DEPARTMENT OF PROCUREMENT SERVICES
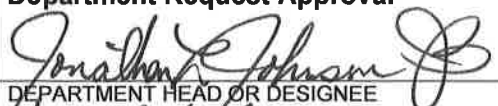## NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION

Complete this cover form and the **Non-Competitive Procurement Application Worksheet** in detail. Refer to the page entitled **"Instructions for Non-Competitive Procurement Application"** for completing this application in accordance with its policy regarding NCRB. Complete "other" subject area if additional information is needed. Subject areas must be fully completed and responses merely referencing attachments will not be accepted and will be immediately rejected.

Department	Originator Name	Telephone	Date	Signature of Application Author
Police	Perfetti, Joseph	312/745-5620	09/30/16	*Joel Brown*
Contract Liaison	Email Contract Liaison	Telephone		
Brown, Joel	joel.brown@chicagopolice.org	312/745-5650		

List Name of NCRB Attendees/Department

Joseph Perfetti
Joel Brown
Roslyn Joshua

Request NCRB review be conducted for the product(s) and/or service(s) described herein.

Company: NEC Corporation of America (NEC)

Contact Person:	Phone:	Email:
Taylor, Cindy	916/463-7070	Cindy.Taylor@necam.com

Project Description: Automated Fingerprint Identification System Maintenance

This is a request for:

☐ New Contract

☒ Amendment / Modification

Contract Type

☒ Blanket Agreement   Term: **24** (# of mo)

☐ Standard Agreement

Type of Modification

☒ Time Extension   ☒ Vendor Limit Increase ☐ Scope Change

Contract Number: **25137**

Specification Number: **98390**

Modification Number: _____

Department Request Approval

Jonathan Johnson
DEPARTMENT HEAD OR DESIGNEE   DATE 25 Jan 17

Jonathan F. Johnson
PRINT NAME

(FOR NCRB USE ONLY)

Recommend Approval/Date: _____

Return to Department/Date: _____

Rejected/Date: _____

Recommended Approval

_____   _____
BOARD CHAIRPERSON   DATE

_____
PRINT NAME

☐ **Approved**   ☐ **Rejected**

_____   _____
CHIEF PROCUREMENT OFFICER   DATE

> All applicable information on this worksheet must be addressed using each question found on the "Instructions for Non-Competitive Procurement Application" in this application.

Justification for Non-Competitive Procurement Worksheet

☒ **PROCUREMENT HISTORY**

PROCUREMENT HISTORY (INCLUDING FUTURE PROCUREMENT OBJECTIVES)

The Chicago Police Department is requesting a vendor limit increase and a time extension for the above contract for two years in the amount of $ 1,096,761.54

1. Describe the requirement and how it evolved from initial planning to its status.

The Chicago Police Department is seeking to engage in a 2 year contract extension with NEC relative to the maintenance of the Automated Fingerprint Identification System (AFIS). The current contact (specification # 98390, contract # 25137) expires on March 21, 2017. The maintenance period for this request is 22 March 2017 thru March 21, 2019.

In 1985, then Superintendent Rice put together a project team of Police Department representatives to research the feasibility of obtaining a new criminal identification technology. A private sector oversight committee comprised of various business executives monitored the project.

At the inception of this project, comprehensive benchmark procedures were developed that were used to identify the vendor that would answer the Police Department's requirements. Two of the three vendors performed benchmark testing for a two week period. The third vendor that was not benchmarked was non-responsive to the RFP. The RFP was authored at the Police Department in concert with MIS, and the Law and Purchasing Departments.

Based on the benchmark results and a review by the oversight committee a recommendation from the Police Department project team was forwarded to Superintendent Rice and negotiations were initiated with NEC. The AFIS System was installed and operational in 1987.

In 1999, the Chicago Police Department procured the newest AFIS technology (AFIS 21) from NEC. The implementation of AFIS 21 delivered a streamlined fingerprint process which greatly reduced the need for human intervention. This new technology also established and automated interface between the fingerprint identification process and CPD's new criminal history records management system called CHRIS.

In 2002, the Chicago Police Department procured a database and fingerprint archive upgrade to the AFIS System which expanded the database storage capacity and improved archive functionality.

In 2008, The Field Services Section performed an upgrade and database expansion to the Automated Fingerprint Identification System (AFIS). The upgraded system has expanded the system core functionality to include both enhanced fingerprint and palm print functionality. Listed below are the upgrades and expansions to the CPD AFIS.

☐ Palm print matching (30% of impressions recovered at crime scenes are fractions of palm prints, this new technology will allow latent examiners to search suitable palm impressions against the palm print database.

☐   Slap print matching and storage

☐   New 10-finger Tenprint database to improve Tenprint accuracy (6 rolled and 4 slap; day one forward for slap). The old system only had two finger matching.

☐   Capacity for 1,800 Fingerprint submissions per day. Old system was designed for 1100 prints per day and CPD was hitting its capacity on a daily basis

☐   Mobile ID functionality for 1000, 1:N cold searches per day with a 3 minute response

☐   Enhanced Latent Matching Algorithm (ELMA)

☐   Web based Archive and Reporting System

In addition to the functions stated above, the AFIS upgrade provided a technology refreshment to include the latest industry standard servers, workstations, operating systems and middleware.

In 2012, the Field Services Section performed an database expansion to the Automated Fingerprint Identification System (AFIS). Hardware was added and the databases containing both the fingerprint and palm print impressions and records were expanded.

Since 1987, all components (hardware and software) have been serviced by NEC onsite customer engineers.

2.   Is this a first time requirement or a continuation of previous procurement from the same source? If so, explain the procurement history.

This request is a continuation of a current procurement from NEC. The current Contact number is 25137 and Specification number is 98390. This request is for a two year extension.

3.   Explain attempts made to competitively bid the requirement. (Attach copy of notices and list of sources contacted)

The initial procurement of the AFIS system was procured via the RFP process. Since that time, the NEC system is proprietary in nature and involves proprietary fingerprint matching algorithms. No other AFIS vendor has ever maintained or upgraded an NEC AFIS system.

4.   Describe all research done to find other sources. (List other cities contacted, companies in the industry contacted, professional organizations, periodicals and other publications used). Not applicable

5.   Explain future procurement objectives. Is this a one-time request or will future requests be made for doing business with the same source?

There will be future requests for new contracts that will be in relation to the maintenance of the AFIS System.

6.   Explain whether or not future competitive bidding is possible. If not, why not?

Future competitive bidding, while possible, would be extremely costly.

☐ ESTIMATED COST

DEPARTMENT OF PROCUREMENT SERVICES
NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION
JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT WORKSHEET

1. What is the estimated cost for this requirement (or for each contract, if multiple awards contemplated)? What is the funding source?

The estimated cost for 2 years of maintenance is $767,940.00. The funding source is the Police Department Corporate Budget.

2. What is the estimated cost by fiscal year, if the job project or program covers multiple years?

The following represents the estimated costs for each year:

    March 22, 2017- March 21, 2018 $505,793.86

    March 22, 2018 – March 22,2019 $520,967.68

3. Explain the basis for estimating the cost and what assumptions were made and/or data used (ie. Budgeted amount, previous contract price, current catalog or cost proposal from firms solicited, engineering or in-house estimate, etc).

The basis for estimating the cost is derived from a cost proposal from the vendor.

4. Explain whether the proposed Contractor or the City has a substantial dollar investment in original design, tooling or other factors which would be duplicated at City expense if another source was considered. Describe cost savings or other measurable benefits to the City which may be achieved.

The Chicago Police Department has a substantial dollar investment in the system design and multiple customized interfaces that would need to be duplicated at CPD expense if another AFIS vendor were considered. In 1999, CPD invested 4.3 million dollars in system design, development, data conversion, customized interfaces, training and system implementation. In 2002, CPD invested 778,000 dollars in a system upgrade to expand database capacity. In 2008, CPD invested 3.1 million dollars in a system upgrade. In 2012, CPD invested 225,000 dollars in a database expansion.

5. Explain what negotiation of price has occurred or will occur. Detail why the estimated cost is deemed reasonable.

Based on the quotes received by sole source vendor NEC , the provided cost was deemed acceptable by the Chicago Police Department.

☐ SCHEDULE REQUIREMENTS

1. Explain how the schedule was developed and at what point the specific dates were known.

The schedule is based on the life cycle of the technology and the previously negotiated contract dates.

2. Is lack of drawings and /or specifications a constraining factor to competitive bidding? If so, why is the proposed Contractor the only person or firm able to perform under these circumstances? Why are the drawings and specifications lacking? What is the lead time required to get drawings and specifications suitable for competition? If lack of drawings and specifications is not a constraining factor to competitive bidding, explain why only one person or firm can meet the required schedule. Not Applicable

3. Outline the required schedule by delivery or completion dates and explain the   reasons why the schedule is

critical.

Due to the fact that the current warranty will expire March 21, 2017, it is critical that the system be maintained to ensure it functions properly. Chicago Police Department relies entirely on the AFIS system to facilitate the criminal identification of persons taken into custody, processing of fingerprints for city applicant, crime scene latent processing, etc. Failure to properly maintain this equipment would negatively impact CPD's ability to process persons and create a legal liability for the Department.

4. Describe in detail what impact delays for competitive bidding would have on City

   Operations, programs, costs and budgeted funds.

Competitive bidding is not possible since other than NEC; no vendor exists that is capable of performing maintenance and system support of the NEC AFIS.

☐ EXCLUSIVE OR UNIQUE CAPABILITY

1. If contemplating hiring a person or firm as a Professional Service Consultant, explain in detail what professional skills, expertise, qualifications, other factors make this person or firm exclusively or uniquely qualified for the project. Attach copy of cost proposal and scope of services. Not Applicable

2. Does the proposed firm have personnel considered unquestionably predominant in the particular field? Not Applicable

3. What prior experience of highly specialized nature does the person or firm exclusively possess that is vital to the job, project or program?

   Not Applicable

4. What technical facilities or test equipment does the person or firm exclusively possess of a highly specialized nature which is vital to the job? Not Applicable

5. What other capabilities and/or capacity does the proposed firm possess which is necessary for the specific job, project or program which make them the only source who can perform the work within the required time schedule without unreasonable costs to the City? Not Applicable

6. If procuring products or equipment, describe the intended use and explain any exclusive or unique capabilities, features and/or function the items have which no other brands or models, etc. possess. Is compatibility with existing equipment critical from an operational standpoint? Explain why. Not Applicable

7. Is competition precluded because of the existence of patent rights, copyrights, trade secrets, technical data or other propriety data? Attach documentation verifying such. See Attached

8. Is procuring replacement parts and/or maintenance services, explain whether or not replacement parts and/or services can be obtained from any other sources? If not, is the proposed firm the only authorized or exclusive dealer/distributor and/or service center? If so, attach letter from manufacturer.

CPD is seeking maintenance of an existing system that is proprietary in nature which precludes any other vendor from providing the required system maintenance and system support.

MBE/WBE COMPLIANCE PLAN

1. All submissions must contain detailed information about how the proposed firm will comply with the requirements of the City's Minority and Women Owned   Business program. All submissions must include a complete C-1 and D-1 form,

Which is available on the Procurement Service page on the City's intranet site. MBE/WBE will be addressed and on-going. See Attached.

☐ OTHER

OTHER

1. Explain other related considerations and attach all applicable supporting

documents (an approved Information Technology Strategy Committee (ITSC)

form, an approved Request for Individual Contract Services form, etc.)

DEPARTMENT OF PROCUREMENT SERVICES
NON-COMPETITIVE REVIEW BOARD (NCRB) APPLICATION
INSTRUCTIONS FOR NON-COMPETITIVE PROCUREMENT APPLICATION

INSTRUCTIONS FOR PREPARATION OF NON-COMPETITIVE PROCUREMENT APPLICATION

If a City Department has determined that the purchase of supplies, equipment, work and/or services cannot be done on a competitive basis, a justification must be prepared on this "Justification for Non-Competitive Procurement Application" in which procurement is requested on a or non-competitive basis in accordance with 65 ILCS 5/8-10-4 of the Illinois Compiled Statutes. Using this instruction sheet, all applicable information must be addressed on the worksheet. The information provided must be complete and in sufficient detail to allow for a decision to be made by the Non-Competitive Procurement Review Board. For Amendments, Modifications, describe in detail the change in terms of dollars, time period, scope of services, etc., its relationship to the original contract and the specific reasons for the change. Indicate both the original and the adjusted contract amount and/or expiration date with this change.

