A STATUS REPORT ON REPLACING THE NORTH CAROLINA STATEWIDE AUTOMATED FINGERPRINT IDENTIFICATION SYSTEM (SAFIS)

North Carolina Department of Justice

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EXECUTIVE SUMMARY

North Carolina is making a significant financial investment to replace a critical crime-fighting tool that supports law enforcement and protects our communities. North Carolina's Statewide Automated Fingerprint Identification System (SAFIS) is a vital law enforcement and public safety resource that serves over 500 law enforcement agencies. The equipment that backs the state's fingerprint identification infrastructure is nearly obsolete and is being replaced. Law enforcement uses this system to pinpoint a suspect in a matter of minutes using the unique identifiers found on fingerprints left at a crime scene. That means arresting rapists and murderers who could otherwise strike again. With it we have stopped criminals from working at the bedsides of our most vulnerable senior citizens and in the classrooms right next to our children. Hundreds of law enforcers, schools, nursing homes, and childcare facilities depend on the automated fingerprint system to disqualify job applicants with criminal records.

This computerized fingerprint system protects all North Carolinians by solving crimes and helping to put criminals in jail. It also keeps felons and other dangerous individuals out of positions where they could prey on our state's most vulnerable residents.

During the 2007 calendar year, an average of 207 fingerprint matches per day were made based on fingerprint cards submitted due to either arrests or pre-employment screenings. In addition, over 1,500 fingerprints from crime scenes were identified through remote latent search stations that same year. Rapid turnaround time is one of SAFIS' most important benefits. Prior to SAFIS criminal fingerprint searches could take up to 100 days, and a full year of processing time for non-law enforcement fingerprint cards was not uncommon. With SAFIS, criminal fingerprint searches can be done in two hours, and the processing of non-law enforcement fingerprint cards is now routinely completed in one week.

SAFIS consists of central processing computer systems and more than 180 remote fingerprint facilities located within law enforcement agencies across the state. The North Carolina State Bureau of Investigation (SBI) serves as the criminal fingerprint repository for the state and has the responsibility of operating and managing SAFIS.

A timeline on SAFIS system replacement is included in ***Appendix A***.

I. SYSTEM DESCRIPTION

Prior to SAFIS, processing a positive fingerprint identification of a suspect could take months. Prior to SAFIS, it was not unheard of for a criminal suspect to be placed in jail, released on bond by a magistrate, charged by a district attorney, meet with their defense attorney, and attend the first court appearance before being identified as a person with a criminal record. Since its initial implementation in 1986, SAFIS has resolved this problem by greatly reducing the time it takes to find a positive fingerprint match. The suspect can now be identified within two hours, instead of several weeks or months.

SAFIS receives and processes electronic and manually rolled fingerprint card submissions for criminal identifications, job applications, background checks, and requests for permits to carry a concealed weapon. SAFIS accepts, stores, and retrieves scanned fingerprint data, and performs automated searches and comparisons. In addition, SAFIS maintains a direct secure network link to the Federal Bureau of Investigation (FBI) and the National Crime Information Center (NCIC) to support the

exchange of arrest record information and identification results at a national level. SAFIS serves as the statewide resource for positively identifying repeat offenders and unknown criminals using latent fingerprint evidence from crime scenes.

The SAFIS infrastructure is currently comprised of the following main components:

- 3 central processing systems
- 162 remote Live Scan devices
- 23 remote latent search stations

Table 1 reflects the number of fingerprint card submissions for Fiscal Year 2006-07.

Table 1: Total Fingerprint Card Submissions for FY0607

FY 0607	Electronic Submissions	Manually Rolled Card Submissions	Total Submissions
Criminal Fingerprint Cards	**88 %**	**12 %**	**197,260**
Non-Criminal Fingerprint Cards*	**17 %**	**83 %**	**131,059**

* Fingerprint cards submitted for job applications, background checks and permits.

TOTAL: 328,319

SAFIS is currently linked to North Carolina's computerized criminal history files (CCH). Once the fingerprint card has been processed by the SBI, personal information and charge-related data are automatically forwarded to CCH. Existing criminal history records are automatically updated or a new criminal history record is established. Maintaining the link between SAFIS and CCH is essential to the law enforcement community. SAFIS is also linked to the SBI's fingerprint database, which electronically archives criminal fingerprint cards.

