questionnaire. ManTech will host the online survey and house the data during the survey collection period.

NIJ received a great deal of constructive feedback to clarify, reduce, or consolidate the number of questions. NIJ also consulted with the Bureau of Justice Statistics (BJS) on their efforts to collect data from respondent populations within the criminal justice community. NIJ also received feedback regarding the user experience of the web and print forms. The web form allows for respondents to save answers and return to the survey at a later time if all the responses cannot be provided at one time. Every effort was made to make the questions clear, relevant, and concise. Wherever possible, efforts were made to:

- Use consistent response methods were used
- Questions are sequenced from the general to the specific.
- Where closed questions are used, every effort was made to develop exhaustive and mutually exclusive response alternatives.
- Questions with similar content are placed together in the questionnaire and every effort has been made to decrease the amount of time necessary to take the survey.
- The online survey is consistently formatted and easy to read and utilize.

Since a web survey is being implemented, responses will be obtained through the use of internet-based information technology. Using a web-based survey will:

- Facilitate survey administration by reducing the amount of time and effort to distribute the survey and collect the survey responses.
- Decrease the need for data cleaning since where possible the questions and responses have been crafted such that only valid responses can be entered
- Responses will be automatically stored in an electronic database which will decrease the amount of effort to record the results and increase the ease of analysis

4. Efforts to Identify Duplication

NIJ has consulted with other groups working on latent fingerprint interoperability to determine if this proposed data collection has been duplicated by any other program or agency. No other effort was identified that provides the comprehensive data to establish

the level of interoperability of automated fingerprint identification systems maintained by State and local law enforcement agencies regarding the electronic exchange of latent fingerprint data to support criminal investigations.

Table 1 below shows the funding NIJ has provided since FY 2005 through FY 2011 for research toward latent fingerprints. Three in the area of interoperability are highlighted in bold. In the two awards from FY 2010, NIJ is supporting efforts by the Law Enforcement Standards Office (OLES) at NIST through an Interagency Agreement that will complement the LFIOS, however none of these efforts have a survey component that seeks information from practitioners on a nationwide scale.

NIJ through NIST is sponsoring an effort to develop a Latent Interoperability Transmission Specification (LITS). Through this effort, OLES is supporting Noblis for drafting, vetting, and delivering three documents designed to enable vendor-neutral latent AFIS interoperability, all built upon the ANSI/NIST Extended Feature Set (EFS) definitions for fingerprint/palmprint features: Latent Interoperability Transmission Specification (LITS), EFS User Profiles, and EFS User Guidelines. OLES and Noblis are also investigating interoperability with respect to latent fingerprint processing through case studies and interviews with select jurisdictions. The scope of this effort, however, does not include collecting data from every State and local agency that maintains an AFIS regarding AFIS usage with respect to latent fingerprints as LFIOS does.

The award from FY 2006 does not provide any guidance with respect to AFIS interoperability, so there is no duplicative effort there. It reports the findings and recommendations of the International Association for Identification (IAI) Standardization II Committee which focused on matters related to friction ridge analysis. In particular, the group was charged with re-examining the following conclusion of the IAI Standardization Committee from 1970 to 1973 regarding fingerprint matching: "...no valid basis exists at this time for requiring that a pre-determined minimum number of friction ridge characteristics must be present in two impressions in order to establish positive identification." The Committee recommended that the IAI replace the 1973 Position Statement to read: "There currently exists no scientific basis for requiring a minimum amount of corresponding friction ridge detail information between two impressions to arrive at an opinion of single source attribution." The Committee also recommended a variety of proposals to further advance friction ridge science.⁴

Table 1. NIJ Awards for Latent Fingerprints and/or Interoperability for FY 2005 through FY 2011.

Smartphone Technology for Capturing Untreated Latent Fingerprints	EOIR Technologies, Inc.	2011-DN-BX-K536	\$208,085
Latent Print AFIS Interoperability Technical Working Group	NIST Office of Law Enforcement Standards	2010-DN-R-7121	\$280,000
NIST/NIJ Expert Working Group on Human Factors in Latent Print Analysis	NIST Office of Law Enforcement Standards	2010-DN-R-7121	\$180,000

⁴ The final report of this award is publically available online at the National Criminal Justice Reference Service (NCJRS): <https://www.ncjrs.gov/App/Publications/abstract.aspx?ID=255916>.