Attach a DPS Checklist and any other required documentation; the Board will not consider justification with incomplete information documentation or omissions.

PROCUREMENT HISTORY

1. Describe the requirement and how it evolved from initial planning to its present status.
2. Is this a first time requirement or a continuation of previous procurement from the same source? If so, explain the procurement history.
3. Explain attempts made to competitively bid the requirement (attach copy of sources contacted).
4. Describe in detail all research done to find other sources; list other cities, companies in the industry, professional organizations contacted. List periodicals and other publications used as references.
5. Explain future procurement objectives. Is this a one-time request or will future requests be made for doing business with the same source?
6. Explain whether or not future competitive bidding is possible. If not, explain in detail.

ESTIMATED COST

1. What is the estimated cost for this requirement or for each contract, if multiple awards are contemplated? What is the funding source?
2. What is the estimated cost by fiscal year?
3. Explain the basis for estimating the cost and what assumptions were made and/or data used (i.e., budgeted amount, previous contract price, current catalog or cost proposal from firms solicited, engineering or in-house estimate, etc.)
4. Explain whether the proposed Contractor or the City has a substantial dollar investment in original design, tooling or other factors which would be duplicated at City expense if another source was considered. Describe cost savings or other measurable benefits to the City which may be achieved.
5. Explain what negotiation of price has occurred or will occur. Detail why the estimated cost is deemed reasonable.

SCHEDULE REQUIREMENTS

1. Explain how the schedule was developed and at what point the specific dates were known.
2. Is lack of drawings and/or specifications a constraining factor to competitive bidding? If so, why is the proposed Contractor the only person or firm able to perform under these circumstances? Why are the drawings and specifications lacking? What is the lead time required to get drawings and specifications suitable for competition? If lack of drawings and specifications is not a constraining factor to competitive bidding, explain why only one person or firm can meet the required schedule.
3. Outline the required schedule by delivery or completion dates and explain the reasons why the schedule is critical.
4. Describe in detail what impact delays for competitive bidding would have on City operations, programs, costs and budgeted funds.

EXCLUSIVE OR UNIQUE CAPABILITY

1. If contemplating hiring a person or firm as a Professional Service Consultant, explain in detail what professional skills, expertise, qualifications, and/or other factors make this person or firm exclusively or uniquely qualified for the project. Attach a copy of the cost proposal, scope of services, and **Temporary Consulting Services Form**.
2. Does the proposed firm have personnel considered unquestionably predominant in the particular field?
3. What prior experiences of a highly specialized nature does the person or firm exclusively possess that is vital to the job, project or program?
4. What technical facilities or test equipment does the person or firm exclusively possess of a highly specialized nature which is vital to the job?
5. What other capabilities and/or capacity does the proposed firm possess which is necessary for the specific job, project or program which makes them the only source who can perform the work within the required time schedule without unreasonable costs to the City?
6. If procuring products or equipment, describe the intended use and explain any exclusive or unique capabilities, features and/or functions the items have which no other brands or models, possess. Is compatibility with existing equipment critical from an operational standpoint? If so, provide detailed explanation?
7. Is competition precluded because of the existence of patent rights, copyrights, trade secrets, technical data, or other proprietary data (attach documentation verifying such)?
8. If procuring replacement parts and/or maintenance services, explain whether or not replacement parts and/or services can be obtained from any other sources? If not, is the proposed firm the only authorized or exclusive dealer/distributor and/or service center? If so, attach letter from manufacturer on company letterhead.

MBE/WBE COMPLIANCE PLAN

* All submissions must contain detailed information about how the proposed firm will comply with the requirements of the City's Minority and Women Owned Business program. All submissions must include a completed C-1 and D-1 form, which is available on the Procurement Services page on the City's intranet site. The City Department must submit a Compliance Plan, including details about direct and indirect compliance.

OTHER

1. Explain other related considerations and attach all applicable supporting documents, i.e., an approved "ITGB Form" or "Request For Individual Hire Form".

REVIEW AND APPROVAL

This application must be signed by both Originator of the request and signed by the Department Head. After review and final disposition from the Board, this application will be signed by the Board Chairman. After review and final disposition from the Board, this form will be presented to the Chief Procurement Officer recommending approval.

Project Checklist

Attach required forms for each procurement type and detailed scope of services and/or specifications and forward original documents to the Chief Procurement Officer; City Hall, Room 806.

Date: January 26, 2017	For blanket agreements, original or lead department must consult with other potential departments who may want to participate on the blanket agreement. If grant funded, attach copy of the approved grant application and other terms and conditions of the funding source. Note: 1) Funding: Attach information if multiple funding lines; 2) Individual Contract Services: Include approval form signed by Department Head and OBM; 3) ITGB: IT project valued at $100,000.00 or more, attach approval transmittal sheet.
Department Name: Chicago Police Department	*Contract Liaison Signature*

Requisition No: 139505 **Specification No:** 98390

By signing this form, I attest that all information provided is true and accurate.

PO No: **Modification No:**

Contract Liaison: Joel Brown

Telephone: 312.745.5640

Email: joel.brown@chicagopolice.org

Project / Program Manager: Jonathan L. Johnson

Telephone: 312.745.5640

Email: jonathan.johnson@chicagopolice.org

Project Title:
NEC Corporation of America, Inc, Two (2) Year Time Extension and Vendor Limit Increase in the amount of $1,096,761.54.

Project Description:
NEC Corporation of America, Inc.,Two (2) Year Time Extension and Vendor Limit Increase in the amount of $1,096,761.54. Currently, CPD utilizes the contract with NEC Corporation of America, Inc., for automated fingerprint identification system, storage, support, and maintenance. Due to the proprietary matching algorithms and specialized application software. NEC Corporation of America, Inc., is the only vendor that can provide maintenance for Chicago Police Department.

Funding:

☐ Corporate ☐ Bond ☐ Enterprise ☐ Grant ☐ Other:

☐ IDOT/Transit ☐ IDOT/Highway ☐ FHWA ☐ FTA ☐ FAA

LINE	FY	FUND	DEPT	ORGN	APPR	ACTV	PROJECT	RPTG	ESTDOLLAR AMOUNT
	017	0100	057	574262	0154	220154			1,096,761.54

Check One:

☐ **New Contract Request**

By signing below, I attest the estimates provided for this contract are true and accurate.

Project / Program Manager Signature

Commissioner/Authorized Designee Signature

Purchase Order Information:

Contract Term (No. of Months): 24

Extension Options (Rate of Recurrence): 0

Estimated Spend/Value: $ 1,096,761.54

Grant Commitment / Expiration Date:

Pre-Bid/Submittal Conference: ☐ Yes ☐ No

☐ Mandatory ☐ Site Visit

☒ **Modification or Amendment**

Modification Information:

PO Start Date: March 21, 2017

PO End Date: March 22, 2018

Amount (Increase/Reduction):

MBE/WBE/DBE Analysis: *(Attach MBE/WBE/DBE Goal Setting Memo)*

☐ Full Compliance ☐ Contract Specific Goals

☐ No Stated Goals ☒ Waiver Request

Risk Management / EDS

Insurance Requirements (included) ☑ Yes ☐ No

EDS Certification of Filling (included) ☐ Yes ☐ No

Purchase Order Type:

☐ Blanket/Purchase Order (DUR)

☐ Master Consultant Agreement (Task Order)

☐ Standard/One-Time Purchase

Procurement Method:

☐ Bid ☐ RFP ☐ RFQ ☐ RFI

☐ Small Order

Special Approvals Required:

☐ Emergency

☒ Non-Competitive Review Board (NCRB)

☐ *Request for Individual Contract Services*

☐ Information Technology Governance Board (ITGB)

Contract Type:

☐ Architect Engineering ☐ Commodity ☐ Construction ☐ JOC ☐ SBI

☒ Professional Services ☐ Revenue Generating ☐ Vehicle & Heavy Equipment

☐ Work Service ☐ Joint Procurement ☐ Reference Contract

Modification/Amendment Type:

☒ Time Extension ☐ Scope Change/Price Increase /Additional Line Item(s)

☒ Vendor Limit Increase ☐ Requisition Encumbrance Adjustment

☐ Other (specify):

Vendor Info:

Name: NEC Corporation of America,Inc.,

Contact: Cindy Taylor

Address: 3929 W John Carpenter Freeway,Irving, Texas 75063

E-mail: cindy.taylor@necam.com

Phone: 214.262.6000

August 11, 2014

Scope of Work

Contractor must provide hardware and software maintenance and necessary system upgrades relating to the Automated Fingerprint Identification System.

1.1 Database Design

The following reflects the AFIS database capacities and transaction volumes.

Database Capacity Design

DATABASE		Total # of SUBJECTS IN DATABASE	REMARKS
AFIS	RDB-T	2,400,000	Searchable Tenprint database (10 finger)
	RDB-L	2,400,000	Searchable Latent database (10 rolled finger and day one forward 10 Slap finger)
	LDB	27,000	Unsolved Latent database (both finger and Palm)
Palm	RDB-L/P	1,000,000.	Searchable Palm Print database ; (Thenar, Hypothenar, Interdigital, Writers and Upper Hand)
NIST Document Archive System	NIST Type 1,2,4	7,000,000	Current and new NIST Type 1,2,4 records
	NIST Type 15	5,000,000	New NIST Type 15 (Palm) data

Transaction Volume Design

TRANSACTION	DAILY	RESPONSE	OP. HRS	REMARKS
10P Submission	1,800	-	24 HRS	From Livescan and Card Scan
TI	1,450	5 min.	24 HRS	Tenprint Inquiry
LI	50	60 min	16 HRS	Latent Inquiry finger (Includes SLAP matching)
LI-P	15	60 min	16 HRS	Latent Inquiry Palm
T/LI	1,800	60 min	24 HRS	Tenprint to Latent Inquiry
T/LI-P	1,300	60 min	24 HRS	Palm to Latent Palm Inquiry
L/LI & L/LI-P	15	60 min	16 HRS	Latent to Latent Inquiry (finger & Palm)
MID 1:N	1,000	3 min.	24 HRS	Two Finger Search from NIST Mobile ID device
Archive	250	N/A	24 HRS	Archive System queries (view, print, etc.)

Fingerprint Workstation and other external Devices Design

Device		REMARKS
GWS-T/V/iNSW	1	Full function Tenprint, Verification and NIST Scan Workstation
GWS-T/iNSW	2	Tenprint and NIST Scan Workstation
GWS-V	2	Verification Workstation
GWS-L	2	Full function Latent input and Latent Verification Workstation (Finger& Palm)
Mobile ID	N/A	Using CrossMatch/CDI MV100 and CDI S&F that is in place today (Not included as part of this proposal) and interface capability with all other NIST compliant mobile ID devices.
IMARS	1	Web based AFIS Integrated Monitoring Administration & Reporting Server

<u>The Configuration includes the following functionality:</u>

- ESSO (Extended Send Search to Other) which allows the CPD to perform Latent searches against the Illinois State Police NEC AFIS (in place today)
  - The CPD AFIS has an ESSO interface the ISP AFIS that allows reciprocal **fingerprint** latent searches (LI only – does not include LI-P).
- Web based Print Server client to print cards from Archive at each workstation.
- 10 finger Tenprint database for Tenprint searching.
- Palm print matching and storage.
- Slap print matching and storage.
- NIST Tenprint submission to the ISP AFIS (in place today)
  - The CPD AFIS automatically sends the NIST Type 1,2, 4,10 and 15 records to Illinois State Police (ISP).
- Livescan connectivity and all necessary customization
- CHRIS/CLEAR CCH interface (oracle queuing)
  - Allows an AFIS interface with the existing CLEAR Records Management Systems (i.e. RMS, CCH - computerized criminal history, booking system, mug shot system, etc.). This "lights out" (minimal human intervention) interface will eliminate duplicate data entry of arrest data and provide AFIS with potential 1:1 candidates, etc. In short, this interface will make the identification process faster, more accurate and more efficient.
- IMARS – Integrated Monitoring Administration & Reporting Server
- Workflow modifications to provide "Lights Out" processing for Mobile ID transactions
- Manual Tenprint functionality – Card Scan for work flows including tenprint errors, Dead prints and injured prints. Card scan must interface with AFIS to generated NIST record.
- Enhanced Latent functionality to include Palm and SLAP matching along with new editing tools
- ELMA (Enhanced latent Matching Algorithm) for both Rolled and Slap.