Central Processing Systems

The three central processing systems are responsible for searching, verifying, adding, and updating fingerprint records in the SAFIS database and adding charge-related information to CCH. These systems are comprised of input/verification stations, data entry computers, and servers that control and process the activity and transactions that flow through SAFIS. The central processing systems are located at the SBI, the Mecklenburg County Sheriff's Office (MCSO), and the North Carolina Department of Correction (DOC). Additional database servers, storage devices and search processors are located at the SBI.

The SAFIS fingerprint database currently contains approximately 1,500,000 fingerprints. Records for those who have either been arrested in North Carolina or have been licensed to carry concealed handguns are stored in the database.

The illustration in ***Appendix B*** reflects a high level overview of SAFIS processing and its components. The infrastructure is configured in such a manner that the simultaneous upgrade to all central processing systems is essential in order to maintain system integrity and the current level of service provided by SAFIS.

Live Scan Devices

There are currently 162 Live Scan devices connected to SAFIS throughout the state. Live Scan devices capture fingerprints electronically without the use of ink and fingerprint card stock. These devices utilize computers and optical lenses to record the fingerprints in a digital format. Identifying information of the person being fingerprinted is also entered into the Live Scan device. The fingerprint images and the descriptive information are then electronically submitted to the SBI. The information is received by the SBI in a format that meets standards set by FBI for processing at the national level. A Live Scan device is required in order to electronically submit fingerprints to the SBI.

Live Scan devices provide additional benefits to the contributing law enforcement agency and the entire law enforcement community:

- Consistently provide high quality fingerprint images
- Facilitate individuals' criminal history records being updated in an efficient and timely manner
- Reduces the risk of the fingerprint card being rejected due to the poor quality of the captured fingerprints
- Reduces the time required to fingerprint an individual, which saves money and lessens close-quarters contact with a suspect
- Submissions are received by the SBI more quickly than inked fingerprint cards which require mailing through the postal service
- Provide a standard format for descriptive information and associated charges which reduces the risk of a fingerprint card being rejected

In 1997, North Carolina became the first state to allow submissions of electronic fingerprint cards from Live Scan devices of different vendors. This has provided a competitive environment for vendors to do business in North Carolina.

Currently, seventeen counties do not have a Live Scan device from which fingerprints can be electronically submitted to the SBI. The initial purchase price of the device and the associated maintenance cost made it prohibitive for smaller law enforcement agencies. Law enforcement officers in those counties must collect fingerprints using the manually rolled ink method. The inked fingerprint cards must then be mailed to the SBI for processing. Once these cards are received at the SBI, they must be scanned in and converted into the appropriate digital format for submission to the FBI. The Electronic Fingerprint Transmission Specification (EFTS) defines the link between the FBI and other agencies' systems and establishes a national standard for fingerprint transmissions. This conversion process is labor-intensive, time-consuming, and places considerable stress on the SAFIS workflow due to the age of the SAFIS central processing systems.

Latent Search Stations

There are currently 23 latent search stations throughout the state. The term "latent" means hidden or unseen. A latent fingerprint is one that is inadvertently left at a crime scene by a suspect and then searched for and found by law enforcement personnel. Latent fingerprints require forensic processing in order to be seen with the naked eye. Once a latent fingerprint is visible, it can be searched against the SAFIS database of fingerprints by using a latent search station in an effort to find a match.

A latent search station establishes a remote two-way connection with the SAFIS database. It allows a fingerprint examiner to search a latent fingerprint against fingerprints currently stored in SAFIS. Once the latent fingerprint has been submitted for searching, SAFIS will transmit back to the fingerprint examiner a list of possible identifications. The fingerprint examiner will then conduct a side-by-side comparison to determine if a match exists.

The ability to search latent fingerprints from crime scenes makes SAFIS a remarkable crime-fighting tool. It can pinpoint or eliminate suspects, and enhances the important detective work of law enforcement officers. During the 2007 calendar year, over 1,500 latent fingerprints from crime scenes were identified through remote latent search stations.

II. SUMMARY OF WORK DONE WITH PRIOR YEAR APPROPRIATIONS

As initially anticipated, the SAFIS Replacement Project is planned to span approximately three years. It is essential that the transition and migration to the upgraded SAFIS environment be seamless, so critical fingerprint services provided to SAFIS stakeholders are not negatively impacted. An incremental approach is being utilized to facilitate managing the complexity of this project.

