

**U.S. Department of Justice**  
Office of Justice Programs  
*National Institute of Justice*



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## **Forensic DNA Backlog Reduction Program: Fiscal Year 2009 Awards and Abstracts**

This document lists grants awarded by NIJ in 2009 under the Forensic DNA Backlog Reduction Program. The abstracts are reproduced here exactly as they were submitted by the grantee.

## **FY09 Backlog Abstracts**

This table is a summary of DNA Backlog Awards issued in FY2009. Following this table are their respective abstracts.

<b>FY09 Recipient Name</b>	<b>Award Number</b>	<b>Award Amount</b>
Alaska Department of Public Safety	2009-DN-BX-K075	\$206,386
Alabama Department of Forensic Sciences	2009-DN-BX-K117	\$947,152
Arkansas State Crime Laboratory	2009-DN-BX-K088	\$685,500
Arizona Criminal Justice Commission	2009-DN-BX-K100	\$798,225
Arizona Department of Public Safety	2009-DN-BX-K086	\$599,752
California Department of Justice	2009-DN-BX-K067	\$2,237,690
City of Los Angeles	2009-DN-BX-K053	\$1,023,151
City of Oakland	2009-DN-BX-K112	\$247,624
City of San Diego	2009-DN-BX-K054	\$375,518
Contra Costa County	2009-DN-BX-K098	\$273,929
County of Alameda, California	2009-DN-BX-K074	\$290,255
County of Kern	2009-DN-BX-K050	\$245,810
County of Orange	2009-DN-BX-K094	\$475,294
County of San Bernardino	2009-DN-BX-K066	\$506,133
County of San Mateo	2009-DN-BX-K092	\$117,916
County of Santa Clara	2009-DN-BX-K079	\$329,243
County of Ventura	2009-DN-BX-K051	\$114,351
Fresno County Sheriff Department	2009-DN-BX-K049	\$133,000
Los Angeles County Sheriff's Department	2009-DN-BX-K070	\$1,435,858
Sacramento County	2009-DN-BX-K065	\$533,345
San Diego County	2009-DN-BX-K048	\$380,960
City And County of Denver	2009-DN-BX-K147	\$259,898
Colorado Department of Public Safety	2009-DN-BX-K148	\$512,461
Department of Public Safety	2009-DN-BX-K153	\$409,571
Metropolitan Police Department	2009-DN-BX-K113	\$380,100
DELAWARE HEALTH AND SOCIAL SERVICES	2009-DN-BX-K093	\$272,286
Broward Sheriffs Office	2009-DN-BX-K089	\$500,075
Florida Department of Law Enforcement	2009-DN-BX-K069	\$3,880,104
Miami Dade County	2009-DN-BX-K062	\$1,084,501
Palm Beach County Sheriffs Office	2009-DN-BX-K052	\$427,775
St. Lucie County Sheriff's Office	2009-DN-BX-K084	\$132,550
Georgia Bureau of Investigation	2009-DN-BX-K083	\$2,150,646
City and County of Honolulu	2009-DN-BX-K082	\$159,945
Idaho State Police	2009-DN-BX-K104	\$163,922
DuPage County Office of The Sheriff	2009-DN-BX-K137	\$284,612
Illinois State Police	2009-DN-BX-K128	\$2,561,512
Northeastern Illinois Regional Crime Laboratory	2009-DN-BX-K131	\$284,613
Indiana State Police	2009-DN-BX-K119	\$580,160
Indianapolis-Marion County Forensic Services Agency	2009-DN-BX-K129	\$386,773
Johnson County Kansas	2009-DN-BX-K105	\$385,084
Kansas Bureau of Investigation	2009-DN-BX-K122	\$188,061
Commonwealth of Kentucky	2009-DN-BX-K064	\$571,663

Louisiana State Police	2009-DN-BX-K087	\$1,430,733
City of Boston	2009-DN-BX-K154	\$312,794
Massachusetts State Police	2009-DN-BX-K123	\$958,640
Anne Arundel County MD	2009-DN-BX-K055	\$132,000
Baltimore County Maryland	2009-DN-BX-K061	\$245,479
City of Baltimore	2009-DN-BX-K096	\$438,696
Maryland State Police	2009-DN-BX-K060	\$351,908
Montgomery County	2009-DN-BX-K085	\$100,663
Prince George's County	2009-DN-BX-K073	\$342,847
Maine State Police	2009-DN-BX-K159	\$99,483
State of Michigan	2009-DN-BX-K126	\$2,466,470
Hennepin County, Minnesota	2009-DN-BX-K127	\$116,521
MN Department of Public Safety	2009-DN-BX-K158	\$568,899
Board of Police Commissioners	2009-DN-BX-K138	\$425,877
Missouri State Highway Patrol	2009-DN-BX-K136	\$434,900
St. Charles County	2009-DN-BX-K134	\$31,915
St. Louis County	2009-DN-BX-K116	\$143,616
St. Louis Metropolitan Police Dept	2009-DN-BX-K132	\$319,731
Mississippi Department of Public Safety	2009-DN-BX-K059	\$388,418
Montana Department of Justice	2009-DN-BX-K135	\$125,818
City of Charlotte	2009-DN-BX-K150	\$351,398
North Carolina Department of Crime Control And Public Safety	2009-DN-BX-K152	\$1,579,363
North Dakota	2009-DN-BX-K140	\$100,000
Nebraska State Patrol	2009-DN-BX-K108	\$245,194
New Hampshire Dept. of Safety	2009-DN-BX-K124	\$100,000
New Jersey Department of Law And Public Safety	2009-DN-BX-K161	\$1,306,652
Las Vegas Metropolitan Police Department	2009-DN-BX-K057	\$489,000
Washoe County Sheriff's Office	2009-DN-BX-K099	\$390,766
City of New York	2009-DN-BX-K162	\$799,920
County of Erie	2009-DN-BX-K110	\$376,670
County of Westchester	2009-DN-BX-K106	\$257,283
Monroe County	2009-DN-BX-K109	\$318,365
Nassau County	2009-DN-BX-K144	\$289,860
New York State Police	2009-DN-BX-K118	\$1,000,000
Onondaga, County of	2009-DN-BX-K120	\$207,139
Suffolk County	2009-DN-BX-K072	\$372,598
City of Columbus	2009-DN-BX-K121	\$215,461
City of Mansfield	2009-DN-BX-K146	\$163,718
Cuyahoga County Coroner's Office	2009-DN-BX-K149	\$63,718
Hamilton County	2009-DN-BX-K157	\$95,000
Montgomery County	2009-DN-BX-K156	\$297,478
State of Ohio Office of The Attorney General	2009-DN-BX-K151	\$962,807
City Of Tulsa	2009-DN-BX-K090	\$207,905
Oklahoma State Bureau of Investigation	2009-DN-BX-K063	\$617,724
Oregon State Police	2009-DN-BX-K139	\$492,353
ALLEGHENY COUNTY PENNSYLVANIA	2009-DN-BX-K125	\$283,882
City of Philadelphia	2009-DN-BX-K142	\$993,589
Pennsylvania State Police	2009-DN-BX-K133	\$1,088,216

Instituto de Ciencias Forenses	2009-DN-BX-K170	\$408,520
Rhode Island Public Safety Grant Administration Office	2009-DN-BX-K143	\$109,744
Richland County Government	2009-DN-BX-K068	\$104,767
South Carolina Law Enforcement Division	2009-DN-BX-K101	\$1,482,621
Office of The Attorney General	2009-DN-BX-K145	\$100,000
State of Tennessee	2009-DN-BX-K077	\$465,570
City of Austin	2009-DN-BX-K056	\$262,634
City of Houston	2009-DN-BX-K130	\$1,311,800
County of Bexar	2009-DN-BX-K095	\$364,593
Harris County	2009-DN-BX-K078	\$729,354
State of Texas	2009-DN-BX-K071	\$2,097,729
Tarrant County	2009-DN-BX-K091	\$235,309
University of North Texas Health Science Center At Fort Worth	2009-DN-BX-K058	\$573,781
Utah Department of Public Safety	2009-DN-BX-K076	\$283,707
Virginia Department of Forensic Science	2009-DN-BX-K080	\$950,167
Vermont Department of Public Safety	2009-DN-BX-K111	\$100,000
Washington State Patrol	2009-DN-BX-K141	\$984,340
Wisconsin Department of Justice	2009-DN-BX-K155	\$744,491
West Virginia State Police	2009-DN-BX-K081	\$227,834
Wyoming Office of the Attorney General	2009-DN-BX-K107	\$100,000
<b>TOTAL FUNDING</b>		<b>\$62,271,832</b>

**FY09 Recipient Name:** Alaska Department of Public Safety

**Award Number:** 2009-DN-BX-K075

**Award Amount:** \$206,386

**Abstract:** The State of Alaska's Scientific Crime Detection Laboratory (SCDL), the only crime laboratory in the state, receives requests to perform biological testing on more than 400 forensic cases per year, with approximately 75% of those continuing on for DNA analysis. The laboratory also receives approximately 500 convicted offender and arrestee samples per month for DNA analysis and entry into the Combined DNA Index System (CODIS). These services are available at no cost to all law enforcement agencies within the State.

The primary goal of this program is to reduce forensic DNA sample turnaround time and increase the throughput of the laboratory, ultimately decreasing the Alaska SCDL's backlog (requests for DNA analysis exceeding 30 days) of forensic DNA casework. The laboratory intends to achieve this goal through three main objectives. \$30,000 of this award will be used to pay overtime for existing laboratory staff. It is projected that approximately 45 cases will be analyzed on overtime. Second, the laboratory intends to use \$75,000 to purchase two liquid handlers. The liquid handlers, one for the casework unit and one for the database unit, will be validated to automate plate set-up for quantification and amplification of samples. This will decrease sample turnaround time and minimize the chance of contamination occurring during these stages of analysis. Third, the laboratory will use the remaining funds to purchase consumables and reagents for forensic DNA casework analysis, validation and training.

As a result of this award, the laboratory expects to see a decrease in forensic DNA sample turnaround time and an increase in the capacity of the laboratory. Both of these outcomes will serve to decrease the backlog of forensic DNA cases. The laboratory anticipates that 132 DNA

cases can be completed using funds from this award (\$132,826 in supplies and overtime / \$1,000 per case = 132 cases).

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**FY09 Recipient Name:** Alabama Department of Forensic Sciences

**Award Number:** 2009-DN-BX-K117

**Award Amount:** \$947,152

**Abstract:**

*Project Goals and Objectives:* The Alabama Department of Forensic Sciences (ADFS) is respectfully requesting Federal assistance to reduce forensic DNA sample turnaround time, increase the throughput of Alabama's Forensic DNA laboratories, and reduce the statewide backlog of forensic DNA casework. Alabama's plan for the FY09 Forensic DNA Backlog Reduction Program is designed to realize specific improvements to Alabama's DNA laboratory infrastructure and analysis capacity so that Alabama DNA samples may be processed efficiently and cost effectively, thereby preventing future DNA backlogs while aiding the criminal justice system realize the full potential of DNA technology.