Development of Latent Print AFIS Interoperability Standards	NIST Office of Law Enforcement Standards	2010-DN-R-7121	\$700,000
Web-based Testing and Quantification of Cognitive Suitability for Conducting Latent Print Examination	NIST Office of Law Enforcement Standards	2010-DN-R-7121	\$273,000
Developing Methods to Improve the Quality and Efficiency of Latent Fingermark Development by Superglue Fuming	The University of Tennessee	2010-DN-BX-K202	\$258,816
Acquisition of Fingerprint Topology Using Columnar Thin Films	The Pennsylvania State University	2010-DN-BX-K232	\$470,216
Miami-Dade Research Study for the Reliability of the ACE-V Process: Accuracy, Precision, Reproducibility and Repeatability in Latent Fingerprint Examination	Miami Dade County	2010-DN-BX-K268	\$139,530
Improving the Understanding and the Reliability of the Concept of "Sufficiency" in Friction Ridge Examination	The Pennsylvania State University	2010-DN-BX-K267	\$479,412
Quantified Assessment of Contextual Information in Latent Friction Ridge Impression Analysis Related to Accuracy and Reliability of Subsequent Examiner Suitability Determinations	Complete Consultants Worldwide, LLC	2010-DN-BX-K270	\$452,050
Quantitative Measures in Support of Latent Print Comparison	The Research Foundation of State University of New York	2009-DN-BX-K208	\$498,784
Quantifying the Effects of Database Size and Sample Quality on Measures of Individualization Validity and Accuracy in Forensics	George Mason University	2009-DN-BX-K234	\$974,981
Specific Heat Capacity Thermal Function of Cyanoacrylate Fingerprint Development Process	Mountain State University	2009-DN-BX-K196	\$207,731
Application of Spatial Statistics to Latent Print Identifications: Towards Improved Forensic Science Methodologies	Western Oregon University	2009-DN-BX-K228	\$685,754
Establishing the Quantitative Basis for Sufficiency: Thresholds and Metrics for Friction Ridge Pattern Detail Quality and the Foundation for a Standard	Virginia Polytechnic Institute and State University	2009-DN-BX-K229	\$854,907
Error Rates for Latent Fingerprinting as a Function of Visual Complexity and Cognitive Difficulty	University of California at Los Angeles	2009-DN-BX-K225	\$866,674
The Information Content of Friction Ridge Impressions as Revealed by Human Experts	Indiana University	2009-DN-BX-K226	\$424,285
Quantified Assessment of AFIS Contextual Information on Accuracy and Reliability of Subsequent Examiner Conclusions	Complete Consultants Worldwide, LLC	2009-DN-BX-K224	\$348,770
Latent Print AFIS Interoperability Technical Working Group	NIST Office of Law Enforcement Standards	2008-DN-R-121	\$340,000
NIST/NIJ Expert Working Group on Human Factors in Latent Print Analysis	NIST Office of Law Enforcement Standards	2008-DN-R-121	\$435,000
IR-Fluorescence Imaging of Latent Fingerprints on Human Skin	Oak Ridge National Laboratory	2008-IJ-R-134	\$440,013