A proof of concept phase was incorporated into the SAFIS Replacement Project to test various components of the new biometric identification system and to validate Motorola's conversion procedures. The proof of concept phase, which has been successfully completed, included the following elements:

- *Conversion Validation* – A sample of approximately 40,000 images of various types of media (electronic fingerprint images & fingerprint cards) were submitted to Motorola in June 2006 in order to validate their ability to successfully convert NC SAFIS data. An 'acceptance test' was conducted on the converted data by NC DOJ staff in September 2006. The result of the 'acceptance test' was such that Motorola successfully demonstrated their ability to convert NC SAFIS data.

- *SAFIS Prototype*- A prototype of the new SAFIS was designed and built by Motorola in accordance with contractual specifications. The converted data was loaded on the prototype and was subsequently installed at the SBI in Raleigh. DOJ representatives tested the screens and workflows of the prototype with positive results.

- *Live-scan Device Communication Validation* – As required in the contract, all legacy live-scan devices must be able to communicate to the new SAFIS. A validation test was successfully conducted on the prototype while installed at the SBI. All variations of legacy live-scan devices (both Motorola and non-Motorola) will be able to communicate to the new SAFIS.

- *Fingerprint Card Conversion* - The SBI sent 1,750,000 fingerprint cards to Motorola for conversion to an electronic format. An 'acceptance test' was successfully conducted on the converted fingerprint cards prior to these images being added to the SAFIS fingerprint database.

- *Joint-Agency meetings with Mecklenburg County Sheriffs Office and N. C. Department of Correction* – Due to the complexity of the SAFIS replacement project, NC DOJ staff has

conducted multiple meetings and on-site walkthroughs with the other satellite sites (MCSO and DOC) to outline project schedule and validate required resources.

- *System Documentation Review* – NC DOJ staff has completed the review and validation of system requirements and workflows. This activity included reviewing and updating of multiple deliverables such as system requirements, data dictionary and the interface control document.

- *Factory Acceptance Testing* - Representatives from DOJ, Department of Corrections (DOC), and Mecklenburg County Sheriff's Office (MCSO) successfully completed the factory acceptance test of the new SAFIS. The factory acceptance test procedures included verification and validation of all the necessary workflows and interfaces.

- *Central Processing Equipment Installation* – All of the SAFIS-related central processing equipment has been shipped and installed, including the equipment for the disaster recovery site.

- *Remote Latent Search Stations Installation* – New latent search stations have been deployed to replace all existing latent search stations currently in use at the SBI and all local agencies.

- *On-site Integration Testing* – DOJ completed integration testing of system interfaces with Computerized Criminal History (CCH), Mecklenburg County Criminal Justice Information System (MC CJIS), DOC Offender Population Unified System (OPUS), and FBI Integrated Automated Fingerprint Identification System (IAFIS) and initiated integration testing of SAFIS system interface with SBI North Carolina Applicant Tracking Systems

- *Site Acceptance Testing* - DOJ successfully completed site acceptance testing for all necessary workflows and interfaces associated with the central processing equipment and the remote latent search stations.

III. SITES THAT HAVE ALREADY RECEIVED NEW EQUIPMENT

The equipment for the three central processing sites, the SBI, DOC, and MCSO, has been shipped and installed at the respective locations. The equipment for the SAFIS disaster recovery site has also been shipped and installed at the DOJ Disaster Recovery Site located in Research Triangle Park.

The new remote latent search stations have been deployed and installed at the qualifying agencies. Table 2 indicates which law enforcement agencies have received the new remote latent search station.

Table 2

Beaufort County Sheriff's Office
Charlotte/Meck Police Department
Cumberland County Sheriff's Office
Durham Police Department
Fayetteville Police Department
Forsyth County Sheriff's Office

Gaston County Police Department
Gastonia Police Department
Greenville Police Department
Guilford County Sheriff's Office
Pitt County Sheriff's Office
Randolph County Sheriff's Office
Rocky Mount Police Department
State Bureau of Investigation
Wake County City/County Bureau of Identification
Wilmington Police Department
Winston-Salem Police Department

IV. SITES SCHEDULED TO RECEIVE NEW EQUIPMENT

Live Scan devices capture fingerprints electronically without the use of ink and fingerprint card stock. These devices utilize computers and optical lenses to record the fingerprints in a digital format. Identifying information of the person being fingerprinted is also entered into the Live Scan device. The fingerprint images and the descriptive information are then electronically submitted to the SBI. The information is received by the SBI in a format that meets standards set by FBI for processing at the national level. A Live Scan device is required in order to electronically submit fingerprints to the SBI. The following law enforcement agencies are scheduled to receive a live-scan device pursuant to the SAFIS Replacement Project.