ADFS is a well established Crime Laboratory system with a 74 year history of service to the citizens of the State of Alabama. ADFS is the *only* forensic science system present within the State of Alabama and is charged with the responsibility of analyzing biological evidence recovered by all local and state law enforcement agencies statewide. The scientific analysis of Forensic DNA cases is carried out in four (4) Regional Casework DNA Laboratories, situated across the State. ADFS laboratories are accredited by ASCLD/LAB and undergo external audits *at least* every two (2) years, in accordance with the FBI Director's *Quality Assurance Standards for Forensic DNA Testing Laboratories*. Since ADFS is the *only Agency* tasked with the responsibility of analyzing DNA evidence in criminal cases statewide, ADFS is an essential and integral component of the judicial process within the State of Alabama. The effectiveness of Alabama's judicial system is severely eroded without the timely scientific analysis of Forensic DNA cases by the Department of Forensic Sciences. The Goals of this grant initiative are to utilize Federal Funding in a cost-effective and efficient manner to improve the infrastructure and analysis capacity of the DNA Laboratories within the Alabama Department of Forensic Sciences, as well as utilize Federal funding to demonstrate a marked reduction in the number of backlogged forensic DNA cases awaiting analyses throughout Alabama. Funding is also respectfully requested for DNA training activities aimed at insuring the Forensic Scientists within the Departments Biology Section remain compliant with the Continuing Education requirement of the FBI Director's *Quality Assurance Standards*. Funding for the backlog reduction portion of this initiative will be used by the State of Alabama to perform DNA testing upon prioritized cases using both in-house and contracted DNA testing services, ultimately generating DNA profiles in an efficient and timely manner, while simultaneously reducing the backlog of Forensic DNA casework statewide. All DNA analyses funded under this Program will be conducted either by the ASCLD/LAB accredited ADFS DNA Laboratories or through accredited fee-for-service vendors. All eligible forensic DNA profiles generated from this Program will be entered into the Combined DNA Index System (CODIS) and, where applicable, uploaded to the National DNA Index System (NDIS), in accordance with the solicitation requirement. Additionally, all DNA analyses performed under this Program will be maintained under the applicable Federal Privacy regulations, in accordance with the solicitation requirement.

*Project Design:* ADFS has a longstanding and successful relationship with the National Institute of Justice (NIJ) and its various DNA Program initiatives. Through the FY09 Forensic DNA Backlog Reduction Program, ADFS will expand on the collaborative relationship with the NIJ and continue to utilize Federal funding in a cost effective manner to increase the DNA Laboratory infrastructure while simultaneously reducing the backlog of DNA cases throughout Alabama. Systematic strategies are proposed which build upon the substantial experience and success of ADFS in analyzing DNA casework in-house as well as through fee-for-service vendor DNA testing laboratories. The State of Alabama's proposal for the FY09 Forensic DNA Backlog Reduction Program is focused on a two pronged approach to maximize the impact of Federal funding while meeting the Goals of this Grant initiative. Alabama is confident that its detailed plan to increase laboratory infrastructure and decrease turnaround times and backlogs for forensic DNA cases statewide will be an excellent example of a cost effective and efficient use of Federal dollars to maximize the impact of DNA technology throughout the Criminal Justice System. Funding from this grant initiative will support the analysis of backlogged Forensic DNA cases through both in-house analyses performed at ADFS DNA Laboratories, as well as through contracted DNA testing services. The ADFS implementation approach plans to utilize the vendor laboratory for DNA testing services, while simultaneously reducing the backlog in-house by utilizing Federal dollars to defray Overtime and DNA supply costs. This two pronged approach will allow the State of Alabama to significantly reduce its backlog of Forensic DNA casework as multiple laboratories will be performing testing upon backlogged forensic cases simultaneously. The realization of this strategic plan will aid in the prevention of future DNA backlogs, help the Criminal Justice System realize the full potential of DNA technology, and in so doing, maximize the impact of Federal funding.

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**FY09 Recipient Name:** Arkansas State Crime Laboratory

**Award Number:** 2009-DN-BX-K088

**Award Amount:** \$685,500

**Abstract:** The goal of the Arkansas State Crime Laboratory is to utilize the "Forensic Casework DNA Backlog Reduction Program FY 2009" to decrease turnaround time, increase analyst throughput and decrease the number of backlogged DNA cases. The objective is to utilize the funds provided in this solicitation for the outsourcing of backlogged samples, renovating lab space to increase capacity, and purchasing new software to increase efficiency of review of capillary data. The Arkansas State Crime Laboratory is requesting funding to outsource approximately 500 backlogged cases. The Arkansas State Crime Laboratory has increased the size of its DNA section. Due to this increase the Arkansas State Crime Laboratory is requesting funding to renovate existing lab space to be used for extraction, amplification, and analysis of DNA samples. The Arkansas State Crime Laboratory is also requesting funds to purchase GeneMapper ID-X. This software upgrade will allow analysts to review the electronic data more efficiently.

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**FY09 Recipient Name:** Arizona Criminal Justice Commission

**Award Number:** 2009-DN-BX-K100

**Award Amount:** \$798,225

**Abstract:** Through the timely generation of DNA profiles of convicted offenders and processing no-suspect DNA evidence, local law enforcement agencies are able to solve more crimes and do so more quickly, thereby reducing the chance that repeat offenders will go on to commit new crimes during the time they remain at large. Through the DNA Backlog Reduction Grant, a collaborative approach will be taken by the following Arizona full-service forensic laboratories: Mesa Police Department, Phoenix Police Department, Scottsdale Police Department and Tucson Police Department. The Arizona Criminal Justice Commission, representing these local laboratories and acting as the State Administrative Agency (SAA), will coordinate efforts toward the statewide initiative to eliminate existing backlogs.

**GOALS:** This application for use of the DNA Backlog Reduction Program grant funding is submitted by the Arizona Criminal Justice Commission acting as the State Administrative Agency on behalf of the following local laboratories: Mesa Police Department, Phoenix Police Department, Scottsdale Police Department and Tucson Police Department. These agencies are committed to establishing the highest standards of laboratory analysis of evidence and are working as a collaborative group focused on establishing improved procedures and reducing DNA case backlogs in the four local laboratories. Funding is currently allocated to each participating agency based upon the number of Uniform Crime Report (UCR), Part 1 Violent Crimes reported to the FBI for 2007.

The Commission will provide grant oversight and be responsible for reporting to the National Institute of Justice on the progress of this grant.

**OBJECTIVES:** Program evaluations and measurements will be focused on each laboratory's case load measuring:

- Reduction in the average number of days between submission of a DNA sample to a laboratory and the delivery of the final report to the requesting agency.
- Increase in the DNA analysis throughput for the laboratory.
- Reduction in the number of backlogged DNA criminal cases.

**PROJECT PLANS:** The Commission will provide the grant oversight and be responsible for reporting to the National Institute of Justice on the progress of the grant. Each agency's backlog and capacity will be tracked through the following specific components: cases submitted, cases screened, cases with completed DNA analysis, cases entered into CODIS and CODIS hits returned from backlog cases.

**METHODS OF ACHIEVING GOALS / REPORTING PROCESS:** Each laboratory will be required to maintain statistical information and track backlogs in processing DNA for violent and nonviolent cases and the impact forensic casework funds have on processing DNA cases. Each local laboratory will submit quarterly reports to the Arizona Criminal Justice Commission as a grant measurement guideline. The Arizona Criminal Justice Commission will submit a consolidated report to NIJ.

**FY09 Recipient Name:** Arizona Department of Public Safety

**Award Number:** 2009-DN-BX-K086

**Award Amount:** \$599,752

**Abstract:** BACKGROUND: The Arizona Department of Public Safety (AZ DPS) Crime Laboratory System provides complete DNA casework and database services supporting 295 law enforcement and prosecutorial agencies statewide. Beginning January 1, 2008, the Arizona Legislature added certain arrestees to the Arizona DNA Database, increasing the number of new samples in the first year by 18,825, a 50% increase. The AZ DPS Regional Crime Laboratories are all accredited by ASCLD/LAB ISO and participate in CODIS and undergo regular external DNA audits.

CURRENT BACKLOG: On January 1, 2008, the backlogged samples for the Arizona DNA Database, was 50,673, from only convicted offenders. This backlog is now being impacted by the new statutory requirements to add certain arrestees as noted above. Also, the backlog is being impacted positively by AZ DPS efforts to complete a previous large DNA database sample outsource program. As a result, the estimated backlog of un-worked DNA Database samples will be 40,000 samples, as of September 30, 2009.

BOTTLENECK ANALYSIS: The AZ DPS Crime Laboratory System, through process improvement techniques, has identified its current major DNA processing bottleneck as residing in its DNA Database Program. The bottleneck is the lack of an Automated DNA Processing System to unify and streamline all aspects of DNA Database analysis and the lack of a reliable high throughput Capillary Electrophoresis (CE) instrument. Therefore, DPS proposes in this Grant Request to purchase these items to enhance throughput and timeliness of DNA Database results.

PROJECT GOALS, OBJECTIVES AND EXPECTED RESULTS: The overall goal of the Program, proposed in this Grant Request, is to enhance the capacity of the AZ DPS DNA Database sample processing capacity by purchasing an automated DNA Database sample processing system and a new high throughput CE system. Once these are operational, the following enhancements (expected results) are anticipated:

- The average number of days to complete a DNA Database result is reduced 25% or 166 days from 663 days to 497 days;
- The number of DNA Database samples that an analyst can process per year increases 25% or 85 DNA samples from 335 samples to 420 samples per month;
- The average number of DNA database samples that can be analyzed within the 18 months of this grant period is 12,240 additional samples.
- The yearly output of the AZ DPS DNA Database Program will become 40,320 samples per year, which is reasonably consistent with the anticipated yearly database submissions in the future.

IMPLEMENTATION APPROACH: The Automated DNA Processing System and Capillary Electrophoresis instrument would be purchased through the Arizona Procurement Process; validated for routine DNA database analysis; and implemented for DNA Database sample processing once individual DNA Analysts are trained.