Electronic Fingerprint Development Device "Fuma-Room"	Mountain State University	2007-DN-BX-K242	\$60,916
Automatic Fingerprint Matching Using Extended Feature Set	Michigan State University	2007-DN-BX-0005	\$15,541
Cultivating Methods to Enhance the Quality of Aged Fingerprints Developed by Cyanoacrylate Fuming	The University of Tennessee	2006-DN-BX-K031	\$126,505
Breakable Cartridge Cyanocrylate Fingerprint Development System/3 Port Sublimation Chamber	Mountain State University	2006-DN-BX-K037	\$82,815
Interoperability of AFIS Systems for Latent Print Searches	International Association for Identification	2006-DN-BX-K249	\$179,943
Quantitative Assessment of the Individuality of Friction Ridge Patterns	Research Foundation of the State University of New York, Amherst	2005-DD-BX-K012	\$596,450
Friction Ridge Analysis Research	Ultra Scan Corporation	2005-DD-BX-K056	\$126,601
Latent-Print Detection by Macro-Raman Imaging	Oak Ridge National Laboratory	2005-DD-R-094	\$299,000
Improving Methods for Fingerprint Development on Hand-guns	U.S. Department of Defense, Technical Support Working Group	2005-IJ-R-051	\$70,000
Adding Human Expertise to the Quantitative Analysis of Fingerprints	Indiana University	2005-MU-BX-K076	\$431,234
Analysis of Level III Characteristics at High Resolutions	International Biometric Group, LLC	2005-MU-MU-K063	\$461,495

5. Efforts to Minimize Burden

The Latent Fingerprint Interoperability Survey collects data that are available from criminal justice agencies that maintain an AFIS. The arrangement of the items on the form reflects a logical flow of information to facilitate comprehension of requested items and to reduce the need for follow-up. NIJ also provides several modes by which respondents may submit data: by web, fax, or mail response.

The design of the proposed data collection form has also been developed in an effort to minimize burden on respondents. The survey is divided into three groups of questions: Core (LFIOS-C), State (LFIOS-S), and local (LFIOS-L). The Core survey questions are similar to all agencies that maintain an AFIS and request basic information about an agency's AFIS usage with respect to latent fingerprints. The State survey requests specific AFIS usage information relevant only to State agencies that maintain an AFIS. The Local survey requests specific AFIS usage information relevant only to Local agencies that maintain an AFIS. State respondents do not need to respond to Local questions and Local respondents do not need to respond to State questions.

The primary manner to complete LFIOS is online, however print or portable electronic document formats are available to respondents who request them. Due to the complex

nature of the subject matter, each respondent agency will likely require more than one person to complete the survey. As a result, the preferred online format has integrated into it functionality to save answers and return later to questions with no response indicated to make it easy for multiple individuals to complete the survey if necessary.

6. Consequences of Not Conducting or Less Frequent Collection

The motivation for developing the proposed data collection was primarily due to the absence of comprehensive and quantifiable data regarding State and local AFIS interoperability regarding latent fingerprints. LFIOS will provide timely information on a crucially important topic, and until this data collection effort is complete, a huge data gap regarding interoperability will remain. At present, current information is anecdotal and incomplete and not in a form that can be analyzed in a statistical manner. Although enormously useful, the efforts through OLES outlined in Section 4 will not yield the kind of quantitative data on a nationwide scale that LFIOS will.

Absent the LFIOS, NIJ would only be able to provide the same information LFIOS could regarding State and local AFIS usage after extensive interviews with appropriate agencies if a survey structure was not in place. Based on the estimates of the number of agencies that maintain an AFIS that support latent fingerprint searches, it would likely require an FTE years of full-time work to complete this assignment, after which time the information reported for the first agencies interviewed would be at risk of being out of date.

7. Special Circumstances

Data collected in the survey should be considered Law Enforcement Sensitive and will be handled in a responsible and secure manner. Collecting this data is justified and extremely important since the State and local agency AFIS resources and usage details regarding both technology and policies that impact interoperability are sensitive in nature. Without a complete knowledge of all the information, it will be very challenging to develop a proper understanding of AFIS interoperability as it pertains to latent fingerprints on a national scale. While none of the requested data is classified, the raw data will be treated as for official use only and not for public release until a thorough analysis can be conducted. Knowledge products such as analyses produced from the data will be considered for dissemination to the stakeholder community since those materials will represent aggregate data that is not agency-specific.