A. There are seventeen counties that do not currently have live-scan technology. Table 3 reflects the North Carolina sheriffs' offices that will receive a live-scan device pursuant to the SAFIS Replacement Project:

Table 3

Alleghany County Sheriff's Office
Anson County Sheriff's Office
Bertie County Sheriff's Office
Clay County Sheriff's Office
Greene County Sheriff's Office
Hoke County Sheriff's Office
Hyde County Sheriff's Office
Jones County Sheriff's Office
Madison County Sheriff's Office
Mitchell County Sheriff's Office
Montgomery County Sheriff's Office
Northampton County Sheriff's Office
Pamlico County Sheriff's Office

Perquimans County Sheriff's Office
Scotland County Sheriff's Office
Tyrrell County Sheriff's Office
Warren County Sheriff's Office

B. A large portion of the live-scan devices currently deployed are beyond the life expectancy. Table 4 depicts the law enforcement agencies that will receive a replacement live-scan device due to the age of their existing device:

Table 4

Alexander County Sheriff's Office
Ashe County Sheriff's Office
Beaufort County Sheriff's Office
Bladen County Sheriff's Office
Brunswick County Sheriff's Office
Burke County Sheriff's Office
Cabarrus County Sheriff's Office
Caldwell County Sheriff's Office
Carteret County Sheriff's Office
Caswell County Sheriff's Office
Chatham County Sheriff's Office
Cherokee County Sheriff's Office
Chowan County Sheriff's Office
Cleveland County Sheriff's Office
Craven County Sheriff's Office
Cumberland County Sheriff's Office
Dare County Sheriff's Office
Durham County Sheriff's Office
Durham Police Department
Edgecombe County Sheriff's Office
Forsyth County Sheriff's Office
Gaston County Sheriff's Office
Gates County Sheriff's Office
Granville County Sheriff's Office
Greenville Police Department
Harnett County Sheriff's Office
Hertford County Sheriff's Office
Hickory Police Department
Jackson County Sheriff's Office
Jacksonville Police Department
Johnston County Sheriff's Office
Kinston Police Department
Lee County Sheriff's Office
Lenoir County Sheriff's Office
Lincoln County Sheriff's Office
Macon County Sheriff's Office

Martin County Sheriff's Office
McDowell County Sheriff's Office
Mecklenburg County Sheriff's Office
Moore County Sheriff's Office
Nash County Sheriff's Office
New Bern Police Department
New Hanover County Sheriff's Office
Pasquotank County Sheriff's Office
Pender County Sheriff's Office
Person County Sheriff's Office
Pitt County Sheriff's Office
Polk County Sheriff's Office
Randolph County Sheriff's Office
Robeson County Sheriff's Office
Rocky Mount Police Department
Rowan County Sheriff's Office
Rutherford County Sheriff's Office
Surry County Sheriff's Office
Swain County Sheriff's Office
Vance County Sheriff's Office
Washington County Sheriff's Office
Watauga County Sheriff's Office
Wilkes County Sheriff's Office
Yadkin County Sheriff's Office
Yancey County Sheriff's Office
NC Dept. of Correction

C. The new biometric identification system incorporates the ability to store and search palm prints. Table 5 indicates the law enforcement agencies that will receive a replacement live-scan device due to the inability of their existing device to capture palm prints:

Table 5

Buncombe County Sheriff’s Office
Burlington Police Department
Camden County Sheriff's Office
Carrboro Police Department
Chapel Hill Police Department
Currituck County Sheriff's Office
Davie County Sheriff's Office
Duplin County Sheriff's Office
Emerald Isle Police Department
Forsyth County Sheriff's Office
Graham County Sheriff's Office
Greensboro Police Department
Guilford County Sheriff's Office
High Point Police Department

Kannapolis Police Department
Lumberton Police Department
Mooresville Police Department
Morehead City Police Department
Morganton Police Department
Richmond County Sheriff's Office
Rockingham Police Department
Sampson County Sheriff's Office
Stokes County Sheriff's Office
Transylvania County Sheriff's Office
Wayne County Sheriff's Office
Wilson Police Department