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**FY09 Recipient Name:** California Department of Justice

**Award Number:** 2009-DN-BX-K067

**Award Amount:** \$223,7690

**Abstract:** The California Department of Justice (Cal DOJ), Bureau of Forensic Services (BFS), is applying for the \$2,237,690, 18-month grant award from the National Institute of Justice (NIJ), *FY09 Forensic DNA Backlog Reduction Program*. Funding allocation is developed under the NIJ Formula Grant Program. This level of funding is apportioned to the Bureau of Forensic Services through the California grant allocation in agreement with the DNA Consortium Laboratories, as represented by the California Association of Crime Laboratory Directors. The purpose and requirement of the NIJ *FY09 Forensic DNA Backlog Reduction Program* is to:

- Reduce the overall turnaround time for the handling, screening, and analysis of forensic DNA samples;
- Increase the throughput of evidence by DNA laboratories;
- Reduce existing DNA casework backlogs;

These grant requirements will be met with funding for:

- The hiring and training of ten (10) limited-term Criminalists to reduce DNA casework turnaround times;
- Overtime for DNA casework backlog reduction;
- Robotic equipment for increasing the throughput of DNA casework, and the related DNA supplies necessary for method validation;
- The purchasing of improved DNA evidence storage freezers;
- An Inter-laboratory Casework Grant Coordinator/Retired Annuitant;

Hiring limited-term Criminalists at seven (7) laboratories (Sacramento, Central Valley, Fresno, Riverside, Santa Barbara, Redding and Richmond), and the overtime funding for all 11 BFS Laboratories will allow for the reduction of backlogged DNA casework requests. The projected backlog of DNA screening and analysis requests anticipated by September 30, 2009, will be 1,108 requests submitted by BFS client agencies. Obtained DNA genetic profiles that meet CODIS data entry criteria will be uploaded to CODIS and securely maintained under applicable NDIS DNA data acceptance policies, and in *accordance with 42 USC §14132 (b) (3)* and applicable California laws. Funding will be used to train limited-term Criminalists to reach competency in DNA analysis functions and also allow current DNA Analysts to satisfy continuing educational requirements. Funding for limited-term Criminalists to reach competency will be used for travel and per-diem expenses for training to be held at the Richmond, California, Jan Bashinski DNA Laboratory and in Los Angeles, at the California Criminalistics Institute facilities. Funding for continuing education for current DNA Analysts will be applied to the 21<sup>st</sup> International Symposium on Human Identification in October 2010. Funding for the Inter-laboratory Casework Grant Coordinator/Retired Annuitant will bring consistency to case related documentation among the BFS laboratories.

The implementation of robotic equipment and validation related supplies will reduce per-case analysis time in two manners: samples will be extracted, quantitated and amplified using robotics in batch-analyses with more samples being handled automatically reducing the Criminalists' analytical hands-on, ultimately leaving more time for analysts to screen other

evidence and bottlenecking of DNA extractions by multiple analysts will be eliminated with the robotic systems, subsequently increasing production of casework.

The current average turnaround time is 147 days for the five (5) casework DNA laboratories. The average screening of biology requests is 108 days. Cases are routinely assigned and worked in the order received; however, priority is given to cases with specified court dates and suspectless cases. As a result of the substantial case backlog at each BFS laboratory, cases are now assigned within 45-90 days from evidence receipt, with a routine turnaround time of 4-6 months. The overall activities funded by this grant effectively meet the grant goals in the areas of reducing the backlog of cases, and increasing the throughput of casework will reduce casework turnaround time.

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**FY09 Recipient Name:** City of Los Angeles

**Award Number:** 2009-DN-BX-K053

**Award Amount:** \$1,023,151

**Abstract:** The Los Angeles Police Department (LAPD) intends to reduce its backlog by 650 cases and increase its laboratory capacity to meet existing and future demand for Deoxyribonucleic Acid (DNA) screening and testing. To accomplish its objectives, the LAPD will provide training, purchase equipment, and procure contract laboratory services. Moreover, this strategy reduces bottlenecks that have in the past, prevented the LAPD from meeting all of its goals.

Training will ensure that Criminalists acquire the skills necessary to perform DNA typing, and will enable those, who are already trained, to meet continuing education requirements that are necessary to keep the laboratory's accreditation. Once newly hired Criminalists are trained, they can perform evidence screening that will improve efficiency and reduce turnaround time. Those Criminalists who are already trained to perform DNA typing will be able to increase the number of samples that they analyze, further reducing turnaround time.

To improve the overall capacity of the DNA analysis, the LAPD intends to automate and re-organize the testing process. This will require robotic liquid handling devices that are capable of arranging samples in a high capacity "96 well" format. The "96 well" format is an industry standard for high throughput processing of biological samples. Equipment for this purpose will be purchased through this grant.

Contract laboratory services will allow the LAPD to reduce its existing backlog that continues to grow due to an increasing demand for DNA analysis while ensuring that its Criminalists have the time to receive training and work on active cases. Services to be provided by the contract laboratory will include DNA typing but will not include the data review for Combined DNA Index System (CODIS) upload. Since Criminalists will have the opportunity to work on active cases, the number of cases that will eventually become part of the backlog will be fewer.

The LAPD will also reduce its backlog by providing Criminalists with overtime to screen and/or type samples and to perform CODIS review prior to uploading profiles. Because screening and/or DNA typing of samples from active cases takes priority over other duties, Criminalists

now scramble to find the time to analyze and upload results from the contract labs to the CODIS database. By providing overtime, the LAPD will ensure that the Criminalists can perform the CODIS review.

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**FY09 Recipient Name:** City of Oakland

**Award Number:** 2009-DN-BX-K112

**Award Amount:** \$247,624

**Abstract:** Forensic Biology casework capacity and case completion turnaround times at the Oakland Police Department Criminalistics Laboratory has significantly improved over the years as a result of the grant funds received from the U.S. Department of Justice, National Institute of Justice, DNA Backlog Reduction and Capacity grant programs. Forensic Biology Unit staffing has increased to a level that allows the Unit to evaluate, analyze, and submit probative DNA profiles into CODIS on all sexual assault kits collected in Oakland. This has effectively tripled the number of case requests the Forensic Biology Unit receives on an annual basis. The implementation of electronic sample documentation and the automated DNA processes as a result of the acquisition DNA extraction robots, DNA sample manipulation robots, real-time PCR for human DNA quantitation and higher capacity capillary electrophoresis instruments has resulted in an increase in the number of biological samples analyzed. It has become apparent that these processes significantly increase our capabilities and as a consequence we have developed areas of potential bottlenecks. The increase in the number of essential DNA processing instruments and the implementation of a Laboratory Management System will thwart these potential bottlenecks.

The current analyses of the DNA consists of the use of robots for the DNA extraction, DNA quantitation using real time PCR, amplification of DNA using thermal cyclers, and DNA typing using single capillary electrophoresis. Validation studies on the robotic liquid handlers for the set-up of the DNA quantitation and multicapillary electrophoresis are in progress. The increasing the capacity of the evidence documentation, DNA extraction, DNA quantitation, and amplification will allow the scientists to not be hampered by the lack of instrumentation availability. The additional instrumentation will also allow scientist to quickly analyze biological evidence on cases requiring a very short turnaround time. Once all of the in-house validation studies have been completed on the suite of instrumentation, we expect an increase in the total number of case-requests and samples analyzed per year, per scientist and the turnaround time for the completion of analyses to decrease. Additionally, the installation of an already funded LIMS system (hardware and software) will enhance the capability to complete cases.

The Forensic Biology Unit scientific staff will have new members added during this grant period. The training of the new staff as well as continuing education for the existing staff will be needed to comply with the laboratory's ASCLD-LAB accreditation, individual scientist's certification, NDIS requirements for CODIS data entry, and the FBI Quality Assurance Standards mandatory educational requirements. The Laboratory does not have an independent budget for training. We must compete with all other divisions of the Oakland Police Department for training dollars, including sworn personnel whose training is mandated by state law and, thus, is given priority. Budget restrictions on training dollars in the next fiscal year are expected to be extremely tight. It is anticipated that case completion time would improve to less than 100 days

on average upon the attendance of conferences, implementation the new technologies learned, and training of new Forensic Biology Unit staff.

The Forensic Biology Unit case completion time for the year 2008 was 213 business days from the date of request from the investigator to the publication of the report. This is higher than previous years due to the completion of several very old homicide cases. Upon implementation of the LIMS, the DNA processing instrumentation and a fully trained staff, the turnaround time is expected to decrease to less than 100 business days. This decrease in turnaround time and the increase in the number of DNA samples analyzed will enable the lab to increase the number of cases completed annually. The DNA profiles obtained from probative evidence will be entered into CODIS. Based upon past experience with DNA profiles obtained from suspectless cases, we anticipate a 35% 'Hit-Rate'. This will assist not only Oakland Police Department investigators, but also the Alameda County District Attorney, and other law enforcement, prosecutorial, and judicial agencies in the surrounding area.

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**FY09 Recipient Name:** City of San Diego

**Award Number:** 2009-DN-BX-K054

**Award Amount:** \$375,518

**Abstract:** The DNA Laboratory currently has a staff of 15 personnel consisting of a supervisor, technical manager, 11 DNA criminalists and 2 criminalists dedicated to the screening of evidence. The demand for DNA typing services in the City of San Diego continues to increase steadily with a 15% year-over-year growth rate. Meanwhile California and federal legislation has recently expanded the collection of DNA samples to all felon arrestees and illegal residents making the CODIS database even more productive. We anticipate that there will likely be approximately 380 cases in the backlog on September 30, 2009 and using current data this is likely to consist of 50 sex crimes, 70 homicides, and 260 cases consisting of other criminal charges. We seek \$375,518 in grant funds in an attempt to achieve some important specific goals. Our casework goal is to analyze 175 burglaries, 45 robberies, 50 sex crimes, 30 other assaults and 30 homicide requests that are currently backlogged. In order to achieve this goal, we will add a trained DNA criminalist to our staff, using grant funding. In addition, 2800 hours of overtime will be utilized by the current 13 criminalists and technical manager (200 hours each) to augment our total typing capacity. Given the focus on casework completion under this grant, it will also be our goal to reduce case backlog and turnaround time. Funding is also sought to comply with DNA training requirements, purchase an alternate light source, and equip the new criminalist with the basic tools for the position and to purchase DNA typing supplies.

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**FY09 Recipient Name:** Contra Costa County

**Award Number:** 2009-DN-BX-K098

**Award Amount:** \$273,929

**Abstract:**

**PROJECT GOALS AND OBJECTIVES:** Grant monies will continue to fund two DNA analysts; the positions were initially hired under 2007 NIJ Backlog and DNA Capacity Enhancement grant, and their funding maintained under the 2008 NIJ Backlog Reduction grant. The two DNA analysts perform casework in screening evidence for biological material and DNA analysis.

Two objectives exist for the 2009 NIJ Backlog Reduction grant:

**Objective #1: DNA Request backlog reduction**

Each grant funded DNA analysts should complete a minimum of 20 backlogged DNA related requests during the grant period. The total of 40 cases completed by the two DNA analysts during the award period will result in fewer DNA related cases in the backlog.

**Objective #2: DNA casework capacity increase for the Forensic Biology Unit**

The two DNA analysts are dedicated to performing DNA related casework. Other criminalists assigned to the Forensic Biology Unit must split their time between crime scene response and biology work. Efficiency improvements realized by having dedicated DNA analysts increase the casework capacity of the Forensic Biology Unit. The performance measures demonstrating the success of the capacity increase include a reduction in turnaround times and an increase in the average number of samples analyzed per analyst.