2.1 STANDARD FEATURES

The following capabilities are included:

- Quality Control
- Search Accuracy
- Automatic Verification

- Automated Workflow
- NIST Archive
- New Matching Technologies
- Full Palm Print Matching Capability
- Easy to Use Workstations
- Open Systems Compliance

QUALITY CONTROL

When AFIS receives a tenprint transaction from a live scan or a card scan device, the system sends the image data to the Image Process Controller (IPC). The IPC performs the following processing.

- Quality Control (QC)
- Automatic Classification (AC)
- Feature Extraction (FE)
- Finger Sequence Check (FSC)

Quality Control (QC) features that are built into Auto Classification (AC) and Feature Extraction (FE) will be tightly linked to the ultimate purpose of the matching accuracy. The automated QC process within AC/FE builds the ridge direction and zone quality map of the rolled impressions, slap (plain) impressions and palm print images. The term "zone" refers to a square of eight pixels by eight pixels image area, and QC assigns a quality rating (called zone quality) from the confidence rating of the ridge direction within the zone.

The end result of the automated QC process is to assign three levels of aggregate quality codes (A, B and C, with A being the best) to rolled and plain impressions. QC also assigns 5 levels of quality codes to palm prints (A, B, C, D, F, with A being the best). Low quality prints can be defined to be a submission of predominantly C quality for finger and F quality for Palm. For instance, if a majority of rolled and slap prints are of C quality, or the thumbs and index fingers are all of C quality, there is smaller probability that the search result is at an acceptable level of certainty.

The FE process automatically sets the axis for each incoming ten print image and also computes the confidence level of the axis detection.

The Finger Sequence Check (FSC) is a series of matches between the rolled and plain impressions, to detect the incorrect sequence of rolled prints in the submission. FSC consists of multiple one-to-one

minutia matches between rolled and plain impressions. Thus, it can detect if the same finger has been rolled twice or if any finger has been rolled in the wrong sequence.

When the FSC detects finger sequence errors, it flags the transaction with the low FSC confidence rating.

When the overall quality rating (minutia quality and FSC confidence rating) is below the threshold, the transaction will be sent to VQA for manual operator intervention and decision.

The system has numerous parameters that are associated with QC processes that can be modified quickly and easily by a system administrator. By simply modifying these QC parameters AFIS provides a wide range of manual intervention levels, from complete lights-out to full manual QC review by tenprint technicians.

SEARCH ACCURACY

The system contains a relational encoding and matching algorithm. The term relation refers to ridge counts between minutia points. For each minutia point, ridge counts to its four nearest neighboring minutia points are recorded and used for calculation of the matching scores.

The AFIS tenprint-to-tenprint search consists of two steps: Pattern Search and Minutia Matching.

The Tenprint-to-tenprint search of the AFIS system uses a feature matching mechanism called the Pattern Search (PS). Pattern Search is a process that compares Pattern Set Record (PSR) of a search print and a given file print, and decides whether to send the file print to the minutia matching. Pattern Search is performed against the entire ten print database, and selected minutia data are sent to minutia matching.

PSR is generated for each incoming tenprint submission by the AC process, and stored in the ten print file when retention is indicated. PSR is a dataset that contains a set of fingerprint feature information that is separate and distinct from those used for the minutia matching. No demographic data is included in PSR.

As opposed to only the data used for minutia matching, such as the coordinates of ridge endings and bifurcations, PSR contains a unique feature metric called Eigenfeature value, calculated from ridge flow matrix. Accuracy of Pattern Search comes from the accuracy of Auto-Classification algorithm that generates the fingerprint feature metrics that are stored in PSR.

While the database contains minutia data of ten fingers, the system matches minutia data of selected fingers. Finger selection is based on the quality of minutia data of the search fingerprint and file print in the database. This is based on the general principal that better minutia quality provides more reliable match scores. The system includes the 10-finger Tenprint database and matches three fingers on average,

depending on the quality of the search print and file print. The number of selected fingers dynamically changes during the matching process. The matching process selects more fingers to match if the quality of the search print is marginal. Conversely, if the quality of a particular file print is marginal, the matching process tends to match more fingers for this file print. The 10-fingers will consist of rolled fingers 1,2,3,6,7,8 and slap fingers 1,2,6,7.

The term "quality" not only refers to the image and minutia quality, but also includes the fingerprint sequence confidence rating described previously. When the fingerprint sequence rating is below a threshold, then the matching range is increased.

Minutia matcher generates a candidate list along with scores. The matching score array is then sorted for analysis. The analysis that is applied to the score array is based on an algorithm called "Dynamic Threshold". Dynamic Threshold inspects the score array in the tenprint-to-tenprint search result, and determines the probability of matches based on the score spread, or score distribution, and according to the criteria, marks a candidate or candidates as potential for review. Dynamic Threshold logic has its own set of configurable parameters.

In addition, the system incorporates a full hand palm which includes the Thenar, Hypothenar, Interdigital, Writers and Upper Hand (joint/phalanges) minutia database for latent print matching. This provides CPD the ability to search a latent print against the database of the full palm. Any area of Palm can be selected for matching or the all areas of the Palm can be selected.

Along with Palm matching, the Slap minutia database which is comprised of the feature sets and images for the Slap or plain impressions taken with the rolled impressions during fingerprint acquisition. This provides CPD the capability to search a latent print against the database of both rolled and slap impressions providing for up to 20 fingers per subject for latent searching. The population of the Slap minutia database will be a day one forward approach.

AUTOMATIC VERIFICATION

Coupled with the best selectivity resulting from relation-based matching, automated verification processing allows the system to make an automated hit/no-hit decision on tenprint search candidate lists. This is done through a combination of the dynamic threshold algorithm that evaluates fingerprint-matching score of candidate(s) and 1:1 matching of additional fingers. It is estimated that 98% or more of tenprint submissions can be auto-verified by the proposed AFIS system. This significantly reduces verification operator workload.

AUTOMATED WORKFLOW

AFIS receives fingerprint images, automatically extracts minutiae, automatically defines pattern types, searches the database, and reports accurate results without human intervention. CPD requires all fingerprint submissions to pass the quality control threshold. In the event a print does not meet this threshold, the AFIS system will send this print to a quality control operator.

NEW MATCHING TECHNOLOGIES

The CPD AFIS readily uses the newest matching technologies, including:

- Slap prints in the database for latent matching to increase latent accuracy
- Mobile ID Ready. The system is able to match transactions that contain 1 to 10 fingers (TPIS transactions), for either a one to one match (1:1) or a one to many (1: N) match in a lights out mode.
- Full Hand Palm Matching. The system comes ready for latent palm matching and the ability to store up to 1,000,000 palm sets. Increases in the palm database will need only increased storage and matching resources.

FULL PALM PRINT MATCHING CAPABILITY

AFIS consists of a full Palm registration and matching. CPD must have the capability to search the full hand (Thenar, Hypothenar, Interdigital, Writers and Upper Hand). This functionality increases and improves latent hit rates. AFIS receives the Type 15 record as part of the NIST package from Livescan or card scan and processes the record as part of the Automated Workflow:

The inquiry profile of each of the Latent Palm Inquiry (LI-P) includes not only the selection of 5 divisions, but also what is called the angle of rotation for the matching tolerance. For the complete cold search inquiry profile, the degree of this angle is taken to be 360 degrees (+ or - 180 degrees both directions).

AFIS WORKSTATIONS

The system uses "standard" AFIS verification workstations that can be utilized for job queue management, database maintenance functions and job verification, including those from the tenprint and unsolved latent searches.

The AFIS system maximizes user efficiency and productivity while at the same time minimize operator error.

Features must include:

- GWS-TVN (Global Workstation – Tenprint Analysis, Verification & NIST Card Scan) layout customization

- Efficient input, using a mouse, keyboard, and icons

- Enhanced command/menu flow control to minimize the number of required screen changes

- A free-format capture capability for ten-fingerprint capture capability from fingerprints that lie outside the designated areas for flexible fingerprint capture and quality control

- An abundance of combination commands for smooth, seamless operation

- Efficient and effective monitoring and scheduling of transactions for priority processing flexible scheduling control

- A high-quality image display screen to facilitate verification productivity

- Microsoft Windows XP Professional or latest version based workstation

- AFIS supports both locally and remotely connected workstations

OPEN SYSTEM COMPLIANCE

AFIS is designed to operate in an open architecture environment and with commercially available software.

Table-1 AFIS Software Platforms

Operating System (OS—Server)	Linux, Windows 2003 Advanced Server
Operating System (OS—Workstation)	Microsoft Windows XP Professional
Network	TCP/IP
Language(s)	ANSI-C , C++ and C#
On Line Transaction Processing	TUXEDO

Relational Database Management System	ORACLE 10g
Graphical User Interface	MS-Windows

3.1 Database Backup Strategy

The CPD AFIS Palm must use FC SAN-RAID disk drives with built-in redundancy to minimize impact on CPD operations should a failure occur. Netback up and Acronis will also be used with backing up all files.

RAID-5 is the industry standard storage practice, which offers a high level of reliability in data storage. In RAID-5 storage configuration, the data as well as the data parity is spread across all the drives that form one RAID-5 unit. In case of a single media failure in RAID-5, the defective drive will be replaced with the new drive and the data rebuilding occurs on the new drive from the data parity. This whole process is transparent to the overall system operation and is performed while the system is up and running (Hot swap). For the proposed CPD AFIS Palm upgrade the RAID-5 protection will provide data storage reliability.

FC-SAN storage and FC-LTO3 based tape library, along with the Legato Networker Backup and EMC SnapView software provide the back-up and recovery strategy for the CPD AFIS system.

The AFIS system uses Oracle™ RDBMS as a key database engine. The backup software integrated with Oracle, enhances the automated Oracle online backup features effectively. Oracle online backup feature (Hot backup) allows complete uninterrupted system operation even if the backup routine is in progress. The online backup capabilities not only permit transaction search processing to continue, but allows database updates (registrations, deletes) while the backup is in progress.

Due to the Daily Online (Hot) backup methodology the system will always be operational. The back up process will not affect the system uptime.

The new automated online backup methodology is completely transparent from the user operations. The back up process is initiated through a preset scheduling function during non-peak workload hours.

The data backup software checks for the media availability, and checks if the appropriate 'Day' media is in the tape library. The logic does not allow for any overwrites unless the tape media is defined for reuse.

AFIS has multiple REDO log groups, with multiple members in each group, spread across different controllers and drives. The REDO log members in a given group are mirror copies of each other; in case of failure of any REDO log member, the database is still protected.

Archivelog files are the only means to the point of recovery of the database in case of failures. During the recovery process, backup must be restored using tape or mirror volumes, and the Archivelog journals are applied to roll forward. The AFIS system will be delivered with Archivelog Mode ON (enabled).

As a baseline system protection solution, the AFIS will contain a data and system recovery strategy, requiring all system saves and database saves to generate three generations of backup media. The master set (active set) is stored on-site, and the copy set (inactive or previous generation sets) is stored at a user designated off-site storage. System and application program saves are done on a periodic basis or at system update.

The database save utilizes three generations of incremental daily backups, each with master and copy dual backups. When one generation of backup completes its cycle, the copy set of the generation will be transported to off-site storage.

With the Oracle Archivelog feature and hot backups, database offline saves and system downtime are eliminated. With the Online backup process, the entire database backup is distributed over a period of time (e.g., one week). This means that during one week the entire database is backed up part-by-part while the application system is online and active. This potentially reduces the amount of data to be backed up daily and effective media management can be achieved.

Database constitutes the major storage area; if it is backed up as mentioned above, the remaining system area backup will be a small amount of data and will require less backup time.