V. PROJECT COMPLETION TIMELINE

The SAFIS infrastructure is scheduled to 'go-live' in February 2008. This includes the new SAFIS-related equipment installed at the three central processing sites, the disaster recovery site and all of the remote latent search stations. At the time the new SAFIS network goes into production, the SBI will be able to store palm prints which provides the law enforcement community the new capability to search latent palm prints which currently does not exist today. Legacy live-scan devices currently deployed throughout North Carolina will be compatible with the new SAFIS infrastructure thus providing a seamless migration for the law enforcement community.

The deployment of the live-scan devices to the seventeen counties without this technology is expected to be completed in the spring of 2008. Activities associated with this deployment are currently on-going including communications with the sheriffs' of the respective counties. Upon installation of these devices, the law enforcement agencies in these counties will be able to capture both fingerprints and palm prints then electronically transmit these images to the State Bureau of Investigation.

The replacement of all obsolete live-scan devices along with non-palm print capable devices is expected to be completed by August 2008. Activities associated with this replacement are on-going including communications with the qualifying law enforcement agencies. The completion of this replacement phase will provide palm print capture capability to all remaining counties in North Carolina.

VI. SAFIS EXPENDITURES TO DATE

The SBI SAFIS replacement project was initiated in 2005. Since its inception, $1,824,486 has been expended through December 2007 on this project (which includes system development costs, technology design consultant charges and full time staffing and operating related expenses). The above noted amount includes $608,400 that has been expended during the 2007-08 fiscal year through December 2007. The remaining unspent budget for FY0708 is $4,655,661 which includes $3,108,000 for local SAFIS live-scan equipment and $1,461,835 in system development costs and $85,826 in staff and operating related costs.

Appendix A

SAFIS Replacement Project Timeline

Past Activities and Dates

November / December 2005

- NC DOJ and CJIN jointly prepare a report on the current status of SAFIS for the North Carolina General Assembly.

- A Request for Proposal (RFP) was prepared to solicit responses from interested vendors for the replacement of SAFIS.

January 2006

- North Carolina advertises an RFP for the SAFIS Replacement Project and meets with prospective vendors.

March - May 2006

- NC DOJ reviewed the proposals submitted as a result of the RFP.

- As a result of the proposal evaluation process, Motorola was selected as the preferred vendor for the SAFIS Replacement Project.

July 2006

- The SAFIS Replacement Project officially kicks off with a joint meeting including: Motorola, NC DOJ and other stakeholders.

- SBI begins "digitizing" the legacy fingerprint cards currently on file in the Criminal Information and Identification Section. The SBI would eventually convert 1.7 million fingerprint cards into an electronic format which are to be included in the new biometric identification system database.

August / December 2006

- Prototype design and acceptance testing was conducted with the input from several key SAFIS stakeholders including the Department of Correction and the Mecklenburg County Sheriff's Office.

January / April 2007

- Requirements and system design is conducted.

- Acceptance testing is conducted on the converted fingerprint cards.

September 2007

- Factory acceptance testing is conducted at Motorola's biometrics facilities in Anaheim, CA.

September 2007

- SAFIS infrastructure and latent search stations are shipped from Anaheim, CA to Raleigh, NC.

October / November 2007

- SAFIS infrastructure is installed at the SBI, DOJ DataCenter, Department of Correction, Mecklenburg County Sheriff's Office and MCNC (disaster recovery site).

- Initiate technical and functional site acceptance testing of central processing equipment, remote latent searches and live-scan device submissions.

- Begin installation of local latent search stations at local law enforcement agencies.

- Training conducted for Department of Correction and Mecklenburg County Sheriff's Office users.

December 2007 / January 2008

- Continue technical and functional site acceptance testing of central processing equipment, remote latent searches and live-scan device submissions.

Upcoming Activities and Dates

February 2008

- Training conducted for local users of remote latent search stations.

- Training conducted for SBI ten-print users and system administrators.