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**FY09 Recipient Name:** County of Alameda, California

**Award Number:** 2009-DN-BX-K074

**Award Amount:** \$290,255

**Abstract:** The purpose of this program is to address analyst throughput, turnaround time and backlogged forensic biology casework. Funds from this grant will be used to pay for the salary and benefits for two full-time Criminalists in the Forensic Biology Unit, and annual maintenance / calibration of DNA equipment.

Through the addition of personnel it is the ACSO Crime Lab's goal to increase analyst throughput by 25%, reduce case turnaround time to three months and reduce the backlogged forensic biology casework. Our goal is to examine, analyze and review 150 forensic biology cases in fiscal year 2009.

Cases with relevant biological evidence would be analyzed in the 13 DNA STR loci which are accepted by Combined DNA Index System (CODIS). Legally permissible DNA profiles would be submitted to CODIS.

The funds used for instrument service contracts will ensure that the equipment needed to reduce the backlog remains in working order and within the guidelines set by the FBI Quality Assurance Standards.

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**FY09 Recipient Name:** County of Kern

**Award Number:** 2009-DN-BX-K050

**Award Amount:** \$245,810

**Abstract:** This plan supports the increase and improvement in DNA analysis capacity and reduction of backlogged DNA cases. This will be done with the re-hire of two trained and experienced DNA Forensic Scientists (Criminalists.) The Kern County District Attorney-Forensic Science Division (LAB) proposes to implement this plan with the use of the National Institute of Justice (NIJ) FY09 DNA Backlog Reduction Program funds. These funds will allow the LAB to rehire two of three DNA Criminalists that are scheduled to be laid-off due to mandatory County budget reductions.

Located in California's central valley, the County of Kern is faced with a declining economy that requires mandatory budget reductions to all County Departments. To comply with the reductions, the LAB must eliminate personnel. Currently the LAB is staffed at 100 percent of the approved scientist positions (Criminalists.) This staffing provides the LAB the ability to (a) increase capacity; (b) reduce backlog; and (c) collaboration in a recently implemented DNA Property Crimes DNA Program with the Bakersfield Police Department. Improvements have been made through automation, equipment, training and staff provided by prior and current NIJ DNA Grants; however, the mandatory lay-off of three Criminalists jeopardizes those improvement and the Property Crimes Program, which in a very short period of time, has proven successful.

The goals and objectives are to (1) allow the LAB to increase its capacity loss and reduce backlog due to the lay-off of Criminalists, (2) by re-hiring two DNA Criminalists with funding from the NIJ FY09 Backlog Reduction Program.

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**FY09 Recipient Name:** County of Orange

**Award Number:** 2009-DN-BX-K094

**Award Amount:** \$475,294

**Abstract:** Goals and objectives

Funds from this grant will be used to address three main goals. We will increase the throughput of cases by increasing the amount of automation used on casework, we will provide additional training for our staff and perform analyses on unsolved cold homicide cases and enter profiles into CODIS.

Increase the throughput of the DNA laboratory by installing a second large capacity robotic DNA extraction station that will be dedicated to processing high volume crime evidence, purchasing an automated laser swab cutter, replacing our existing EZ-1 six channel extraction robots with the EZ-1 Advanced XL 14 channel robots, and purchasing additional copies of GeneMapper ID-X expert system software for DNA data analysis and LIMS entry.

Funds from this grant will provide training opportunities that will assist in satisfying DAB continuing education requirements. We will send six DNA analysts to the International Symposium on Human Identification (Promega) in October 2010 and two analysts to the American Academy of Forensic Sciences (AAFS) meetings in February 2011. We are also planning to have Applied Biosystems' scientists teach two in-house classes on basic and advanced use of GeneMapper ID-X. There are twenty-three full-time and four part-time DNA analysts, plus three supervisors, in our laboratory.

We will purchase swab grippers for the automated laser swab cutter to use in validating the swab cutter and also for training the employees on this new piece of equipment.

We will analyze DNA evidence from unsolved homicide cold cases in Orange County and enter qualifying DNA profiles into CODIS. Several Orange County agencies recently set up cold case review teams and are submitting new requests for cold case DNA analysis. Unsolved homicide cold cases could not be worked by our current staff unless additional overtime funding was available. Funds from this grant will provide overtime money for DNA analysts to work on these

cold homicide cases that they are unable to work during normal work hours due to increased submission of violent and property crime cases. Analysts will be allowed to work on the backlogged cases after normal business hours, on their regularly scheduled days off and on weekends.

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**FY09 Recipient Name:** County of San Bernardino

**Award Number:** 2009-DN-BX-K066

**Award Amount:** \$506,133

**Abstract:** The overall goals of the San Bernardino County Sheriff's Department Crime Laboratory are to reduce DNA case turnaround time, increase the throughput of our DNA laboratory and reduce DNA casework backlog. Our objectives will be to fund overtime to complete backlogged DNA cases, purchase supplies, fund necessary training and to significantly enhance the laboratory equipment and instrumentation with purchases including a Tecan HID EVOLution system, a QIAgility Automated PCR setup system, an ABI 3130 Capillary Electrophoresis instrument, a Label Writer, and digital cameras for evidence documentation. This will not only enable us to streamline evidence documentation and processing, but will reduce hands on time and result in a higher throughput.

Our crime laboratory is anticipating an increase in staff within the year, which will create limited space for expansion and additional bottlenecks in the lab. This challenge will be met by projected plans that will incorporate the most prudent and efficient use of equipment and supplies purchases in order to accommodate staff and attain our goals. The purchase of equipment, allowance for overtime, supplies and additional training will allow us to reach our goals, while at the same time, staving off anticipated bottlenecks created by our increase in personnel.

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**FY09 Recipient Name:** County of San Mateo

**Award Number:** 2009-DN-BX-K092

**Award Amount:** \$117,916

**Abstract:** The County of San Mateo is located in Northern California. It is positioned just south, and adjacent to, the City of San Francisco. It has a population over 730,000 and comprises 450 square miles, 25% of which is urban space.

Forensic Services for the County are provided by the San Mateo County Sheriff's Office. The San Mateo County Sheriff's Office Forensic Laboratory services approximately thirty law enforcement and law enforcement related agencies in the County of San Mateo. These agencies include San Mateo County Departments: Sheriff's Office, District Attorney, Probation, Coroner, Parks and Recreation, and Animal Control, as well as the California Highway Patrol, local Police Departments, California Fish and Game, and local transportation authorities. The San Mateo County Sheriff's Office Forensic Laboratory also provides forensic services, by contractual agreement, to the City of Vallejo (Solano County), the City of Concord (Contra Costa County), and the City of Hayward (Alameda County).

On May 11, 2005, the San Mateo County Sheriff's Office Forensic Laboratory began performing STR DNA analysis. On September 1, 2005, the San Mateo County Sheriff's Office Forensic Laboratory was accredited by the American Society of Crime Laboratory Directors/Laboratory Accreditation Board (ASCLD/LAB). The San Mateo County Sheriff's Office Forensic Laboratory undergoes external audits, not less than once every 2 years, to demonstrate compliance with the DNA Quality Assurance Standards established by the Director of the Federal Bureau of Investigation.

The San Mateo County Sheriff's Office Forensic Laboratory plans to use funds from the DNA Backlog Reduction Program to send 2 Criminalists to training provided by the American Academy of Forensic Science (AAFS) 62<sup>nd</sup> Annual Scientific Meeting held in Seattle, Washington from February 22 until February 27, 2010. During this meeting over 700 scientific papers, breakfast seminars, workshops, and other special events are presented to the attendees. The AAFS consists of 11 sections representing a wide range of forensic specialties, including Biology/DNA, and the annual scientific meeting gathers these professionals who present the most current information, research, and updates in this expanding field.

The San Mateo County Sheriff's Office Forensic Laboratory also plans to use funds from the DNA Backlog Reduction Program to purchase DNA Kits which will be used to validate laboratory instrumentation and to complete DNA training of existing Forensic Biology Unit staff in order to increase unit capacity, thereby reducing backlogged cases and turnaround times.

In addition to training and purchasing of chemicals the laboratory intends to hire a Part-Time (Extra) Help Employee to support the Forensic Biology Unit staff by performing DNA casework and comprehensive technical reviews, thereby allowing analysts more time to perform casework and resulting in a lower backlog and quicker turnaround times.

As an NDIS participating laboratory in good standing, we enter any DNA profile developed, which results from a suspect, into the Combined DNA Index System (CODIS) and, where applicable, also into the National DNA Index System (NDIS). All DNA analyses performed under this program would be maintained under all applicable federal privacy regulations.

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**FY09 Recipient Name:** County of Santa Clara

**Award Number:** 2009-DN-BX-K079

**Award Amount:** \$329,243

**Abstract:** The Crime Laboratory, under the Office of the Santa Clara County District Attorney, is the regional laboratory responsible for the analysis of physical evidence collected within Santa Clara County; it serves over 30 criminal justice agencies, including the sheriff, medical examiner, and all municipalities within the County. The laboratory was first accredited by ASCLD-LAB in 1996, and has secured reaccreditation in 2001, and most recently in 2006. Further, the Forensic Biology Unit undergoes FBI/QAS external audits every other year, with the most recent evaluation being performed in September of 2008.

It is projected that the number of Forensic Biology casework requests in calendar year 2009 will be similar to, or fewer than, those requests submitted in calendar year 2008 (i.e., ~980). Through

June 3, 2009, the laboratory has received 370 cases with DNA requests. In recent years, the laboratory has seen increases in the number of items submitted per case, as well as the types of analyses requested (e.g., human and male-specific testing), which served to increase the backlog and turnaround times. However, due to new policies instituted by the laboratory (e.g., limitations on the number of items submitted per case, special requirements for contact DNA case acceptance) these trends are not expected to continue in the future. These new policies, in addition to resources provided by previous year's grant funds, have served to reduce the backlog significantly in the past year; in June 2008, the DNA backlog was approximately 250 cases, and the current backlog is 165 cases. Despite the decrease seen over the past year, additional resources are required to further reduce the backlog and turnaround times, and increase the number of samples processed per analyst per month.

To illustrate recent casework production trends, laboratory statistics for the period between May 1, 2008 and April 30, 2009 were run utilizing the laboratory information management system (LIMS). The results of this query indicated that the average number of cases completed per analyst is approximately 60 per year, or 5 per month (960 cases completed by 16 analysts). The laboratory does not currently track the number of samples analyzed in the laboratory information management system (LIMS), but it is estimated that there are approximately ten per case. Using this estimate, each analyst processed about 50 samples per month during the period specified above. Further, the turnaround times for this period were as follows:

- Number of days from date of request to date of review=115 (non-violent crimes), 87 (violent crimes)
- Number of days from date of assignment to date of completion=32 (non-violent crimes), 38 (violent crimes)

The laboratory has developed a custom LIMS system which will go online during July 2009. The new system will have the ability to track the exact number of samples processed by analyst, by case, and by sample type.