Collection of sensitive data will be done in a secure manner. Personnel from the Enterprise Integration Center (e-IC) in the Mission, Cyber, and Technology Solutions Group from ManTech International Corporation who staff the NIJ Sensors, Surveillance, and Biometrics Center of Excellence have developed the online and print survey questionnaire. ManTech will host the online survey and house the data during the survey collection period. This organization is an excellent choice to conduct this survey as they are familiar with the requirements of United States Government clients such as those

from the DoD who have strict IT security requirements. ManTech has developed and maintained numerous collaboration web portals for various DoD and Federal customers. In addition to the core capabilities as collaboration portals, these tools often included balloting and polling functionality.

Under ManTech hosting policies, access to the survey will be granted on a need-to-know basis by the project task leader responsible for data collection. The survey will be taken through a password protected website and all communication will use HyperText Transfer Protocol Secure (HTTPS). In order to prevent unauthorized access and restrict usage to authorized users, users will be required to register with the site prior to accessing the survey. Password communication will be secured with Windows Authentication Services. Once a user has registered, the system will give them permission to take the survey and review and/or edit their own response; they may not access the surveys of others. These restrictions are enforced by the survey software (Microsoft SharePoint) and permission settings within the associated directory services. The ManTech server used for this survey has a firewall in place to restrict unsolicited traffic and is only accessible through the https protocol. The server is actively maintained and patched by system administration personnel. As a further precaution, survey data and user accounts are stored on different systems. Basic physical security measures are also in place as the server is in an always locked room in a facility with a security force.

In addition, there is no circumstance in which a respondent would respond more than once and provide more data than on the survey form.

8. Public Comments and Consultations

The research under this clearance is consistent with the guidelines in **5 CFR 1320.6**. The 60-day and 30-day notices for public comment have been published in the Federal Register (Volume 76, Number 148, Page 46,328 on August 2, 2011 and Volume 76, Number 201, Page 64,383 on October 18, 2011, respectively). In developing the data collection procedures, NIJ has consulted with Federal, State, and local latent examiners, AFIS managers, criminal justice practitioners and administrators, and subject matter experts to improve the questionnaire and the survey overall. Within the 60-day comment period, draft versions of the data collection instrument were also publicly presented at the International Association for Investigation (IAI) in August 2011 in Milwaukee, WI and the Biometrics Consortium Conference (BCC) in September 2011 in Tampa, FL. These two annual conferences attract a variety of stakeholders who will benefit from the data collection.

As a result of outreach efforts, the following individuals provided feedback regarding the proposed data collection effort. A brief questionnaire was developed to assist respondents with providing feedback in the four principal areas outlined in the Federal Register notices (see Attachment 6).

Vicki Farnham
New Mexico Department of Public Safety

Santa Fe, NM

Angela Pratt
Bureau of Alcohol, Tobacco, Firearms, and Explosives
San Francisco, CA

James P. Martin
Rutherford County Sheriff's Office
Murfreesboro, TN

Katie Suchma
Federal Bureau of Investigation
Terrorist Explosive Device Analytical Center
Quantico, VA

Gary Stone
I3
Biometrics Identity Management Agency
Clarksburg, WV

Robin Jones
Bureau of Alcohol, Tobacco, Firearms, and Explosives
Washington, DC

William G. Doyne
U.S. Army Criminal Investigation Laboratory
Forest Park, GA

Wade Anderson
King County Sheriff's Office
Seattle, WA

Kenneth Woods
U.S. Immigration and Customs Enforcement
McLean, VA

Karen Ford
Orange County Sheriff's Department
Orange County Crime Laboratory
Santa Ana, CA