The Oracle archive logs (journals) are backed up twice daily on different media along with the part of the database. Any database updates or changes are recorded by Oracle in the Archivelog files through REDO logs.

AUTOMATIC FAIL-OVER HIGH AVAILABILITY

The AFIS system must incorporate redundant clustered servers to provide immediate fail-over in the event of a problem. This fail-over must be transparent to the user and allow for high availability of the AFIS system and minimal downtime due to server component failures.

4.1   Tenprint Processing

The tenprint workflow begins when a transaction is sent to the Global Transaction Controller (GTC). A transaction can be generated from a variety of ways; from a Live Scan, the Card Scan System, Mobil ID Device or another AFIS system. The GTC verifies the transaction and initiates the workflow designed for that Type of Transaction (TOT). The GTC and AFIS workflow manages a transaction within the AFIS operational environment based on the TOT, priority and input device.

First the Type 1 and 2 text data is validated. If the data validation detects an error, then the transaction is rejected and a notification message is generated. Once the text data passes the validation check the GTC sends the transaction to image quality evaluation, automatic pattern classification and feature extraction at the Image Process Controller (IPC). If necessary, and depending on the parameter settings, a manual quality check is performed.

The GTC will request a name search from the CLEAR System. The CLEAR System would pass the IR# of the potential candidate(s) based solely on the name search. If there are name search candidates a 1:1 match is performed on those candidates. The system performs a 1:1 matching of the name search candidates (called Automatic Verification) and if the 1:1 can not determine the match, the transaction will be queued for manual verification. If the 1:1 match results in a positive identification, the GTC then sends an identification message back to CLEAR. If the 1:1match does not result in identification, the GTC sends the transaction for a full tenprint-to-tenprint search.

The verification process will result in either identification or non-identification and the proper message will be sent. The tenprint and palm print will be matched against the unsolved latent database. In the case of non-identification, the transaction will then be added to the AFIS and Archive database as a new record. When the subject is identified the record is added to the Archive database under that IR/CB number and a determination of rolled print substitution is performed. If the duplicate search identifies the need for a consolidation, the transaction will be sent to the consolidation queue.

5.1   Latent Processing

The latent process consists of scanning, capturing or importing a latent image. Importing functionality must include interface from Foray More Hits Application. The transaction goes to the image processing stage. The AFIS system has an array of image processing tools available for the latent examiner to obtain the best results possible.

Once a latent image is processed and a minutia set created, the transaction is searched against the Rolled & Slap database. It can also be sent to the ISP AFIS for searching. After the verification process, the latent

can be added to the unsolved latent database. The Latent palm processing and matching is the same as Latent finger processing with the exception of searching the ISP AFIS.

6.1 NIST Archive

AFIS contains a NIST Archive. The NIST Archive allows for the storage of all incoming NIST records. The database stores demographic and original image data from all events submitted, based on the workflows set up for each type of transaction. The system has the ability to store information that comes in the NIST record envelope from NIST Types 1, 2, 4, and 15 records, display and print all images, and manage archived records using a variety of management tools. The system includes delete, change and consolidation functionality for all NIST components.

Archive Browse functionality is provided for each workstation and allows the displaying of NIST images. Images from the archive can be downloaded and printed at the workstation so that all levels of detail (including level 3) can clearly be determined and used by latent operators in their identification process.

7.1 AFIS Functionality

The overall application architecture must provide real-time AFIS performance through three (3) primary software applications:

- Automated Tenprint Functions "minimal manual intervention" processing. Minimal manual intervention to include AFIS edits, verification and error correction operations.

- Manual tenprint functions – card scan for dead prints, injured prints and error processing

- Manual Latent Fingerprint and Palm print Functions

- Automated Latent print functions via Foray More Hits interface

- Mobile ID system for either 1:1 or 1: N matches

The following outlines the AFIS system functionality which streamlines identification processing for the CPD.

AUTOMATED WORKFLOW MANAGER (AMF) - TENPRINT FUNCTIONS

An Automated Workflow Manager (AMF) enables a "lights-out" identification processing for high volume tenprint operations. The AMF will deliver automated processing by providing search, launch and initiation

of subsequent processes based on your needs. This workflow handles all national fingerprint exchange inputs such as:

- NIST-compliant live scan submissions
- NIST-compliant card scan transactions (NSW)
- NIST-compliant Mobile ID input devices
- Roll print substitution

The Feature Extraction (FE) software automatically extracts core and axis for the rolled fingers without manual intervention or operator monitoring assistance and performs minutia count. The Automated Classification (AC) software identifies the fingerprint pattern type according to the NEC AFIS classification scheme and seamlessly searches the databases, returning a response to the operator.

Table-2 Automated Tenprint Functions

Function	Description
Tenprint capture	Captures 14 card fingerprint images with full hand and writers palm in WSQ, 8 bit grayscale from IQS compliant scanner device: live scan or card scan formatting record into NIST Type 1, 2, 4 and 15.
Automated Feature extraction	Automated ridge & minutia encoding, automated core detection, automated axis detection, automated minutia count & print quality class
Automated Classification	Automated pattern classification of input fingerprints
Automated Name search (optional)	Name search from AFIS is provided
Automated WSQ Compression	Automatically compresses the fingerprint record (14 NIST images) using the FBI certified compression algorithm
Automated Hit thresholds	Enables the system to determine "hit no-hit" decisions based on numerical setting thereby reducing manpower needs to review every match
Automated candidate lists	Searches & compiles database candidates with scores and fingerprint images
Automated Verification	Automatically determines "hit no-hit" by 1:1 match of search & database record and completes identification process without operator intervention.
Visual Quality Assurance	Automated quality control check of NIST tenprint: detection of poor quality prints routes job to quality control queue for operator review and action.
Tenprint re-inquiry	Enables an operator to re-initiate a tenprint search using the same input print with different demographic data.
Verification & charting	Displays side-by-side prints of search print and file print that are rank-scored through the database inquiry. Allows an operator to chart points of comparison between the prints.
Tenprint registration	Adds a rolled & slap tenprint and data elements to the rolled and slap print databases.
Tenprint inquiry against the unsolved crime database	Performs a tenprint inquiry against the unsolved latent database including the unsolved palm database, producing a candidate list, descending scores and respective images.
Tenprint update	Enables an operator to update the demographic or descriptive data registered in the rolled print databases.
Tenprint delete	Enables an operator to delete the registered file print from the rolled print databases, if authorized by the system administrator.
Tenprint combination command	Five-step process that streamlines "end-to-end" query and database registrations from a single entry screen.

| Roll-print substitution | Enables automated finger substitution to ensure best quality database print |

8.1 LATENT FUNCTIONS

The Global Workstation Latent (GWS-L) with Latent Examiner Software (LEXS) allows direct input of latent fingerprint images, resulting in accurate minutia extraction. In addition to direct entry, the GWS-L gives the latent examiner complete interactive control over manual processing of the latent image. A camera connected to the GWS and will be used as the latent input device to capture latent images directly from lifts, photographs and crime scene evidence. The latent application software delivers superior image processing tools, as well as the option to designate multiple axes for each latent search providing 360 degree searching.

Table-3 Latent Functions

Function	Description
Latent capture	Captures direct entry crime scene lift or tracing.
Latent enhancements	Latent Examiner Software (LEXS)
Latent inquiry	Searches a crime scene print against the rolled tenprint database.
Latent re-inquiry	Enables an operator to modify the demographic & image data in a stacked latent print and re-run the inquiry without re-entry of the image.
Latent to latent inquiry	Search a latent search print against the unsolved latent database.
Latent to latent inquiry #2	Search a file latent print against the unsolved latent database without re-entering the print.
Latent registration	Adds an unsolved latent print & data elements to the unsolved latent database.
Latent combination command	Three-step process that streamlines "end-to-end" query, database registrations, and subsequent search from a single screen entry.
Automated feature extraction	Automated ridge & minutia encoding, automated core detection, automated axis detection, automated minutia count.
Verification & Charting	Displays side-by-side images of search print and candidate file prints that are rank-scored through the database inquiry. Allows an operator to chart points of comparison between the prints.
Automated candidate lists	Searches & compiles database candidates with scores and fingerprint images
Latent Delete	Allows an operator to remove/delete any latent record in the unsolved latent database, if authorized by the system administrator.
Latent Update	Allows an operator to modify demographic data in the Control Database (CDB) database
Latent Search of Other NEC AFIS (ESSO)	Enhanced SSO - An AFIS latent connection between CPD AFIS and ISP AFIS. No re-scan or re-edit of latent needed. The same Latent is automatically sent to the ISP AFIS when selected. Candidate lists are sent back to the CPD GWS-L from ISP.
Illinois State Police Database Search	

9.1   NEC NIST ARCHIVE FUNCTIONS

Table-4 NEC NIST Archive Functions

Function	Description
NIST Fingerprint	Types 1, 2, 4, and 15
Verify Document	Determines whether a specific document exists in Archive
Query on Document ID	Local queue (Stores locally when connectivity to GTC is not possible)
Consolidate Document	Called "Move" in Fingerprint Archive
Delete Documents	Delete only in Fingerprint Archive
Verify Folder	Determines whether a specific folder number exists in Archive
Create Folder Number	Allows the authorized user to create a new folder number in Archive
Retrieve Folder Contents (Document List)	Provides a list of documents contained within an existing, specified folder and allows the authorized user to select which documents to view
Modify Folder Number	Allows the authorized user to change the identification number of an existing folder
Consolidate Folder & Contents	Called "Move" in Fingerprint Archive
Delete Folder & Contents	Delete only in Fingerprint Archive
Name Search	Can perform full search on any demographic fields
Add User Profile	Allows the authorized user to create a new account number, enter profile information, and set access privileges for a new user
Edit User Profiles	Allows the authorized user to edit profile information and access privileges for an existing user account
Delete User Profiles	Allows the authorized user to remove an existing user account from Archive
Change Own Password	Allows the user to modify his/her Archive password

Function	Description
Change Password for User	Allows the authorized user to modify the Archive password of another user (e.g. when a password is lost/forgotten)
User Authorization Levels	The hierarchy of users within each Work Group in Archive: Basic User, Supervisor, Manager, or Administrator
Work Group/Unit Classification & Filtering	The grouping of users into separate classes, also known as the Bureau Code. Such classification prevents users in disparate departments from accessing information for users outside of their own Work Group.
Inquire Only and Inquire/Update Levels	Overall availability of Archive functionality to an individual user. Inquire only, allows the user to view Archive data, but disallows any action that may modify Archive content; Inquire/Update allows the user to view and modify Archive content.
Electronic User's Guide + Context-Sensitive Help	Availability of online and content-sensitive help to Archive users
Printing NIST Records to Compatible Print Servers	Functionality that allows the user to send Archive documents to a NIST print server. High-quality NIST image/data are reproduced on standard 8x8 fingerprint cards
Printing to Local Printers	Functionality that allows the user to send Archive documents to a local printer. Lower-quality NIST images/data are reproduced on standard office paper
WSQ Plug in Support (Aware, Inc.)	NIST document display
AccuPrint Plug in Support (Aware, Inc.)	For local printing of compressed images. Improved image quality over standard printer drivers.

DATABASE MAINTENANCE FUNCTIONS

The Global Workstation (GWS) provides features and capabilities that allow an operator to display and enter text and image data and it streamlines the identification processing for efficiency. The GWS provides advanced operator functions for selecting and sorting displayed entries using various filters. The following features are required as operator tools and enhancements.

Table- 5 Database Maintenance Functions

Function	Description
Display a File Print	Displays a record registered in the database
Display a Search Print	Displays a record not yet registered in the database
Display a File Print vs. File Print	Displays two database records side by side
Display a Search Print vs. Search Print	Displays two input records side by side
Display a Search Print vs. File Print	Displays an input record and database record side by side
Display the Job List	Displays all jobs currently in the system
Display the Stack List	Displays all input records
Display Transaction List	Displays all jobs needing operator intervention

10.1   SLAP MATCHING & REGISTRATION

The AFIS system provides the capability to incorporate automatic capture, storage and matching of slap prints. It is often noted that some slap (plain impressions) on a tenprint card are generally better quality than rolled prints of the same fingers.