As mentioned previously, the current backlog of cases as of June 3, 2009 is 165, which includes UCR, Part 1 Violent Crimes, a large number of property crimes, some misdemeanor offenses, and several cold cases that have recently been reopened by our user agencies. It is anticipated that the size of the backlog will be approximately the same when the FY09 grant commences (i.e. 165 cases).

To alleviate the current backlog, support casework submitted during the grant period, and reduce turn-around times on all cases, funds from the grant will be used to pay the salary and benefits of two Criminalists hired using 2006 and 2008 grant funds (\_\_\_\_ -2006 Capacity Enhancement Program (2006-DN-BX-K178), and \_\_\_\_\_-2008 Backlog Reduction Program (2008-DN-BX-K053)) to analyze backlogged DNA casework. Funds will also be used to purchase validation services from a vendor selected through a competitive bidding process for the Tecan® Freedom EVO® 150 robot (acquired using funds from the 2005 DNA Capacity Enhancement Program, 2005-DA-BX-K038), which was upgraded to the HID EVOLution™ System configuration (acquired using funds from the 2008 Backlog Reduction Program, 2008-DN-BX-K053). Prior to the upgrade, this robot only had the ability to extract DNA samples; however, the HID EVOLution™ system upgrade allows the laboratory to perform extraction, quantitation,

normalization, and amplification applications on the same platform. With the validation service, the selected vendor will provide the resources (i.e., scientists, reagents, and training) to evaluate this configuration, verify that all applications operate according to specified casework standards, and determine any limitations of the system. This would be of great value to the laboratory, as validation can be time-consuming and prevents analysts from fulfilling their casework responsibilities. Implementation of the validated robot will increase throughput (the number of samples analyzed per analyst per month) significantly for several reasons. First, analysts will be able to batch larger number of samples together at the extraction and amplification steps, as the configuration will be a 96-well format. Bottlenecks occur at these steps due to the labor-intensive nature of the processes and the limited number of samples that can be processed concurrently. Second, the extraction, quantitation, normalization, and amplification steps will be fully automated, which will allow analysts to focus their efforts on other tasks such as screening or case review. Third, by removing the analyst from the process, and therefore the potential for human error, it is expected that fewer errors will occur and less time will be spent on troubleshooting and reconciliation of mistakes. Finally, the system will demand that the laboratory move from a tube format to a plate format during the amplification step, which will in turn, save space, promote the processing of larger sample batches, and facilitate efficient loading of plates for multicapillary genetic analyzers (i.e. 3130).

To track progress during the FY09 grant period, performance measurement baseline statistics will gathered utilizing the LIMS system on October 1, 2009, to include the total number of cases backlogged (with a list of these specific case numbers), the total number of property crime cases backlogged (with a list of these specific case numbers), average turnaround times from requested to reviewed and assigned to completed for both violent and non-violent crimes, and the average number of samples processed per analyst per month (using a ten sample per case estimate). These baseline reports, as well as all subsequent reports highlighting progress and performance metrics, will be generated and maintained by the DNA Technical Leader (\_\_\_\_\_) with the assistance of the District Attorney's Office Information Services Manager (\_\_\_\_\_). The data will be accurate and auditable, and will be available for at least three years after the award period has ended.

With the two Criminalists performing backlogged DNA casework, and the completion of the robot validation, it is anticipated that approximately ~~329~~ 300 cases (includes a combination of backlogged cases as of October 1, 2009, and those that are received during the grant period, backlogged for a period of time, and then assigned and completed before the end of the grant) can be processed during the grant cycle. More specifically, 75% of those cases identified on the October 1, 2009 backlog list should be completed in a period of one year. Forensic Biology casework turn-around times (from date of submission to date of review) should improve from an average of 115 days for non-violent crimes to 100 days, and from 87 days for violent crimes to 75 days. Casework turn-around times (from date of assignment to date of completion) should improve from an average of 32 days for non-violent crimes to 30 days, and from 38 days for violent crimes to 30 days. Casework throughput is expected to increase from 50 samples per analyst per month to 65 samples per analyst per month. This prediction would equate to approximately 1.5 cases additional cases per analyst per month. All DNA analysis performed under this program will be maintained under the applicable federal privacy regulations.

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**FY09 Recipient Name:** County of Ventura

**Award Number:** 2009-DN-BX-K051

**Award Amount:** \$114,351

**Abstract:** In this grant application the Forensic Sciences Laboratory (FSL) is requesting funds to continue funding a fixed term DNA position and to help purchase one instrument. The DNA position was established last year through this grant. The instrument will help us expedite the analysis of DNA cases.

Senior examiners have been required to perform screening tests, which could equally well be performed by a junior person. The FSL would like to continue employment of a Forensic Scientist I/II in the DNA section, thereby allowing the senior staff to concentrate on the more complex DNA cases. This individual will help screen evidence for DNA analysis.

The overall objective of this grant is to improve DNA analysis capacity and to reduce the number of backlogged DNA cases. The laboratory's goals are 1) to reduce the turnaround time by twenty percent (from 164 days to 130 days) between submission of a DNA sample to the laboratory to having a report written for the submitting agency. 2) To reduce the number of pending cases by sixty. This will result in an additional 20 to 40 DNA profiles being entered into CODIS with an anticipated result of four to eight CODIS hits.

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**FY09 Recipient Name:** Fresno County Sheriff Department

**Award Number:** 2009-DN-BX-K049

**Award Amount:** \$133,000

**Abstract:** The geographic location of Fresno County is approximately an equal distance between the major metropolitan areas of San Francisco and Los Angeles in the Central San Joaquin Valley. From east to west, the County's boundaries extend 135 miles, encompassing a geographical area of 6,007 square miles with the Coast Mountain Range to the west and the Sierra Nevada Mountain Range to the east. Fresno County has a population of 899,348 that is expected to grow 3.4% annually in the future.

The Fresno County Sheriff's Department Forensic Laboratory provides services for the Sheriff's Department. The forensic laboratory has two Criminalists that are trained and qualified to perform STR analysis. Due to staffing needs and the growing demand for DNA analysis, the Fresno County Sheriff's Department Forensic Laboratory needs to find a way to reduce backlogged DNA casework. The Sheriff's Department has over 80 unsolved homicide/rape cases that need to be examined for potential DNA evidence. DNA cases can take up to ten months, from request to final report, due to the size of our staff. The forensic laboratory is seeking \$133,000 in federal funds to decrease the backlog of cases from the DNA unit. This will be accomplished by using grant funds to send backlogged DNA cases out to be analyzed by accredited fee-for-service vendors for analysis of evidence that may contain DNA. The result will be a reduction in the number of forensic cases awaiting DNA analysis.

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**FY09 Recipient Name:** Los Angeles County Sheriff's Department

**Award Number:** 2009-DN-BX-K070

**Award Amount:** \$1,435,858

**Abstract:** Project Goals and Objectives: The goal of this proposal is for the Los Angeles County Sheriff's Department, Scientific Services Bureau to reduce the department's sexual assault kit backlog. Due to a recent audit, 4,738 unanalyzed sexual assault kits were inventoried in the department's freezers. Evidence from this backlog is being outsourced using existing funding sources; however, current funding will be insufficient to analyze all 4,738 cases. Additional policy changes and external pressures on other Los Angeles County police agencies will potentially increase this backlog in the coming months. Based on this information it is anticipated the backlog will exceed 3,300 cases by September 30, 2009. The Bureau has neither the manpower nor the finances to eliminate all of these backlogged cases.

Our objective for this grant proposal is to reduce the backlog of sexual assault cases waiting for DNA testing by approximately 1,100 cases. Funding from this grant, existing grants, and other funding sources will reduce the backlog by close to 3,000 cases during the next 18 to 24 months. This grant alone will reduce the backlog by approximately 23%. A secondary objective will be to enter all probative DNA profiles obtained from the sexual assault evidence into CODIS. Though the number of CODIS entries cannot be predicted, historically our lab has seen about 47% of the kits test positive for foreign DNA. Not all of the positive kits will yield CODIS eligible profiles, though all eligible profiles will be entered into CODIS.

Project Plans and Methods: The Los Angeles County Sheriff's Department, Scientific Services Bureau has been the recipient of previous capacity and backlog reduction grants, which have enabled the laboratory to increase its casework capacity. However, the most significant increases remain to be seen. Currently we are just now implementing a robotic platform to consolidate DNA quantitation, normalization, and amplification onto a single platform via batching. We will begin implementation of a LIMS system in late 2009. We are also validating a new streamlined method for sexual assault kit examination. These major changes will allow a shift in workflow that we believe will assist us in examining sexual assault kits currently being received at the lab. Because we believe that we can prevent a new backlog of kits utilizing the changes outlined above, we are only requesting funds for the outsourcing of this evidence. While outsourcing is only temporary it will assist us in achieving our objective of 1,100 cases. The laboratory already has a system in place to prioritize the analysis of these backlogged sexual assault kits. We also have a streamlined system in place to send out 300 cases per month and to ensure the kits that yield probative DNA profiles are entered into the CODIS in a timely manner. This system will be maintained throughout the grant.

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**FY09 Recipient Name:** Sacramento County

**Award Number:** 2009-DN-BX-K065

**Award Amount:** \$533,345

**Abstract:** The Sacramento County District Attorney Laboratory of Forensic Services' (hereafter referred to as the crime laboratory) goal for the *FY 2009 Forensic DNA Backlog Reduction Program* is to partner with local police agencies and the District Attorney to target and solve those criminal cases that will have the most significant and positive impact on the community.

The emphasis of the crime laboratory's 2009 Backlog Reduction grant operations will be on the timely analysis of DNA-related evidence from violent crime cases and the overall reduction of backlogged DNA cases across the spectrum of reported crimes.

The objectives of the crime laboratory to be completed during the eighteen month operation of the *FY 2009 Forensic DNA Backlog Reduction Program* includes directing the grant-funded DNA analysts to conduct the screening and DNA profiling of the biological evidence recovered from each case, and upload the profiles from eligible cases to CODIS.

The crime laboratory has prepared a plan that provides funding for two DNA analyst positions, temporary contract staff to conduct timely peer and administrative level reviews of DNA casework reports prior to release, additional new equipment to enhance the existing complement of DNA instruments, and continuing education and training opportunities for DNA analysts in the Crime Laboratory's Biology Unit. The Project Director will closely monitor the grant to ensure progress is being made in all aspects of the grant.

In order to achieve the goal and objectives outlined for this grant period the crime laboratory will employ two (2) criminalists who will be responsible for screening evidence associated with violent crime cases for probative evidence and profiling samples and uploading profiles to CODIS from those cases that screened positive for biological fluids. Equipment purchases were chosen to improve case turnaround time through automation and robotics, as well as enhance the complement the instrumentation available to the crime laboratory's DNA analysts.

As with previous DNA grants, the *FY 2009 Forensic DNA Backlog Reduction Program* will provide funds for training and continuing education of the DNA analysts per the FBI's quality assurance standards for forensic testing laboratories. Providing continuing education and advanced training to the laboratory's experienced DNA analysts will ensure that the crime laboratory delivers the best possible, most efficient, and timely forensic DNA analytical services to Sacramento County.