Carol Gillespie
King County Sheriff's Office
Seattle, WA

Mary Ann Pelletier

New York State Division of Criminal Justice Services
Albany, NY

Deneen Flowers
King County Regional AFIS
Seattle, WA

Cindy Fangour
King County Sheriff's Office
Seattle, WA

Carl J. Carlson
Kansas City Police Crime Laboratory
Kansas City, MO

Roxanne S. Brooks
Indiana State Police
Indianapolis, IN

Ed Downing
Rhode Island State Crime Laboratory
Kingston, RI

B. Scott Swann
Office of the Director of National Intelligence
McLean, VA

Jozi Scholl
Kern County Sheriff's Office
Bakersfield, CA

Steven Johnson
Biometrics Identity Management Agency
Clarksburg, WV

Laura Tierney
U.S. Immigration and Customs Enforcement
McLean, VA

Jeff Smith
Private Consultant
Castle Rock, CO

Jamie Robinson

Mississippi Crime Laboratory
Batesville, MS

Kenneth Blue
Tennessee Bureau of Investigation
Nashville, TN

Mark Zabinski
Rhode Island State Crime Laboratory
Kingston, RI

John D. Clark
Western Identification Network
Rancho Cordova, CA

Randy Hanzlick
Fulton County Medical Examiner
Atlanta, GA

Greg L. Soltis
Federal Bureau of Investigation
Laboratory Division
Quantico, VA

Ed German
Newington, VA

Lauren Cooney
Biometrics Identity Management Agency
Clarksburg, WV

George Kiebusinski
Noblis
Falls Church, VA

Austin Hicklin
Noblis
Falls Church, VA

John Mayer-Splain
Noblis
Falls Church, VA

David Sobotka

Lincoln Police Department
Lincoln, NE

Steve Koch
Kansas Bureau of Investigation
Topeka, KS

M. Dawn Watkins
Palm Beach Gardens Police Department
Palm Beach Gardens, FL

Stan Slonina
Kentucky State Police AFIS Section
Frankfort, KY

Charles D. Bramlett, Jr.
West Columbia Police Department
West Columbia, SC

9. Provision of Payments or Gifts to Respondents

Participation in the survey is voluntary and no gifts or incentives will be given.

10. Assurance of Confidentiality

The information gathered in this data collection shall be used only for research purposes. The data collected through LFIOS represent institutional characteristics of publicly-administered or funded facilities and are, therefore, in the public domain. However, data collected in the survey should be considered Law Enforcement Sensitive and will be handled in a responsible and secure manner. Collecting this data is justified and extremely important since the State and local agency AFIS resources and usage details regarding both technology and policies that impact interoperability are sensitive in nature. Without a complete knowledge of all the information, it will be very challenging to develop a proper understanding of AFIS interoperability as it pertains to latent fingerprints on a national scale.

While none of the requested data is classified, the raw data will be treated as for official use only and not for public release until a thorough analysis can be conducted. Minimal biographic information will be collected in the survey form: Only information that pertains to a person's role and experience within the law enforcement agency is requested. Any data or edited data made available for public use will not contain any individually identifiable information. Knowledge products such as analyses produced from the data will be considered for dissemination to the stakeholder community since those materials will represent aggregate data that is not agency-specific.

11. Justification for Sensitive Questions

No sensitive information of a personal nature will be collected.

12. Estimate of Respondent's Burden

One set of instructions to complete the LFIOS-C survey and either LFIOS-S or LFIOS-L will be sent by email to the Nation's estimated 400 State and local law enforcement agencies that house and maintain an AFIS used for latent fingerprint searching in the course of criminal investigation. The estimated burden was reported for the LFIOS in the 60-Day and 30-Day Notice of Information Collection Under Review. From the feedback provided during the public comment periods, 29 respondents provided time estimates ranging from 45 minutes to 120 minutes to complete the survey. Below are basic statistics to determine the burden estimate:

Number of burden estimates: 29

Mean: 67 minutes

Median: 60 minutes

Mode: 60 minutes

A reasonable estimate is that it will take an agency approximately one hour to complete the survey. If 400 agencies are canvassed, the total burden will amount to about 400 man hours of effort, which agrees with the upper range reported in the Federal Register Notices (*Note: the 60-Day and 30-Day FRNs mistakenly reported the burden estimate in minutes, not hours. Instead of 21,000 to 24,000 hours, they should read 350 to 400 hours*).

Keeping the respondent burden to a minimum has been an important goal during the development of the survey. Iterative input from practitioners and subject matter experts regarding the survey content, wording, and length so that the questionnaire is best targeted to the individuals in the law enforcement agency best suited to provide the needed information such as AFIS managers and latent print examiners. Due to the complex nature of the subject matter, each respondent agency will likely require more than one person to complete the survey. As a result, the preferred online format has integrated into its functionality to save answers and return later to questions with no response indicated to make it easy for multiple individuals to complete the survey if necessary, which minimizes the burden on any one person.