Selectable database category (roll/slap)

- Automatic slap image cropping
- Rolled and slap image display
- Effective tool for latent and tenprint inquiry
- Improved latent and tenprint hit rates

Slap fingerprints (slaps) are taken by simultaneously pressing the four fingers of one hand onto a scanner or fingerprint card. Slaps are also known as four-finger simultaneous plain impressions.

11.1   FULL HAND REGISTRATION & MATCHING

This functionality gives the CPD the capability to search the full hand (Thenar, Hypothenar, Interdigital, Writers and Upper Hand).

12.1   IMARS

MAIN SCREEN

The I-MARS Main screen ("Home" tab) displays the following separate windows:

SERVER SERVICE STATUS

The Server Service Status window displays the status of system components. The window prompts the administrator immediately if there is an error. It also provides detail information of the status if you double click the image of error component displayed in the window. This instant notification functionality prevents delay in problem resolutions and facilitate smooth operations on a day-to-day basis.

AUDIT TRAIL

The Audit Trail function provides the ability to display the processing history and results of transactions in a 24-hour time scale for a selected TCN. It has the ability to display the start/end time of the activity with status. It also will display operator ID, terminal ID and activity report if you click on the processing status.

TRANSACTION MONITOR

The Transaction Monitor window displays the current status of transaction processing. This display area assists in monitoring server throughput and operator workloads and efficiency. The monitoring tool is displayed in green, yellow and red so that a trend of increase of throughput and workloads can be detected easily.

TENPRINT AND LATENT BROWSE SEARCH

This Browse Search function provides the ability to display fingerprint image of selected tenprint finger number, latent or both images side-by-side. All ten-finger images are displayed when selecting tenprint only. It also displays zone, core/axis and minutia and provides the ability to change the color of background, axis and others.

EVENT BROWSER

The Event Browser window displays error notifications from system application. There are five levels of notifications: 1) message notification to inform of the activity status, 2) warning notification, 3) alert notification, 4) error notification, however, it is possible to continue normal operations, and 5) critical error notification to inform of a system critical problem. Double clicking the notification will display a separate window with knowledgebase to let you know what caused the error and what action to take to resolve the problem.

REJECT NOTIFICATION

The Reject Notification window displays notifications when IPC data aborts or when an operator rejects data at VQA. TCN will be entered to the Audit Trail window from the JobNo. in the Reject Notification screen. Then, the transaction status is displayed based on the processing phases on a 24-hour time scale.

I-MARS CAMERA

This window displays images from the web camera that can be set up in various locations of a customer site and enables monitoring of daily operations.

I-MARS VIDEO

This function lets an operator view various video images. It offers Web connection capability and is fully customizable.

BROADCAST MESSAGING

The I-MARS provides an electronic bulletin board to flash special announcements or important news. This screen can be customized to select what to display.

Global Menu Screen

The I-MARS Global Menu screen ("Global Menu" tab) provides the following functions:

ADMINISTRATOR

The administrator function offers the following: 1) Auth Administrator, 2) Command Administrator and 3) UAF Report. The auth administrator function allows centralization of UAF management by providing the ability to modify operator permissions, create new operators, change user ID and password, and many other UAF management tasks. The command administrator provides the ability to execute various commands without accessing the system component itself to type the command lines. The UAF report displays the current operator information for verifications.

COMMUNICATION

The Bulletin Board function provides the ability to send and receive message notifications between operators and administrators, using the Internet Explorer browser. This instant message functionality provides a more effective tool for the operations staff to communicate much easier.

DATABASE STATISTICS

The following information is obtained from the Database Statistics: 1) Transition of Workload (joblog status), 2) Database Information and 3) AMR Information. The joblog status report provides the ability to verify operators' joblog status by selected dates and job functions. The database information displays statistics by dates, types and others and assists in monitoring workload status. A bar chart can also be displayed in a table format and it will provide printable joblog detail report. The Average Matching Ratio report offers detail information by selected dates and job type.

KNOWLEDGE BASE

The knowledge base provides information to assist with daily operations of system administration and management. If there is an error, the knowledge base window can be displayed. An operator can obtain the error code, cause of the error and what action to take to resolve the problem quickly. This database is filled with knowledge based on the actual daily operations and will be useful for troubleshooting. It also provides a search engine capability to look for related information.

REPORT SCREEN

The I-MARS Report screen ("Yesterday Report" tab) provides the following information of the activities performed the day before:

DATABASE STATISTICS

The same as in the Global Menu screen, the following information is obtained from the Database Statistics: 1) Transition of Workload (joblog status), 2) Database Information and 3) AMR Information. The joblog status report will provide the ability to verify operators' joblog status by selected dates and job functions. The database information displays statistics by dates, types and others and assists in monitoring workload status. A bar chart can also be displayed in a table format and it also provides printable joblog detail report. The Average Matching Ratio report offers detail information by selected dates and job type.

JOBLOG STATUS BY OPERATOR

It provides the ability to verify joblog status by inquiry, tenprint or latent. It displays the total number of joblog per operator. Job types are color-coded which makes the viewing of the status easier.

PEAK TRANSACTION REPORT

This report displays a line chart to show the timeframe of peak transaction. The hourly-based chart assists in verifying changes in the amount of transaction volume throughout the day. It will also be displayed by inquiry, tenprint or latent.

REJECT NOTIFICATION

This will be the same as in the main screen, the Reject Notification window displays notifications when IPC data aborts or when an operator rejects data at VQA.

WORKLOAD DIAGNOSTIC REPORT

This report provides the information of workload by displaying the ratio analysis, compared with the contracted amount. It also assists in monitoring the system throughput and performance of the day-to-day operations.

ARCHIVE

The following will be included in Archive.

Database

Fingerprint to 7M Records

Palmprint to 5M Records

NEC Archive License

*A typical record at CPD includes NIST Type 1,2,4,10,15 data.

Hardware

(2) Disk Array Enclosure

(30) 450GB 15k RPM FC 4Gbps 3.5-in HotPlug Hard Drive

Joel Papetti   26-Jan-17

NEC NEC Corporation of America

*** Quote ***

January 30, 2017

Joe Perfetti
Chicago Police Department
3510 South Michigan Avenue
Chicago, IL 60653

Customer: 1000098227
Contract: IDS1124

Dear Mr. Perfetti:

The term of your maintenance agreement on your NEC AFIS (Automated Fingerprint Identification System) is due for renewal. The annual maintenance charges (AMC) for 2017 will be $505,793.86. The AMC for 2018 will be $520,967.68. Please accept this letter as notification of the renewal of your NEC AFIS maintenance coverage effective March 22, 2017 through March 21, 2019.

2016 AMC		AMC ADJUSTMENT		2017 AMC	
$	491,062.00	$	14,731.86	$	505,793.86
		Quarterly Amount		$	126,448.47
		Total Annual Amount		$	505,793.86

2017 AMC		AMC ADJUSTMENT		2018 AMC	
$	505,793.86	$	15,173.82	$	520,967.68
		Quarterly Amount		$	130,241.92
		Total Annual Amount		$	520,967.68

This is not an invoice. Invoices will be sent separately from our billing team. Please review and sign below. Once a PO is received we will process an invoice.

The NECAM team is proud of our history supporting national, state and local law enforcement in their crucial roles and we are committed to providing you with excellent service and support. NEC appreciates your business and we look forward to fulfilling your future AFIS needs.

Sincerely,

Cindy Taylor

Cindy Taylor
Administrative Support Specialist
NEC Corporation of America
Ph: 916-463-7070
cindy.taylor@necam.com

ACORD® CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
7/21/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Willis Towers Watson Certificate Center
Willis of Texas, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 37230-5191	PHONE (A/C, No, Ext): (877) 945-7378 FAX (A/C, No): (888) 467-2378
	E-MAIL ADDRESS: certificates@willis.com

	INSURER(S) AFFORDING COVERAGE	NAIC #
INSURED	INSURER A : Travelers Property Casualty Company of America	25674
NEC Corporation of America, Inc. 3929 W. John Carpenter Freeway Irving, TX 75063	INSURER B : Charter Oak Fire Insurance Company	25615
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES   CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY	X		HK-GLSA-162D6431-IND-16	04/01/2016	04/01/2017	EACH OCCURRENCE	$ 1,000,000
	☐ CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence)	$ 300,000
							MED EXP (Any one person)	$ 10,000
							PERSONAL & ADV INJURY	$ 1,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE	$ 2,000,000
	POLICY ☐ PRO-JECT ☐ X LOC						PRODUCTS - COMP/OP AGG	$ 1,000,000
	OTHER:							$
A	AUTOMOBILE LIABILITY			HJ-CAP-162D6418-TIL-16	04/01/2016	04/01/2017	COMBINED SINGLE LIMIT (Ea accident)	$ 1,000,000
	X ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
A	X UMBRELLA LIAB X OCCUR			HSMJ-CUP-162D642A-TIL16	04/01/2016	04/01/2017	EACH OCCURRENCE	$ 5,000,000
	☐ EXCESS LIAB ☐ CLAIMS-MADE						AGGREGATE	$ 5,000,000
	DED X RETENTION $ 10,000							$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y/N ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below		N/A	HC2JUB-162D644-3-16	04/01/2016	04/01/2017	X PER STATUTE ☐ OTH-ER	
							E.L. EACH ACCIDENT	$ 1,000,000
							E.L. DISEASE - EA EMPLOYEE	$ 1,000,000
							E.L. DISEASE - POLICY LIMIT	$ 1,000,000
B	Workers Compensation			HROUB-4E33925-8-16	04/01/2016	04/01/2017	See Attached	

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)
Certificate Holder is included as Additional Insured as their interest City of Chicago may appear.

CERTIFICATE HOLDER	CANCELLATION
	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
City of Chicago Department of Procurement Services 121 N. LaSalle Street City Hall - Room 403 Chicago, IL 60602	AUTHORIZED REPRESENTATIVE *Chris Shanna*

ACORD 25 (2014/01)   The ACORD name and logo are registered marks of ACORD

ADDITIONAL COVERAGE SCHEDULE

COVERAGE	LIMITS
POLICY TYPE: Workers Compensation and Employers' Liability **CARRIER:** Charter Oak Fire Insurance Company **POLICY TERM:** 04/01/2016 – 04/01/2017 **POLICY NUMBER:** HROUB-4E33925-8-16	**Per Statute** **$1,000,000 E.L. Each accident** **$1,000,000 E.L. Disease – policy limit** **$1,000,000 E.L. Disease – each employee**
POLICY TYPE: E&O Technology **CARRIER:** Indian Harbor Insurance Company **POLICY TERM:** 07/30/2016 – 07/30/2017 **POLICY NUMBER:** MTP 9031210 02	**Errors & Omissions Technology: $5,000,000 Limit / $250,000 Retention** **Privacy & Cyber Security: $5,000,000 Limit / $250,000 Retention** **Data Breach Response: $5,000,000 Limit / $250,000 Retention**

NEC

NEC Corporation of America
Identification Solutions Divisions
10850 Gold Center Drive, Suite 200
Rancho Cordova, CA 95670

25 January 2017

Joe Perfetti
Chicago Police Department
3510 South Michigan Avenue
Chicago, IL 60653

Re: Sole Source Letter for NEC AFIS Maintenance

Dear Mr. Perfetti

On behalf of NEC Corporation of America, I am responding to your request for sole source justification for the NEC AFIS Maintenance request to the existing NEC AFIS currently in use by Chicago Police Department.

Due to the proprietary matching algorithms and specialized application software, NEC is the only vendor that can provide system maintenance for the existing Chicago Police Department AFIS.

NEC Corporation of America has provided the Chicago Police Department with an Automated Fingerprint Identification System (AFIS) comprised of our proprietary matching software and software for extracting fingerprint minutia, creating multiple fingerprint databases, and searching/matching algorithms for fingerprint identification. The current Chicago Police Department electronic fingerprint databases, used for comparison and searching tasks, are integrated, proprietary, and use native data-exchange algorithms that interface exclusively with the NEC Fingerprint matching algorithm and the NEC Global Workstation for Latent (GWS-L).