The *FY 2009 Forensic DNA Backlog Reduction Program* will provide funds for a renovation project within the existing DNA laboratory. The renovations call for the installation of two (2) analyst workstations.

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**FY09 Recipient Name:** San Diego County

**Award Number:** 2009-DN-BX-K048

**Award Amount:** \$380,960

**Abstract:** The San Diego Sheriff's Department Crime Lab proposes to use funds available through this program to provide equipment and training needed to increase its DNA analysis capacity. The principal goal of this project is to reduce forensic DNA casework backlog. In order to achieve this goal, the project plan involves: 1) acquiring additional equipment and supplies for DNA analysis and, 2) providing continuing education opportunities for the lab's current DNA analysts. The additional equipment and supplies and continuing education for the DNA analysts will help achieve our goal by decreasing the average time needed to process DNA analysis requests and increasing the output of analyzed samples per analyst.

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**FY09 Recipient Name:** City And County of Denver

**Award Number:** 2009-DN-BX-K147

**Award Amount:** \$259,898

**Abstract:** The Denver Police Department Crime Laboratory serves the City and County of Denver and strives to solve crime, thereby increasing public safety. The Denver Crime Laboratory DNA and Forensic Biology section seeks federal support in order to reduce the amount of cases backlogged throughout the 2009 year, as well as to increase the efficiency and effectiveness of the analysts working in the laboratory, by way of the following goals:

- 1) To retain two trained, grant-funded analysts for the 2009 grant period to process 90 forensic biology cases and to process the equivalent of 240 cases worth of DNA samples.
- 2) To reduce case turnaround time by potentially halving the current amount of time spent amplifying DNA samples through the validation of the Identifiler® amplification kit, a single amplification system. This will also improve sensitivity and conserve DNA samples.
- 3) To evaluate and validate the use of the QIA safe room temperature DNA extract storage system to allow for efficient access to DNA extracts and a storage method that provides equal or improved sample quality and integrity compared with frozen storage.
- 4) To fulfill the continuing education requirements specified in the DNA Quality Assurance Standards for six DNA/FBIO analysts.

By implementing these goals, the DNA Crime Laboratory will target specific bottlenecks that have been identified in the laboratory process and the lab will comply with national quality assurance standards regarding validation and training.

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**FY09 Recipient Name:** Colorado Department of Public Safety

**Award Number:** 2009-DN-BX-K148

**Award Amount:** \$512,461

**Abstract:** There is an increasing demand on forensic laboratories to expand the utilization of DNA technologies to solve a wider variety of crimes. In the past 3 years this demand for DNA analysis and subsequent increased hits associated with property crimes has driven requests by local law enforcement agencies for additional DNA analysis.

The primary goal in the request of funding from the “FY2009 Forensic DNA Backlog Reduction Program” grant is to increase the case output per DNA analyst at the CBI. Specifically, the continual increase in the number of cases submitted, followed by an anticipated increase in case output once the robots have been fully implemented will lead to bottlenecks in the DNA workflow process. The Pueblo laboratory will have, by August of 2009, 2 additional DNA analysts. These 2 analysts will increase the total output in that laboratory by over 300 cases a year. The first objective is to purchase another 3130 genetic analyzer. It is expected that another 3130 will prevent a bottleneck at this location and will reduce the overall system turnaround time by at least one day.

The second objective is to purchase an expert system for casework analysts. The CBI has

observed over the past year an increase in the number of cases completed, and this increase in case output has also required more time from the analysts, both in the initial data review as well as in the technical review process. The implementation of robotics, with the subsequent additional cases completed will only increase the time demand. The CBI plans to address this bottleneck by purchasing an expert system to assist the case-working DNA analysts. It is expected that a 5% increase in case output should be anticipated with the implementation of an expert system.

The third objective is to expand the knowledge and skills of the analysts in interpretation of homicide and other violent crime evidence. The CBI has observed that when a full review of the case information is performed a more effective use of analyst's time is obtained, costs are kept at a minimum and the essential questions for the case are answered. The CBI has identified a source to train the analysts in crime scene reconstruction specific for bench analysts. This training will take place in 2010.

The final objective is to use some of the funds to pay overtime hours to analyst to reduce the current CBI backlog. The CBI intends to reduce its current backlog by 102 cases using a portion of the grant money to fund the overtime hours of the analysts examining these cases. Its current backlog is over 2,600 cases and is expected to rise, so these funds will assist in reducing that number.

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**FY09 Recipient Name:** Connecticut Department of Public Safety

**Award Number:** 2009-DN-BX-K153

**Award Amount:** \$409,571

**Abstract:** *Project Background:* The Connecticut Forensic Science Laboratory is the only forensic laboratory in the state of Connecticut that provides both Criminalistics and DNA services. Currently the lab serves 174 local police departments, 20 state police troops and specialized investigative units, 189 fire departments and fire marshal's offices, state's attorneys, public defenders, and other State agencies. In addition, the laboratory provides services to other federal, state, and local law enforcement agencies in Connecticut, the New England area, and around the US. The Connecticut Forensic Science Laboratory ("the laboratory") has been accredited by ASCLD-LAB since February 2001 (Certificate # 228). The laboratory conducted a review of the cases submitted by various agencies that were unexamined as of May 2009. This review consisted of a direct count of cases with Biology/DNA requests that have not been examined and are in the Forensic Biology backlog and cases already screened for biological samples awaiting DNA analysis.

*Project Goals & Objectives:* The number of backlogged DNA cases was estimated to be over 1000 cases. At the end of this DNA grant program, it is anticipated the following goals will be accomplished: (1) Examination of at least 250 of the backlogged cases to identify and characterize biological materials that may be a potential sources of individualization; (2) Analysis of appropriate biological materials from those cases for DNA STR/Y-STR profiles; and (3) Comparison of profiles obtained from those samples to known biological standards and/or submission of unassociated profiles to the State and national DNA databases.

*Project Design:* Grant funds will be used to hire two (2) temporary full-time equivalent employees to conduct basic screening, DNA analyses on case samples (evidence records, extractions, quantitations, amplifications & interpretations of basic tests), and to provide support for current laboratory employees. The standard CT Forensic Laboratory QA/QC policies and procedures shall be followed regarding evidence examination, confirmation of biological materials, decisions concerning which samples to forward for DNA testing, and all interpretations of DNA profiles, using limited overtime, current Laboratory personnel, and durational DNA analysts. A DNA database scanner system will be purchased to convert Offender database identifying information to paperless records. DNA extraction robot will be purchased, which will increase the capability and capacity of the DNA Unit and will ultimately replace outdated equipment. In addition, the Laboratory will also purchase additional and/or upgraded equipment and supplies to conduct these analyses.

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**FY09 Recipient Name:** Metropolitan Police Department, Washington DC

**Award Number:** 2009-DN-BX-K113

**Award Amount:** \$380,100

**Abstract:** In 2008, the MPD developed the capability to perform forensic DNA testing by establishing a crime laboratory which includes a forensic biology unit. The MPD Crime Laboratory was accredited in November 2008 and has assumed forensic DNA testing of all District cases. The objective of this current proposal is to use FY09 Forensic DNA Backlog Reduction grant funding to increase DNA testing capacity, the training of DNA laboratory personnel and outsourcing backlogged DNA cases to an accredited DNA laboratory.

**DNA Capacity Enhancement:** The goal of DNA capacity enhancement is to increase DNA sample capacity, analyst productivity and reduce DNA case turnaround times.

**Automation Tools:** The MPD Crime Laboratory is requesting grant funds to upgrade an existing extraction robot. The upgrade will expand the robotic applications to include DNA quantitation set-up, DNA normalization and PCR reaction set-up. Incorporating these additional applications will allow the laboratory to streamline aspects of the DNA analysis procedures that are labor and time intensive. Automation of these procedures will increase analyst productivity and minimize human error caused by repetitive manual processing.

**Basic Infrastructure Support:** The MPD Crime Laboratory is requesting grant funds to acquire a real-time PCR instrument and a genetic analyzer. These instruments will increase sample capacity and analyst productivity at the quantitation and fragment analysis steps in the DNA testing process.

**Training:** The goal of DNA training is to enhance the knowledge base of the members of the MPD Forensic Biology Unit and to conform with national quality assurance and accreditation standards. The MPD Crime Laboratory is requesting on-site DNA training to be provided by NFSTC.

**Outsourcing of Backlog Cases:** The goal of outsourcing DNA testing to a fee-for-service laboratory is to reduce the number of backlogged violent crime cases in the District of Columbia. The MPD Crime Laboratory began DNA testing of all District of Columbia cases in November

2008. The cases submitted to the laboratory are considered current cases and do not include the District's existing backlog cases. At this time, approximately 1500 violent crime cases with biological evidence suitable for DNA testing have been identified. Currently, the MPD Crime Laboratory does not have the capacity to perform DNA testing on these backlog cases. The submission of these cases to the MPD Crime Laboratory would severely impact the laboratory's ability to provide timely delivery of DNA test results and would increase the number of backlogged DNA cases.

The MPD Crime Laboratory will evaluate cases for submission to the outsource DNA testing laboratory. Evaluation criteria will include the following: a) presence of potentially probative biological evidence, b) the identification of potentially probative biological evidence which requires only DNA testing, and c) the selection of the 4 – 6 samples (evidence and reference) per case. This evaluation process will ensure the minimum analysis is required to obtain a CODIS suitable profile, thus keeping testing costs down. The MPD Crime Laboratory will conduct the technical review of the outsourced cases and will enter all eligible forensic DNA profiles into CODIS.

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**FY09 Recipient Name:** Delaware Health and Social Services

**Award Number:** 2009-DN-BX-K093

**Award Amount:** \$272,286

**Abstract:** The DNA Unit of the Delaware Office of the Chief Medical Examiner (OCME) seeks \$272,286.00 to improve the current operations of the DNA Unit by increasing throughput, turnaround time, and eliminating the casework (Suspect and No Suspect) backlogs. The requested funds will be used to increase the capacity of the DNA Unit in order to analyze cases and cost effectively.

In addition to funds for analysis of forensic DNA casework samples, the OCME is requesting funds for basic infrastructure support, to enhance the capacity of the CODIS Section, and to purchase convicted offender buccal swab collection kits, and to provide training for DNA Unit personnel.

All eligible forensic DNA profiles obtained with funding from the Forensic DNA Backlog Reduction Program (SL# 000871) will be entered into the Combined DNA Index System (CODIS) and, where applicable, uploaded to the National DNA Index System (NDIS).