13. Estimate of Cost Burden

One set of instructions to complete the LFIOS-C survey and either LFIOS-S or LFIOS-L will be sent by email to the Nation's estimated 400 State and local law enforcement agencies that house and maintain an AFIS used for latent fingerprint searching in the course of criminal investigation. Questionnaires and a self-addressed stamped envelope

are mailed to respondents if requested. The information requested is normally maintained electronically as administrative records in the law enforcement agencies and should be available to the appropriate personnel. The only costs respondents will incur are costs associated with their time. Other than these costs, there are no additional costs to the respondent. The estimated cost for all surveys is \$50 per hour. The total respondent cost for the entire LFIOS collection is \$20,000.

14. Cost to Federal Government

This OMB clearances request encompasses a survey collection (LFIOS-C, LFIOS-S, and LFIOS-L) that accounts for unique costs to the government. Currently, the division of labor for the data collection is as follows: ManTech develops the survey questionnaire, conducts outreach to respondent population, conducts follow-up, collects the data, maintains and updates the website and database, prepares a dataset for NIJ analysis, and performs basic analysis. NIJ staff provide oversight, coordinate with stakeholders especially at the Federal level, develop all materials required by the PRA process, analyze the data, prepare statistical tables, write reports based on these data, disseminate and report results, and make data available for stakeholder analysis.

Based upon 2012 NIJ salaries and expenses and ManTech expenditures related to this project since FY 2011 Q2, the estimated costs to the government associated with this data collection, subsequent analysis, and dissemination of results is estimated to cost the government \$504,620 over three years from FY11 through FY13. This come out to an annualized estimated cost of \$170,000. The estimated costs are divided between NIJ costs (\$30,800) and ManTech costs (\$473,820), both of which include salary, fringe, and overhead. Table 2 below shows a cost breakout:

Table 2. Estimated costs for the Latent Fingerprint Interoperability Survey

NIJ costs

Staff salaries	
GS-13 Physical Science (1 month FY11)	\$7,600
GS-13 Physical Science (1 month FY12)	\$7,600
GS-13 Physical Science (1 month FY13)	\$7,600
Subtotal salaries	\$22,800
Fringe benefits (35% of salaries)	\$8,000
Subtotal: Salary & fringe	\$30,800
Subtotal: NIJ costs	\$30,800

ManTech costs FY11 – FY13 (NIJ Award # 2010-IJ-CX-K024)

ManTech costs (salaries; fringe benefits; questionnaire development; website development, maintenance, and updating; travel; email and phone outreach; data analysis; report writing; overhead)	\$473,820
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Subtotal: ManTech costs **\$473,820**

Total estimated costsFY11 – FY13 **\$504,620**

15. Reason for Change in Burden

This is a new data collection, so all burden estimates are original.

16. Anticipated Publication Plan and Schedule

Anticipating OMB approval in FY 2012 Q2, respondents will be contacted on or about April 1, 2012 by email with a link to the online LFIOS form, and the print version will be available on request. Since this is a new data collection effort that will be unfamiliar to State and local practitioners, NIJ requests that OMB permit at least one year to complete the data collection as there may be a significant need to reach out repeatedly to nonrespondent agencies. Assuming data collection will go from FY 2012 Q3 through FY 2013 Q2, it is anticipated that analysis can be completed by the end of FY 2013 which will permit time to develop any necessary NIJ solicitation directed toward projects to improve latent fingerprint interoperability in FY 2014. A basic anticipated timeline is outlined below:

Planning, preparation, and survey development	February 2011 – November 2011
Data collection	April 2012 – March 2013
Data processing and analysis	April 2013 – July 2013
Release of results to stakeholders for review	July 2013 – September 2013

17. Display of Expiration Date

The expiration date of the OMB approval will be displayed on the web survey and survey forms.

18. Exception to the Certification Statement

There are no exceptions identified in Item 19, "Certification for Paperwork Reduction Act Submissions," of OMB Form 83-I.