NEC Corporation of America is the sole provider of the Automated Fingerprint Identification System (AFIS) being used by the Chicago Police Department. In addition, NEC Corporation of America holds all patents and has exclusive proprietary software rights on all application programs, fingerprint matching algorithms and native fingerprint images. No other vendor can convert proprietary data or provide database performance expansion services, maintenance, interfaces to external data sources or make modification to products authorized to be marketed by NEC

Please do not hesitate to call me at 513.218.1680 if you have any further questions.

Sincerely,

Greg Uher
Director, Customer Service and Support
NEC Biometrics

NEC NEC Corporation of America

NEC Corporation of America
3929 W. John Carpenter Freeway
Irving, Texas 75063
(214) 262-2000

Officers

Shinsuke	Takahashi	President & Chief Executive Officer
Taichiro	Hashizawa	Executive Vice President
Keith	Terreri	Chief Financial Officers & Treasurer
Jeremy S.	Strauss	Vice President, General Counsel, & Secretary
Deon T.	Retemeyer	Assistant Secretary

Directors

Shinsuke	Takahashi
Kimihiko	Fukuda
Hiroshi	Kodama
Hiroya	Nakata
Isamu	Kawashima
Toshiya	Matsuki
Masakazu	Yamashina
Mayuko	Tatewaki

NEC NEC Corporation of America

Please indicate your acceptance by signing and emailing this letter with a PO to cindy.taylor@necam.com so that we may accurately prepare invoicing and ensure that you will have no lapse in coverage.

Accepted By: _____   _____
                        Signature   Print Name/Title

Date: _____   PO#_____

Rahm Emanuel
Mayor

Department of Police • City of Chicago
3510 S. Michigan Avenue • Chicago, Illinois 60653

Eddie T. Johnson
Superintendent of Police

Jamie Rhee
Chief Procurement Officer
Department of Procurement Services
121 North LaSalle Street – Room 806
Chicago, Illinois 60602

January 26, 2017

Re: **NEC Corporation of America Inc. Sole Source Request for Full Waiver**

Requisition: 139505

Specification: 98390

CPO Rhee,

NEC Corporation of America, Inc. Sole Source Request, for a Full Waiver to be granted for PO 25137. Currently CPD utilizes the contract with NEC Corporation of America, Inc. for automated fingerprint identification system storage, upgrade support, and maintenance. Due to proprietary matching algorithms and specialized application software, NEC is the only vendor that can provide system maintenance for CPD. Please find the supporting documents attached.

Jonathan L. Johnson
Commander
Bureau of Support Services
Chicago Police Department

NEC

NEC Corporation of America
10850 Gold Center Drive, Suite 200, Rancho Cordova, CA 95670
Tel. 916.463.7000
Fax 916.463.7041

January 6, 2017

Joseph Perfetti
Director, Records Services Division
Chicago Police Department
3510 S. Michigan Avenue
Chicago, IL 60653

Re: Chicago Police Department's Sole Source AFIS Agreement (Pending) MBE/WBE Waiver Request

Dear Mr. Perfetti:

As part of the Sole Source requirement with the City of Chicago, this correspondence serves as our formal request for relief in the form of a waiver of the MBE/WBE percentages required by the City of Chicago. NEC respectfully requests the following reduced percentages:

- 0.13% WBE; and
- 5.08% MBE

Also, NEC currently utilizes the following firms meeting the MBE/WBE requirements and would like to use them continuously for the Sole Source requirement.

- Executive Decisions (WBE); and
- System Solutions (MBE)

Due to the configuration of the Automated Fingerprint Identification System (AFIS), locating direct subcontractors with the ability and expertise to provide products or services is not possible for the above referenced agreement. NEC's AFIS is a proprietary architecture, single-purpose computer system that are specifically designed, both from hardware and software perspectives, to provide a solution to law enforcement agencies. These systems are custom configured, manufactured, implemented and supported by highly trained and specialized technical personnel.
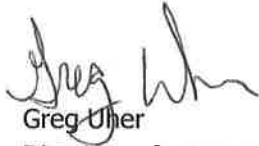
NEC Corporation of America is a wholly owned subsidiary of NEC Corporation, a Japanese corporation. NEC Corporation holds all patents and has exclusive proprietary software rights on all NEC application programs, fingerprint matching algorithms and native fingerprint images. NEC Corporation of America is the only vendor in the United States authorized to convert proprietary data of provide database upgrade services, interfaces to external data sources or make modifications thereto.

NEC has a stated Affirmative Action Plan and it is our intent and commitment to utilize MBE/WBE and other minority vendors in connection with our operations wherever and whenever possible.

NEC

It is our hope that you will find NEC's efforts meets the MBE/WBE requirements. Thank you for the support, guidance and consideration in this matter.

Sincerely,

Greg Uher
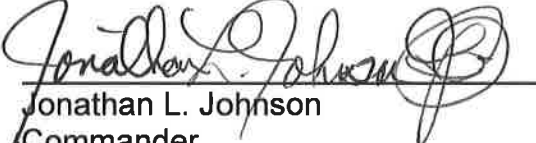Director – Customer Service and Support
NEC Corporation of America

Rahm Emanuel
Mayor

Department of Police • City of Chicago
3510 S. Michigan Avenue • Chicago, Illinois 60653

Eddie T. Johnson
Superintendent of Police

To: Jamie L. Rhee
Chief Procurement Officer
Department of Procurement

From: Jonathan L. Johnson
Commander
Bureau of Support Services
Chicago Police Department

Date: January 26, 2017

Subject: Request for Two (2) Year Time Extension and Vendor Limit Increase for NEC Corporation of America Inc. - PO 25137, Specification 98390

The Chicago Police Department currently utilizes the contract, NEC Corporation of America Inc. - PO 25137 for automated fingerprint identification system storage, support and maintenance. CPD is requesting a two (2) year time extension and vendor limit increase in the amount of $1,096,761.54 that will cover the support and maintenance for the years of 2017 and 2018. The reason CPD is requesting a two year sole source contract is because the current fleet of computers and printers will reach the end of their life cycle and CPD will need to purchase a new fleet of equipment at a cost of $1.5 million dollars.

Below is the pertinent information in regard to the VLI request:

Current Vendor Limit (PO 25137)	$ 2,513,421.00
Spent Amount (as of 1/25/17)	$ 2,511,462.50
Current Age of PO (in months)	57
Annual Budget Amount (CPD)	$ 548,380.77
Remaining Life of PO (in months)	3
Total Current Amount Remaining on Contract	$ 1,958.50
Projected Spending for 2017 and 2018	$ 1,096,761.54
Requested Vendor Limit Increase	$ 1,096,761.54

Section I: General Contract Information	
Department Name	Chicago Police Department
Department Contact Name	Joel Brown˙
Department Contact Number	(312) 745-5640
Department Contact Email	Joel.brown@chicagopolice.org
Contract Number	25137
Contract Subject Name	NEC Corporation of America Inc.
Contract Initiation Date	03/22/2012
Original Contract Amount	$2,513,421,.00
Original Contract Expiration Date	03/22/2017
Budgeted amount for current year	$476,000.00
Year to date expenditure	$520,000.00
Are funds _X Operating _____ Capital _____TIF __ Grant X Other	
What is the funding strip?	016-0100-0574262-0154-220154
If contract modification or task request is approved, will department have enough funds to cover new expenditure?	Yes
If no, what is the plan to address the short fall?	Does not apply
Section II: Contract Modifications	
Complete this section if you are modifying the value of an existing contract.	
Contract Value Increase	$520,000.00
New total contract amount	$3,033,421.00
New contract expiration date	03/21/2018
Goods/services provided by this contract	Professional Services

Justification of need to modify this contract	
Impact of denial	CPD would be unable to use the automated fingerprint identification system.

Section III. Issue a Request for Services to a Master Consulting Agreement	
Complete this section if you want to issue a request for services to a Master Consulting Agreement	
Value of planned task order request	DNA
Expiration date of planned task order request	DNA
Scope of services	DNA
Justification of need to issue request for services	DNA
Impact of denial	DNA

Section IV: Assessment of Office of Budget and Management Analyst	
Approve/Deny	Approve
OBM Analyst Initials	AW
OBM Analyst Name/number	Alexis White/4-8924

CERTIFICATE OF FILING FOR

CITY OF CHICAGO ECONOMIC DISCLOSURE STATEMENT

EDS Number: 28480
Certificate Printed on: 03/20/2012

Date of This Filing:03/20/2012 01:20 PM
Original Filing Date:01/18/2012 02:50 PM

Disclosing Party: NEC Corporation of America Title:Contract Administration Manager, Sr.
Filed by: Jennipher Choi

Matter: Automated Fingerprint Identification
Systems (AFIS) Maintenance Contract
Applicant: NEC Corporation of America
Specification #:.98390
Contract #: 25137

The Economic Disclosure Statement referenced above has been electronically filed with
the City. Please provide a copy of this Certificate of Filing to your city contact with other
required documents pertaining to the Matter. For additional guidance as to when to provide this
Certificate and other required documents, please follow instructions provided to you about the
Matter or consult with your City contact.

A copy of the EDS may be viewed and printed by visiting
https://webapps.cityofchicago.org/EDSWeb and entering the EDS number into the EDS Search.
Prior to contract award, the filing is accessible online only to the disclosing party and the City,
but is still subject to the Illinois Freedom of Information Act. The filing is visible online to the
public after contract award.

SECTION I -- GENERAL INFORMATION

A. Legal name of the Disclosing Party submitting this EDS. Include d/b/a/ if applicable:

NEC Corporation of America

Check ONE of the following three boxes:

Indicate whether the Disclosing Party submitting this EDS is:
1. [x] the Applicant
   OR
2. [ ] a legal entity holding a direct or indirect interest in the Applicant. State the legal name of the Applicant in which the Disclosing Party holds an interest: _____
   OR
3. [ ] a legal entity with a right of control (see Section II.B.1.) State the legal name of the entity in which the Disclosing Party holds a right of control: _____

B. Business address of the Disclosing Party: 3929 W. John Carpenter Freeway

Irving, TX 75063

C. Telephone: _214-262-6000__ Fax: _N/A____ Email: ashanti.jones@necam.com

D. Name of contact person: _Ashanti Jones, CFCM

E. Federal Employer Identification No. (if you have one): __20-0665337

F. Brief description of contract, transaction or other undertaking (referred to below as the "Matter") to which this EDS pertains. (Include project number and location of property, if applicable):

_AFIS Maintenance Contract Extension

G. Which City agency or department is requesting this EDS? _Chicago Police Department____

If the Matter is a contract being handled by the City's Department of Procurement Services, please complete the following:

Specification # __52186_____ and Contract # __13750_____

SECTION II -- DISCLOSURE OF OWNERSHIP INTERESTS

A. NATURE OF THE DISCLOSING PARTY

1. Indicate the nature of the Disclosing Party:

[ ] Person
[ ] Publicly registered business corporation
[x] Privately held business corporation
[ ] Sole proprietorship
[ ] General partnership
[ ] Limited partnership
[ ] Trust

[ ] Limited liability company
[ ] Limited liability partnership
[ ] Joint venture
[ ] Not-for-profit corporation
(Is the not-for-profit corporation also a 501(c)(3))?
    [ ] Yes   [ ] No
[ ] Other (please specify)

2. For legal entities, the state (or foreign country) of incorporation or organization, if applicable:

_Nevada Corporation_____

3. For legal entities not organized in the State of Illinois: Has the organization registered to do business in the State of Illinois as a foreign entity?

[x] Yes   [ ] No   [ ] N/A

B. IF THE DISCLOSING PARTY IS A LEGAL ENTITY:

1. List below the full names and titles of all executive officers and all directors of the entity.
NOTE: For not-for-profit corporations, also list below all members, if any, which are legal entities. If there are no such members, write "no members." For trusts, estates or other similar entities, list below the legal titleholder(s).

If the entity is a general partnership, limited partnership, limited liability company, limited liability partnership or joint venture, list below the name and title of each general partner, managing member, manager or any other person or entity that controls the day-to-day management of the Disclosing Party.
NOTE: Each legal entity listed below must submit an EDS on its own behalf.