The OCME will accomplish these goals by meeting the following objectives:

- 1.Reduce the casework backlog from 150 cases to 75 cases.
  - 2.Reduce casework turnaround time (TAT) average time from submittal to reporting from 180 days to 90 days.
  3. Increase the number of DNA forensic cases and DNA database samples analyzed per DNA analyst, thus reducing future casework and CODIS backlogs.
  - 4.Eligible DNA profiles will be expeditiously entered into the State DNA Index System and the National DNA Index System.
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**FY09 Recipient Name:** Broward Sheriffs Office

**Award Number:** 2009-DN-BX-K089

**Award Amount:** \$500,075

**Abstract:** At the current time, the Broward Sheriff's Office has a backlog of approximately 710 cases, 330 of them being UCR, Part 1 Violent Crime cases. We are requesting funding so that the unit can perform in-house analysis as well as outsourcing on these cases. This funding will assist in keeping the backlog from growing and will be utilized to work cases that are being requested or those that have court dates in the foreseeable future. In addition, cases which lack suspects will also be worked. Funding is being requested for kits, consumables and personal protection equipment.

As part of the DAB requirements, every DNA analyst must attend training on a yearly basis. This has always presented a challenge due to budget restraints; this has not changed and will continue to be more difficult as we have been asked to cut our budget drastically and training has historically been one of the first places that get hit. As a result, funding for training is being requested so that we can circumvent this continuing critical issue.

In an ongoing effort to increase throughput, the unit recently purchased several Qiagen EZ1 tabletop robots. Most of the validations have been completed, and they are being used on a regular basis while phenol-chloroform extractions are being phased out. The unit would like to purchase additional robots as the footprint is very small and once the rest of the validations are completed, current methods of extraction will be phased out and the EZ1 will be used exclusively.

At the current time, the unit has a Qiagen 8000 robot. The room that it is currently in has had to be rearranged to accommodate additional instrumentation. Funding is requested for a Lab cabinet for the 8000 and for upgrades so it can be utilized in conjunction with the EZ1 systems. The DNA unit currently utilizes the AB 7000s in conjunction with the AB Quantifiler kit for quantitation purposes. We are currently validating the Plexor/Duo kits. The unit would like to purchase an additional AB 7500 for these new quantitation procedures, which incorporates new dyes used in the new kits. The current 7000 units are not dye compatible with the new kits. At the current time, the unit is in possession of an AB 3130xl. This instrument has been taken off line due to issues that cannot be resolved. We have been in contact with AB and have been told that this model is being replaced by the AB 3500. While the platform is nearly the same, the 3500 is a 24 capillary unit, an increase of eight (8) capillaries over the existing 3130xl. The company is willing to work with us by using the 3130xl as a trade in on the purchase of a new instrument. Incorporation of the 3500 will help to increase throughput and decrease the backlog.

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**FY09 Recipient Name:** Florida Department of Law Enforcement

**Award Number:** 2009-DN-BX-K069

**Award Amount:** \$3,880,104

**Abstract:** *Introduction:* The number of incoming requests for FDLE biology services continues to increase each year, growing by 22% between 2007 and 2008. As of December 2008, incoming service requests reached an average of 1,215 per month. The heavy demand for biology services has been attributed to a number of factors including Florida's large population

and continued high volume of reported crime (876,981 index crimes reported in 2008); increasing local agency focus on re-examination of cold cases using STR technology; and escalating requests for post conviction DNA testing. Improved analytical capability due to technological advances in forensics and an increased awareness of the crime-solving value of Florida's DNA database, which accounts for about 10% of the national database hits, are also factors in the increased demand for FDLE biology services. Early indications based on 2009 data (1,666 requests in April 2009) suggest that the rate of incoming service requests can be expected to continue an upward spiral over the next two years.

*Project Goals and Objectives:*

1. Reduce the average number of days between submission of DNA evidence to a forensic laboratory and the delivery of test results to the requesting agency
2. Increase DNA analysis throughput
3. Reduce the DNA casework backlog

*Florida's Crime Laboratory System:* FDLE's network of DNA laboratories, in partnership with the four county laboratories, including Broward, Miami-Dade, Palm Beach, and Indian River (19<sup>th</sup> Judicial Circuit), that comprise Florida's crime laboratory system have agreed on a formula distribution of funds based on the number of UCR Part 1 violent crimes occurring within the jurisdiction of each laboratory or laboratory system.

Violent Crime in Florida, 2007

County	Population	Total Violent	% of Total Violent Crime Number	Total Allocation based on \$6,025,006
Miami Dade	2,462,292	23,740	18.0%	1,084,501
Broward	1,765,707	10,893	8.3%	500,075
Palm Beach	1,295,033	9,350	7.1%	427,775
Indian River	139,757	464		
Martin	143,737	574		
Okeechobee	39,030	240		
St. Lucie	271,961	1,595		
Total 19th Circuit (Indian River Lab)	594,485	2,873	2.2%	132,550
FDLE	12,562,850	84,925	64.4%	3,880,104
Florida	18,680,367	131,781	100.0%	6,025,006

*SOURCE: Florida Department of Law Enforcement. Crime in Florida, Florida uniform crime report, 2007 [Computer program]. Tallahassee, FL: FDLE. Florida Statistical Analysis Center.*

All laboratories within the state will apply for funding individually. FDLE has conducted a needs analysis in each of its regional laboratories and has developed plans that will improve laboratory efficiency and capability.

*Method for Achieving Goals:* FDLE has identified equipment that will speed the process of identifying stains and other evidence for DNA analysis and allow analysts to be more efficient in the screening of evidence; overtime to reduce casework backlog and quality review results of

outsourced analysis; and laboratory supplies needed to complete forensic DNA casework in-house. FDLE has also identified the need for continuing education and training for DNA analysts to remain current and enhance job performance; renovations to increase the capacity of the biology section in the Fort Myers laboratory; and contracting with a private vendor to outsource a portion of backlogged cases as critical components of a comprehensive backlog reduction strategy. These enhancements will ultimately improve integrity and speed of evidence handling procedures and processes, which will increase analyst productivity, reduce turnaround times, and increase the number of CODIS applicable DNA profiles entered into State and National DNA databases.

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**FY09 Recipient Name:** Miami Dade County

**Award Number:** 2009-DN-BX-K062

**Award Amount:** \$1,084,501

**Abstract:** The National Institute of Justice has allocated \$6,025,006 to the State of Florida as part of the FY2009 Forensic DNA Backlog Reduction Program Formula Grant. The Miami-Dade Police Department (MDPD) Crime Laboratory has been offered approximately \$1,084,501 as its share of the formula grant. The MDPD Crime Laboratory proposes to use these funds to reduce the number of forensic cases awaiting DNA testing by increasing its capacity for in-house DNA analysis and by outsourcing property crime cases and cold case violent crimes to a commercial DNA laboratory. Improvements to the MDPD Crime Laboratory infrastructure will increase the capacity for in-house DNA analysis. The purchase of instruments from Applied Biosystems for DNA quantitation and capillary electrophoresis will improve the average productivity of each analyst by providing additional high-throughput DNA processing. Additional funds are requested for the purchase of micropipettors and microcentrifuges to equip new DNA analysts, for a long-term evidence storage freezer and for supplies for the automated DNA analysis system.

Installation of a new Laboratory Information Management System (LIMS) program and a related new DNA sample-tracking program will enable the MDPD Crime Laboratory to track DNA evidence from submission through processing and obtain quantitative reports of the productivity of each DNA analyst and of the operation of the Forensic Biology Section. In combination, the greater DNA analysis capacity and improved sample tracking systems will increase DNA processing efficiency and decrease case turnaround time.

Funds are also requested to reduce the backlog of DNA cases by outsourcing casework to a commercial DNA laboratory. These cases will include cold homicide and sexual battery cases and recently submitted cases from lesser crimes. To maximize the number of cases that can be outsourced for DNA analysis, funds are requested to pay overtime to MDPD Crime Laboratory personnel to conduct the initial examination and screening of the evidence for the presence of biological materials, prepare the DNA samples to be shipped and conduct the DNA technical review required to determine whether the criteria are met for DNA database entry. The commercial laboratory will conduct the DNA analysis, issue a court-ready report and provide testimony in any future judicial proceedings. Travel and registration funds are requested to enable DNA analysts to meet continuing education requirements and to receive training on specialized instrumentation. The expected results of these expenditures will be to improve the MDPD Crime Laboratory's infrastructure, increase its capacity for DNA analysis, improve

analyst productivity and case turnaround time, and reduce the backlog of DNA cases. By generating more DNA profiles for database entry, more investigations will be assisted, thus contributing to the safety of Miami-Dade County's residents.

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**FY09 Recipient Name:** Palm Beach County Sheriffs Office

**Award Number:** 2009-DN-BX-K052

**Award Amount:** \$427,775

**Abstract:** Conducting DNA analysis on informative crime scene evidence from all minor property crimes and major violent crimes is the goal of the Forensic Biology Unit (FBU) of the Palm Beach County Sheriff's Office (PBSO). In order for this goal to truly be realized, the concurrent goal of reducing the overall turnaround time for the handling, screening, and analysis of forensic DNA samples while reducing the existing DNA forensic casework backlogs must be accomplished. It is imperative that the laboratory provide the citizens of Palm Beach County with the full potential of the latest technologies in order to prevent future DNA backlogs and to help the criminal justice system in the decision making process of how to proceed with a case in which DNA analysis was conducted. There are four major objectives for the 2009 Backlog Reduction grant including 1) implementation of a more sensitive automated large scale DNA extraction protocol, 2) continued salary support for two Forensic Scientists, 3) the development of DNA casework report stations for existing staff and 4) upgrading computer systems within the laboratory. Past NIJ grant funding was used to conduct validation studies on the latest methods for DNA extraction, quantification, amplification and allele detection. One of the most important FBU objectives has been progress towards a completely automated DNA process and this has largely been successful. However, the number of crime scene samples that are considered "touch evidence" has increased significantly to nearly 50% of all submissions. Many of these samples contain low level DNA template concentrations and as a result, over 33% of all DNA extracted samples in the laboratory must be concentrated. This means there is human intervention which is a delay the DNA typing process which in turn is inefficient. These 2009 Backlog Reduction funds will increase the capacity of the FBU laboratory by allowing the unit to increase the number and quality of DNA samples analyzed as well as to handle, screen, and analyze backlogged forensic DNA casework samples by the two 2008 Backlog Reduction Forensic Scientists currently on staff, expansion of the DNA report writing and casework review stations by consolidating the current five workstations into ten and to enhance computer and software capabilities.

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**FY09 Recipient Name:** St. Lucie County Sheriff's Office

**Award Number:** 2009-DN-BX-K084

**Award Amount:** \$132,550

**Abstract:** The Indian River Crime Laboratory (IRCL) is scheduled to be housed in its new facility by September 2009. The space limitations of the current facility have not allowed IRCL to increase its workstation capacity, personnel or significantly modify its workflow to produce streamlined DNA evidence processing. IRCL is seeking funds to assist in the increase of capacity of this new facility to create multiple workstations to allow access to equipment without significant coordination with other analysts. The purchase/upgrade of equipment and software will enhance the quality and quantity of caseload production from the laboratory to the agencies

it serves. Additionally, the IRCL seeks funds to assure attendance of DNA analysts at professional trainings and conferences to stay abreast of related issues and technological advances as well as remain compliant with FBI Quality Assurance Standards.