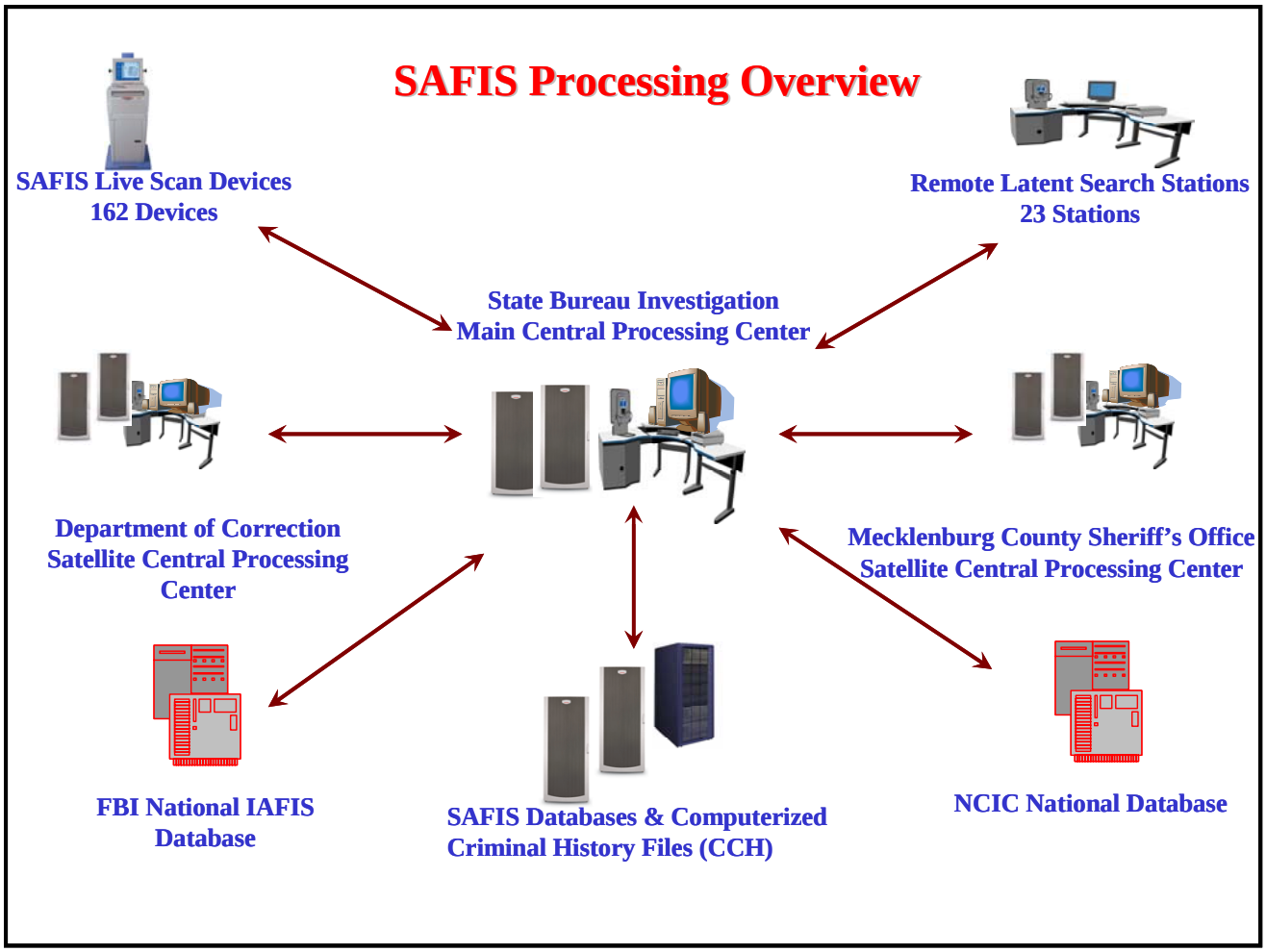
- Expected go-live date during the week of February 18th.

February – September 2008

- Deploy live-scan devices to counties that do not currently have this technology.

- Coordinate the replacement of existing live-scan devices that are currently beyond their life-expectancy.

Appendix B


SAFIS Processing Overview
SAFIS Live Scan Devices
162 Devices
Remote Latent Search Stations
23 Stations
State Bureau Investigation
Main Central Processing Center
Department of Correction
Satellite Central Processing
Center
Mecklenburg County Sheriff's Office
Satellite Central Processing Center
FBI National IAFIS
Database
SAFIS Databases & Computerized
Criminal History Files (CCH)
NCIC National Database