Name   Title
     Please See Attached _____

_____

_____

2. Please provide the following information concerning each person or entity having a direct or indirect beneficial interest (including ownership) in excess of 7.5% of the Disclosing Party. Examples of such an interest include shares in a corporation, partnership interest in a partnership or joint venture,

interest of a member or manager in a limited liability company, or interest of a beneficiary of a trust, estate or other similar entity. If none, state "None." **NOTE**: Pursuant to Section 2-154-030 of the Municipal Code of Chicago ("Municipal Code"), the City may require any such additional information from any applicant which is reasonably intended to achieve full disclosure.

Name	Business Address	Percentage Interest in the Disclosing Party

NEC Corporation of America is a wholly owned subsidiary of NEC Corporation, a Japanese
Corporation located at 7-1, Shiba 5-Chome, Munatio-ku, Tokyo, Japan

SECTION III -- BUSINESS RELATIONSHIPS WITH CITY ELECTED OFFICIALS

Has the Disclosing Party had a "business relationship," as defined in Chapter 2-156 of the Municipal Code, with any City elected official in the 12 months before the date this EDS is signed?

[ ] Yes   [x] No

If yes, please identify below the name(s) of such City elected official(s) and describe such relationship(s):

SECTION IV -- DISCLOSURE OF SUBCONTRACTORS AND OTHER RETAINED PARTIES

The Disclosing Party must disclose the name and business address of each subcontractor, attorney, lobbyist, accountant, consultant and any other person or entity whom the Disclosing Party has retained or expects to retain in connection with the Matter, as well as the nature of the relationship, and the total amount of the fees paid or estimated to be paid. The Disclosing Party is not required to disclose employees who are paid solely through the Disclosing Party's regular payroll.

"Lobbyist" means any person or entity who undertakes to influence any legislative or administrative action on behalf of any person or entity other than: (1) a not-for-profit entity, on an unpaid basis, or (2) himself. "Lobbyist" also means any person or entity any part of whose duties as an employee of another includes undertaking to influence any legislative or administrative action.

If the Disclosing Party is uncertain whether a disclosure is required under this Section, the Disclosing Party must either ask the City whether disclosure is required or make the disclosure.

Name (indicate whether retained or anticipated to be retained)	Business Address	Relationship to Disclosing Party (subcontractor, attorney, lobbyist, etc.)	Fees (indicate whether paid or estimated.) **NOTE:** "hourly rate" or "t.b.d." is not an acceptable response.
	N/A		

(Add sheets if necessary)

[ ] Check here if the Disclosing Party has not retained, nor expects to retain, any such persons or entities.

SECTION V -- CERTIFICATIONS

A. COURT-ORDERED CHILD SUPPORT COMPLIANCE

Under Municipal Code Section 2-92-415, substantial owners of business entities that contract with the City must remain in compliance with their child support obligations throughout the contract's term.

Has any person who directly or indirectly owns 10% or more of the Disclosing Party been declared in arrearage on any child support obligations by any Illinois court of competent jurisdiction?

[ ] Yes   [ ] No   [x] No person directly or indirectly owns 10% or more of the Disclosing Party.

If "Yes," has the person entered into a court-approved agreement for payment of all support owed and is the person in compliance with that agreement?

[ ] Yes   [ ] No

B. FURTHER CERTIFICATIONS

1.   Pursuant to Municipal Code Chapter 1-23, Article I ("Article I")(which the Applicant should consult for defined terms (e.g., "doing business") and legal requirements), if the Disclosing Party submitting this EDS is the Applicant and is doing business with the City, then the Disclosing Party certifies as follows: (i) neither the Applicant nor any controlling person is currently indicted or charged with, or has admitted guilt of, or has ever been convicted of, or placed under supervision for, any criminal offense involving actual, attempted, or conspiracy to commit bribery, theft, fraud, forgery, perjury, dishonesty or deceit against an officer or employee of the City or any sister agency; and (ii) the Applicant understands and acknowledges that compliance with Article I is a continuing requirement for doing business with the City. NOTE: If Article I applies to the Applicant, the permanent compliance timeframe in Article I supersedes some five-year compliance timeframes in certifications 2 and 3 below.

2. The Disclosing Party and, if the Disclosing Party is a legal entity, all of those persons or entities identified in Section II.B.1. of this EDS:

   a.   are not presently debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded from any transactions by any federal, state or local unit of government;

   b.   have not, within a five-year period preceding the date of this EDS, been convicted of a criminal offense, adjudged guilty, or had a civil judgment rendered against them in connection with: obtaining, attempting to obtain, or performing a public (federal, state or local) transaction or contract under a public transaction; a violation of federal or state antitrust statutes; fraud; embezzlement; theft; forgery; bribery; falsification or destruction of records; making false statements; or receiving stolen property;

   c.   are not presently indicted for, or criminally or civilly charged by, a governmental entity (federal, state or local) with committing any of the offenses set forth in clause B.2.b. of this Section V;

   d.   have not, within a five-year period preceding the date of this EDS, had one or more public transactions (federal, state or local) terminated for cause or default; and

   e.   have not, within a five-year period preceding the date of this EDS, been convicted, adjudged guilty, or found liable in a civil proceeding, or in any criminal or civil action, including actions concerning environmental violations, instituted by the City or by the federal government, any state, or any other unit of local government.

3. The certifications in subparts 3, 4 and 5 concern:

• the Disclosing Party;
• any "Contractor" (meaning any contractor or subcontractor used by the Disclosing Party in connection with the Matter, including but not limited to all persons or legal entities disclosed under Section IV, "Disclosure of Subcontractors and Other Retained Parties");
• any "Affiliated Entity" (meaning a person or entity that, directly or indirectly: controls the Disclosing Party, is controlled by the Disclosing Party, or is, with the Disclosing Party, under common control of another person or entity. Indicia of control include, without limitation: interlocking management or ownership; identity of interests among family members, shared facilities and equipment; common use of employees; or organization of a business entity following the ineligibility of a business entity to do business with federal or state or local government, including the City, using substantially the same management, ownership, or principals as the ineligible entity); with respect to Contractors, the term Affiliated Entity means a person or entity that directly or indirectly controls the Contractor, is controlled by it, or, with the Contractor, is under common control of another person or entity;
• any responsible official of the Disclosing Party, any Contractor or any Affiliated Entity or any other official, agent or employee of the Disclosing Party, any Contractor or any Affiliated Entity, acting pursuant to the direction or authorization of a responsible official of the Disclosing Party, any Contractor or any Affiliated Entity (collectively "Agents").

Neither the Disclosing Party, nor any Contractor, nor any Affiliated Entity of either the Disclosing Party or any Contractor nor any Agents have, during the five years before the date this EDS is signed, or, with respect to a Contractor, an Affiliated Entity, or an Affiliated Entity of a Contractor during the five years before the date of such Contractor's or Affiliated Entity's contract or engagement in connection with the Matter:

a. bribed or attempted to bribe, or been convicted or adjudged guilty of bribery or attempting to bribe, a public officer or employee of the City, the State of Illinois, or any agency of the federal government or of any state or local government in the United States of America, in that officer's or employee's official capacity;

b. agreed or colluded with other bidders or prospective bidders, or been a party to any such agreement, or been convicted or adjudged guilty of agreement or collusion among bidders or prospective bidders, in restraint of freedom of competition by agreement to bid a fixed price or otherwise; or

c. made an admission of such conduct described in a. or b. above that is a matter of record, but have not been prosecuted for such conduct; or

d. violated the provisions of Municipal Code Section 2-92-610 (Living Wage Ordinance).

4. Neither the Disclosing Party, Affiliated Entity or Contractor, or any of their employees, officials, agents or partners, is barred from contracting with any unit of state or local government as a result of engaging in or being convicted of (1) bid-rigging in violation of 720 ILCS 5/33E-3; (2) bid-rotating in violation of 720 ILCS 5/33E-4; or (3) any similar offense of any state or of the United States of America that contains the same elements as the offense of bid-rigging or bid-rotating.

5. Neither the Disclosing Party nor any Affiliated Entity is listed on any of the following lists maintained by the Office of Foreign Assets Control of the U.S. Department of the Treasury or the Bureau of Industry and Security of the U.S. Department of Commerce or their successors: the Specially Designated Nationals List, the Denied Persons List, the Unverified List, the Entity List and the Debarred List.

6. The Disclosing Party understands and shall comply with the applicable requirements of Chapters 2-55 (Legislative Inspector General), 2-56 (Inspector General) and 2-156 (Governmental Ethics) of the Municipal Code.

7. If the Disclosing Party is unable to certify to any of the above statements in this Part B (Further Certifications), the Disclosing Party must explain below:

_____

_____N/A_____

_____

_____

If the letters "NA," the word "None," or no response appears on the lines above, it will be conclusively presumed that the Disclosing Party certified to the above statements.

8. To the best of the Disclosing Party's knowledge after reasonable inquiry, the following is a complete list of all current employees of the Disclosing Party who were, at any time during the 12-month period preceding the execution date of this EDS, an employee, or elected or appointed official, of the City of Chicago (if none, indicate with "N/A" or "none").

N/A

9. To the best of the Disclosing Party's knowledge after reasonable inquiry, the following is a complete list of all gifts that the Disclosing Party has given or caused to be given, at any time during the 12-month period preceding the execution date of this EDS, to an employee, or elected or appointed official, of the City of Chicago. For purposes of this statement, a "gift" does not include: (i) anything made generally available to City employees or to the general public, or (ii) food or drink provided in the course of official City business and having a retail value of less than $20 per recipient (if none, indicate with "N/A" or "none"). As to any gift listed below, please also list the name of the City recipient.

N/A

C. CERTIFICATION OF STATUS AS FINANCIAL INSTITUTION

1. The Disclosing Party certifies that the Disclosing Party (check one)

[ ] is   [x] is not

a "financial institution" as defined in Section 2-32-455(b) of the Municipal Code.

2. If the Disclosing Party IS a financial institution, then the Disclosing Party pledges:

"We are not and will not become a predatory lender as defined in Chapter 2-32 of the Municipal Code. We further pledge that none of our affiliates is, and none of them will become, a predatory lender as defined in Chapter 2-32 of the Municipal Code. We understand that becoming a predatory lender or becoming an affiliate of a predatory lender may result in the loss of the privilege of doing business with the City."

If the Disclosing Party is unable to make this pledge because it or any of its affiliates (as defined in Section 2-32-455(b) of the Municipal Code) is a predatory lender within the meaning of Chapter 2-32 of the Municipal Code, explain here (attach additional pages if necessary):

If the letters "NA," the word "None," or no response appears on the lines above, it will be conclusively presumed that the Disclosing Party certified to the above statements.

D. CERTIFICATION REGARDING INTEREST IN CITY BUSINESS

Any words or terms that are defined in Chapter 2-156 of the Municipal Code have the same meanings when used in this Part D.

1. In accordance with Section 2-156-110 of the Municipal Code: Does any official or employee of the City have a financial interest in his or her own name or in the name of any other person or entity in the Matter?

[ ] Yes   [x] No

NOTE: If you checked "Yes" to Item D.1., proceed to Items D.2. and D.3. If you checked "No" to Item D.1., proceed to Part E.

2. Unless sold pursuant to a process of competitive bidding, or otherwise permitted, no City elected official or employee shall have a financial interest in his or her own name or in the name of any other person or entity in the purchase of any property that (i) belongs to the City, or (ii) is sold for taxes or assessments, or (iii) is sold by virtue of legal process at the suit of the City (collectively, "City Property Sale"). Compensation for property taken pursuant to the City's eminent domain power does not constitute a financial interest within the meaning of this Part D.

Does the Matter involve a City Property Sale?

[ ] Yes   [ ] No

3. If you checked "Yes" to Item D.1., provide the names and business addresses of the City officials or employees having such interest and identify the nature of such interest:

Name   Business Address   Nature of Interest

_____

_____

_____

4. The Disclosing Party further certifies that no prohibited financial interest in the Matter will be acquired by any City official or employee.

E. CERTIFICATION REGARDING SLAVERY ERA BUSINESS

Please check either 1. or 2. below. If the Disclosing Party checks 2., the Disclosing Party must disclose below or in an attachment to this EDS all information required by paragraph 2. Failure to

comply with these disclosure requirements may make any contract entered into with the City in connection with the Matter voidable by the City.

__x__ 1. The Disclosing Party verifies that the Disclosing Party has searched any and all records of the Disclosing Party and any and all predecessor entities regarding records of investments or profits from slavery or slaveholder insurance policies during the slavery era (including insurance policies issued to slaveholders that provided coverage for damage to or injury or death of their slaves), and the Disclosing Party has found no such records.

_____ 2. The Disclosing Party verifies that, as a result of conducting the search in step 1 above, the Disclosing Party has found records of investments or profits from slavery or slaveholder insurance policies. The Disclosing Party verifies that the following constitutes full disclosure of all such records, including the names of any and all slaves or slaveholders described in those records:

_____

_____

_____

_____

SECTION VI -- CERTIFICATIONS FOR FEDERALLY FUNDED MATTERS

NOTE: If the Matter is federally funded, complete this Section VI. **If the Matter is not federally funded,** proceed to Section VII. For purposes of this Section VI, tax credits allocated by the City and proceeds of debt obligations of the City are not federal funding.

A. CERTIFICATION REGARDING LOBBYING

1. List below the names of all persons or entities registered under the federal Lobbying Disclosure Act of 1995 who have made lobbying contacts on behalf of the Disclosing Party with respect to the Matter: (Add sheets if necessary):

N/A

_____

_____

_____

(If no explanation appears or begins on the lines above, or if the letters "NA" or if the word "None" appear, it will be conclusively presumed that the Disclosing Party means that NO persons or entities registered under the Lobbying Disclosure Act of 1995 have made lobbying contacts on behalf of the Disclosing Party with respect to the Matter.)

2. The Disclosing Party has not spent and will not expend any federally appropriated funds to pay any person or entity listed in Paragraph A.1. above for his or her lobbying activities or to pay any person or entity to influence or attempt to influence an officer or employee of any agency, as defined by applicable federal law, a member of Congress, an officer or employee of Congress, or an employee of a member of Congress, in connection with the award of any federally funded contract, making any federally funded grant or loan, entering into any cooperative agreement, or to extend, continue, renew, amend, or modify any federally funded contract, grant, loan, or cooperative agreement.

3. The Disclosing Party will submit an updated certification at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the statements and information set forth in paragraphs A.1. and A.2. above.

4. The Disclosing Party certifies that either: (i) it is not an organization described in section 501(c)(4) of the Internal Revenue Code of 1986; or (ii) it is an organization described in section 501(c)(4) of the Internal Revenue Code of 1986 but has not engaged and will not engage in "Lobbying Activities".

5. If the Disclosing Party is the Applicant, the Disclosing Party must obtain certifications equal in form and substance to paragraphs A.1. through A.4. above from all subcontractors before it awards any subcontract and the Disclosing Party must maintain all such subcontractors' certifications for the duration of the Matter and must make such certifications promptly available to the City upon request.

B. CERTIFICATION REGARDING EQUAL EMPLOYMENT OPPORTUNITY

If the Matter is federally funded, federal regulations require the Applicant and all proposed subcontractors to submit the following information with their bids or in writing at the outset of negotiations.

Is the Disclosing Party the Applicant?

[ ] Yes   [ ] No

If "Yes," answer the three questions below:

1. Have you developed and do you have on file affirmative action programs pursuant to applicable federal regulations? (See 41 CFR Part 60-2.)
[ ] Yes   [ ] No

2. Have you filed with the Joint Reporting Committee, the Director of the Office of Federal Contract Compliance Programs, or the Equal Employment Opportunity Commission all reports due under the applicable filing requirements?
[ ] Yes   [ ] No

3. Have you participated in any previous contracts or subcontracts subject to the equal opportunity clause?
[ ] Yes   [ ] No

If you checked "No" to question 1. or 2. above, please provide an explanation:

_____

_____

SECTION VII -- ACKNOWLEDGMENTS, CONTRACT INCORPORATION, COMPLIANCE, PENALTIES, DISCLOSURE

The Disclosing Party understands and agrees that:

A. The certifications, disclosures, and acknowledgments contained in this EDS will become part of any contract or other agreement between the Applicant and the City in connection with the Matter, whether procurement, City assistance, or other City action, and are material inducements to the City's execution of any contract or taking other action with respect to the Matter. The Disclosing Party understands that it must comply with all statutes, ordinances, and regulations on which this EDS is based.

B. The City's Governmental Ethics and Campaign Financing Ordinances, Chapters 2-156 and 2-164 of the Municipal Code, impose certain duties and obligations on persons or entities seeking City contracts, work, business, or transactions. The full text of these ordinances and a training program is available on line at www.cityofchicago.org/Ethics, and may also be obtained from the City's Board of Ethics, 740 N.

Sedgwick St., Suite 500, Chicago, IL 60610, (312) 744-9660. The Disclosing Party must comply fully with the applicable ordinances.

C. If the City determines that any information provided in this EDS is false, incomplete or inaccurate, any contract or other agreement in connection with which it is submitted may be rescinded or be void or voidable, and the City may pursue any remedies under the contract or agreement (if not rescinded or void), at law, or in equity, including terminating the Disclosing Party's participation in the Matter and/or declining to allow the Disclosing Party to participate in other transactions with the City. Remedies at law for a false statement of material fact may include incarceration and an award to the City of treble damages.

D. It is the City's policy to make this document available to the public on its Internet site and/or upon request. Some or all of the information provided on this EDS and any attachments to this EDS may be made available to the public on the Internet, in response to a Freedom of Information Act request, or otherwise. By completing and signing this EDS, the Disclosing Party waives and releases any possible rights or claims which it may have against the City in connection with the public release of information contained in this EDS and also authorizes the City to verify the accuracy of any information submitted in this EDS.

E. The information provided in this EDS must be kept current. In the event of changes, the Disclosing Party must supplement this EDS up to the time the City takes action on the Matter. If the Matter is a contract being handled by the City's Department of Procurement Services, the Disclosing Party must update this EDS as the contract requires. **NOTE:** With respect to Matters subject to Article I of Chapter 1-23 of the Municipal Code (imposing **PERMANENT INELIGIBILITY** for certain specified offenses), the information provided herein regarding eligibility must be kept current for a longer period, as required by Chapter 1-23 and Section 2-154-020 of the Municipal Code.

The Disclosing Party represents and warrants that:

F.1.   The Disclosing Party is not delinquent in the payment of any tax administered by the Illinois Department of Revenue, nor are the Disclosing Party or its Affiliated Entities delinquent in paying any fine, fee, tax or other charge owed to the City. This includes, but is not limited to, all water charges, sewer charges, license fees, parking tickets, property taxes or sales taxes.

F.2   If the Disclosing Party is the Applicant, the Disclosing Party and its Affiliated Entities will not use, nor permit their subcontractors to use, any facility listed by the U.S. E.P.A. on the federal Excluded Parties List System ("EPLS") maintained by the U. S. General Services Administration.

F.3   If the Disclosing Party is the Applicant, the Disclosing Party will obtain from any contractors/subcontractors hired or to be hired in connection with the Matter certifications equal in form and substance to those in F.1. and F.2. above and will not, without the prior written consent of the City, use any such contractor/subcontractor that does not provide such certifications or that the Disclosing Party has reason to believe has not provided or cannot provide truthful certifications.

NOTE: If the Disclosing Party cannot certify as to any of the items in F.1., F.2. or F.3. above, an explanatory statement must be attached to this EDS.

CERTIFICATION

Under penalty of perjury, the person signing below: (1) warrants that he/she is authorized to execute this EDS and Appendix A (if applicable) on behalf of the Disclosing Party, and (2) warrants that all certifications and statements contained in this EDS and Appendix A (if applicable) are true, accurate and complete as of the date furnished to the City.

  NEC Corporation of America
(Print or type name of Disclosing Party)

By: _____
      (Sign here)
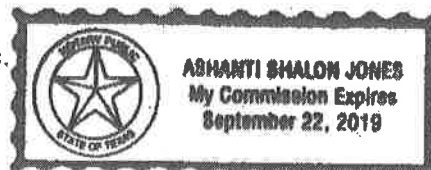
Jeremy Strauss
(Print or type name of person signing)

VP, General Counsel
(Print or type title of person signing)

Signed and sworn to before me on (date) _September 8, 2016_
at _Dallas_ County, _Texas_ (state).

_____ Notary Public.

Commission expires: _September 22, 2019_

FAMILIAL RELATIONSHIPS WITH ELECTED CITY OFFICIALS AND DEPARTMENT HEADS

This Appendix is to be completed only by (a) the Applicant, and (b) any legal entity which has a direct ownership interest in the Applicant exceeding 7.5 percent. It is not to be completed by any legal entity which has only an indirect ownership interest in the Applicant.

Under Municipal Code Section 2-154-015, the Disclosing Party must disclose whether such Disclosing Party or any "Applicable Party" or any Spouse or Domestic Partner thereof currently has a "familial relationship" with any elected city official or department head. A "familial relationship" exists if, as of the date this EDS is signed, the Disclosing Party or any "Applicable Party" or any Spouse or Domestic Partner thereof is related to the mayor, any alderman, the city clerk, the city treasurer or any city department head as spouse or domestic partner or as any of the following, whether by blood or adoption: parent, child, brother or sister, aunt or uncle, niece or nephew, grandparent, grandchild, father-in-law, mother-in-law, son-in-law, daughter-in-law, stepfather or stepmother, stepson or stepdaughter, stepbrother or stepsister or half-brother or half-sister.

"Applicable Party" means (1) all executive officers of the Disclosing Party listed in Section II.B.1.a., if the Disclosing Party is a corporation; all partners of the Disclosing Party, if the Disclosing Party is a general partnership; all general partners and limited partners of the Disclosing Party, if the Disclosing Party is a limited partnership; all managers, managing members and members of the Disclosing Party, if the Disclosing Party is a limited liability company; (2) all principal officers of the Disclosing Party; and (3) any person having more than a 7.5 percent ownership interest in the Disclosing Party. "Principal officers" means the president, chief operating officer, executive director, chief financial officer, treasurer or secretary of a legal entity or any person exercising similar authority.

Does the Disclosing Party or any "Applicable Party" or any Spouse or Domestic Partner thereof currently have a "familial relationship" with an elected city official or department head?

[ ] Yes   [x] No

If yes, please identify below (1) the name and title of such person, (2) the name of the legal entity to which such person is connected; (3) the name and title of the elected city official or department head to whom such person has a familial relationship, and (4) the precise nature of such familial relationship.

_____

_____

_____

CITY OF CHICAGO
ECONOMIC DISCLOSURE STATEMENT AND AFFIDAVIT
APPENDIX B

BUILDING CODE SCOFFLAW/PROBLEM LANDLORD CERTIFICATION

This Appendix is to be completed only by (a) the Applicant, and (b) any legal entity which has a direct ownership interest in the Applicant exceeding 7.5 percent (an "Owner"). It is not to be completed by any legal entity which has only an indirect ownership interest in the Applicant.

1. Pursuant to Municipal Code Section 2-154-010, is the Applicant or any Owner identified as a building code scofflaw or problem landlord pursuant to Section 2-92-416 of the Municipal Code?

   [ ] Yes   [x] No

2. If the Applicant is a legal entity publicly traded on any exchange, is any officer or director of the Applicant identified as a building code scofflaw or problem landlord pursuant to Section 2-92-416 of the Municipal Code?

   [ ] Yes   [ ] No   [x] Not Applicable

3. If yes to (1) or (2) above, please identify below the name of the person or legal entity identified as a building code scofflaw or problem landlord and the address of the building or buildings to which the pertinent code violations apply.

_____

_____

_____

FILLING OUT THIS APPENDIX B CONSTITUTES ACKNOWLEDGMENT AND AGREEMENT THAT THIS APPENDIX B IS INCORPORATED BY REFERENCE INTO, AND MADE A PART OF, THE ASSOCIATED EDS, AND THAT THE REPRESENTATIONS MADE IN THIS APPENDIX B ARE SUBJECT TO THE CERTIFICATION MADE UNDER PENALTY OF PERJURY ON PAGE 12 OF THE ASSOCIATED EDS.