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**FY09 Recipient Name:** Georgia Bureau of Investigation

**Award Number:** 2009-DN-BX-K083

**Award Amount:** \$2,150,646

**Abstract:** The Georgia Bureau of Investigation- Division of Forensic Sciences (GBI-DOFS) operates eight laboratories located throughout the state. The laboratory system serves a population of over 9 million and issues reports to over 1000 criminal justice agencies. GBI-DOFS has DNA casework analysis capability in three of the eight laboratories, the Headquarters (HQ) facility located in Decatur (Atlanta), the regional laboratory in Augusta, and the regional laboratory in Savannah. Convicted offender DNA analysis is conducted in the Northeastern Regional Laboratory in Cleveland, GA. The HQ facility is responsible for most method development and validation. Currently there are a total of 41 personnel in the Forensic Biology discipline, 15 of whom are positions funded through DNA Backlog Reduction program awards. Funding from the 2009 Forensic DNA Backlog Reduction program will be used to hire and train additional scientists and laboratory technicians to prepare for anticipated retirements and resignations, increase capacity in anticipation of potential future legislative changes to implement DNA analysis of felony arrestee individuals, and purchase equipment and supplies to improve the DNA operational processes within the laboratory. Overtime funding will be provided for existing staff to assist in training, case analysis and case review. Outsourcing will be utilized to provide additional capacity as needed and to further reduce projected backlogs. The personnel and equipment provided by this project will enhance the capability of the GBI-DOFS laboratory to complete requested forensic biology services, including DNA analysis.

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**FY09 Recipient Name:** City and County of Honolulu

**Award Number:** 2009-DN-BX-K082

**Award Amount:** \$159,945

**Abstract:** Forensic laboratories across the nation would agree that personnel shortages have the most impact on the ability of a laboratory to provide timely and efficient services. Demand for forensic services has increased dramatically, but scientific staffing has not kept pace with that demand. The Forensic Biology Unit of the Honolulu Police Department is not unique in this regard. Without full staffing, the unit seeks to improve the efficiency of its processes. Unfortunately, efficiency improvements require time-intensive validation studies that strain the human resources of the unit.

To continue servicing the Honolulu Police Department and requests from outside agencies in a timely and efficient manner, the Forensic Biology Unit is seeking to (1) reduce case turnaround time and backlogs and (2) improve the capacity of the laboratory through more efficient instrumentation and procedures. To accomplish these goals, we seek funding in the amount of \$159,945 for two Criminalist positions to provide assistance with casework and validation studies. The remainder of the funds will be used to purchase software to alleviate the bottleneck of data interpretation.

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**FY09 Recipient Name:** Idaho State Police

**Award Number:** 2009-DN-BX-K104

**Award Amount:** \$163,922

**Abstract:** Project Goals and Objectives: The Idaho State Police Forensic Services' goals are to provide quality and timely scientific analysis of evidence as well as testimony to the law enforcement and criminal justice entities in Idaho. This project will provide equipment and technology to our forensic scientists, which will increase efficiency of current methodologies.

Project Plans: The Idaho State Police Forensic Services provides services to 88 police agencies, 44 sheriff agencies and all federal and state law enforcement agencies in the state of Idaho. According to the 2007 Crime in Idaho publication, the 108 participating law enforcement agencies reported a total of 20,834 violent crimes. The Idaho State Police Forensic Services Biology/DNA section is the only human forensic DNA lab in the state of Idaho. The unit consists of two qualified DNA analysts, one scientist qualified in the area of biological screening (currently in training for DNA analysis), one scientist currently in training for DNA analysis, and a database analyst. Our forensic scientists are relied upon for their advice and scientific expertise and there is an expectation that the Idaho State Police Forensic Services is keeping pace with scientific advances to best assist in the prosecution of the criminals and exoneration of the innocent.

Methodology: The funds requests in this application are for the purchase of equipment and technology for the Idaho State Police Forensic Services Biology/DNA program. Their description, uses and impact include:

- Upgrade the current 3130 used for database analysis to 3130xl. This will increase the current system from 4 capillaries and our ability to process one plate a day to 16 capillaries and the ability to process two 96 well plates.
- Purchase of SlicPrep 96 plates. These are the extraction plates utilized in database work.
- Upgrade of the BSD600 Puncher. These upgrades include a dust extraction system which will assist in reducing cross contamination; disk detector which will improve the overall reliability of the instrument; and plate upgrades such as the anti static plate holder which reduces the possibility of punched disks "jumping."
- Multi-dispense style pipettes eliminate the need for slower manual pipetting of individual samples. This will alleviate some of the analyst strain as well as increase the speed of pipetting into well plates for both casework and database.
- The addition of one centrifuge that matches instruments currently in use within the laboratory and will be used by a screening/casework analyst.
- The purchase of Cryoboxes for database reagent storage which require a consistent temperature.
- Purchase of refrigerator/freezer, freezer and a mini-refrigerator. These will be used for extract/plate storage as well as reagent storage.
- Purchase of a lab oven for use in database extraction. This will replace the water bath currently in use and will match the lab oven currently being used for casework.
- Purchase of a system that will provide direct printing on sample tubes. This will eliminate the time consuming task of manually labeling samples while also ensuring the labels are easy to read.
- Purchase of mobile tables, laboratory chairs and a blackout curtain which will be used in the DNA lab after a remodel (not funded by this grant) is concluded.

These proposals will allow the Idaho State Police Forensic Services Biology/DNA program to improve the quality and efficacy of current processes and to continue training in a very dynamic discipline.

All eligible DNA profiles will be uploaded to NDIS. All DNA analysis performed under this program will be maintained under the applicable federal privacy regulations.

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**FY09 Recipient Name:** DuPage County Office of The Sheriff

**Award Number:** 2009-DN-BX-K137

**Award Amount:** \$284,612

**Abstract:** This proposal is being submitted by the DuPage County Crime Laboratory as part of a multi-approach program to increase DNA testing efficiency and capacity. This will be accomplished through the validation of new DNA technology, the hiring of contractors to assist in work throughput, the purchase of new equipment, and the administration of continuing education for DNA analysts. Collectively, these initiatives will help to increase capacity as explained in this narrative.

The DuPage County Crime Laboratory is a division of the DuPage County Sheriff's Office in Wheaton, Illinois. The population of DuPage County is just under one million citizens. The crime laboratory is a full-service facility that conducts forensic testing of evidence in cases occurring within DuPage County and prosecuted within the 18<sup>th</sup> Judicial Circuit of Illinois. Over the last several years, demand for DNA testing services has increased considerably, particularly with regards to the increase in samples per case.

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**FY09 Recipient Name:** Illinois State Police

**Award Number:** 2009-DN-BX-K128

**Award Amount:** \$2,561,512

**Abstract:** The Illinois State Police (ISP) provides forensic science services to approximately 1,200 criminal justice agencies located throughout the State of Illinois. The ISP Forensic Science Laboratory System is comprised of eight operational laboratories and a Research and Development Laboratory. Each operational laboratory is tasked with providing forensic analysis of evidence collected from crimes which occur within their specific geographical region. The ISP is committed to quality assurance, and maintains International Organization for Standardization (ISO) 17025 accreditation through the Forensic Quality Services International or FQS-I. Additionally, the ISP laboratories that provide DNA services undergo external audits approximately once every 2 years in accordance with the DNA Quality Assurance Standards (QAS) for Forensic DNA Testing Laboratories.

Over the past several years, the ISP has utilized various strategies to address the forensic biology/DNA case backlog. Federal funds have been used to outsource forensic biology/DNA casework to an accredited contract laboratory, to hire contractual evidence technicians/administrative support staff and to provide overtime compensation to ISP staff directly engaged in the handling, screening and analysis of forensic DNA evidence. Federal funding has also enabled the ISP to improve the infrastructure and analytical capacity of the

DNA laboratories. Federal monies have been used to procure DNA analytical equipment, to renovate existing laboratory space in an effort to improve casework flow and efficiency, and to assist the ISP in implementing automation tools and techniques in DNA casework.

Despite utilizing the aforementioned strategies, the Illinois State Police continues to deal with ever changing staffing issues and increasing case submissions. The ISP is on track with streamlining aspects of the DNA analytical process by implementing automation protocols in several ISP DNA laboratories. In order for the ISP to achieve the goal of reducing the overall turnaround time for handling, screening, and analysis of forensic DNA samples, increase the DNA throughput and reduce the existing DNA forensic casework backlog, the ISP must continue to utilize various resources, i.e., state and federal funding, training, etc., to address the current and future demand for DNA analysis services.

The ISP is proposing to use funds from this program to provide overtime compensation, in accordance with the applicable provisions of the Office of Justice Programs (OJP) Financial Guide, to laboratory employees directly engaged in handling, screening, analyzing and reviewing forensic evidence that may contain DNA, and to purchase supplies for in-house forensic DNA casework analyses, including biology supplies needed to prepare samples for DNA analysis, at all ISP laboratories performing biology/DNA analysis.

The use of federal funds, in conjunction with ISP resources, will serve to improve and enhance the analytical processing capacity and DNA throughput of the ISP forensic science laboratory system. The implementation of the proposed plan to utilize funds to provide overtime compensation and to provide the necessary supplies to process forensic biology/DNA casework samples will accomplish the following:

- Improve DNA analysis capacity of the ISP forensic DNA laboratories.
  - Reduce the ISP forensic DNA case backlog, and/or the turnaround time.
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**FY09 Recipient Name:** Northeastern Illinois Regional Crime Laboratory

**Award Number:** 2009-DN-BX-K131

**Award Amount:** \$284,613

**Abstract:** The grant will address two general objectives that will provide improved DNA analysis for our agencies for both the near term and future capabilities. Capacity and backlog/turn-around will be improved through the purchase and validation of a QIAgility System with HEPA/UV capacity. The QIA will be used in conjunction with other automated and DNA equipment purchased with previous DNA grants. The QIA is an automated liquid handler for use in PCR setup for quantization and amplification of biological samples. Some smaller equipment includes a mounted light source to visualize biological samples, a document/scanner, temperature data recorders, and a digital camera with a printer to improve documentation of submitted evidence. An important aspect of the grant is the support to purchase supplies. For each of the last 8 years the amounts and costs of DNA supplies have increased. Our lab has recently experienced several multiple homicides. In the past only a few samples needed to be tested. However, both the prosecution and defense are requesting additional testing. A recent multiple homicide submitted to our lab will require between 200-300 samples to be tested. Law enforcement also requests more testing than in the past. Without the support of these DNA

grants these requests could not be supported. The grant will support the hire of a part-time DNA analyst employee for duration of the grant (18 months). The hire is a continuation of the 2008 grant that will not support the hire for more than 6-7 months. The hire will work 30 hours/week. The lab will absorb the costs of the additional head count after this grant expires. The metrics will include the completion of 90% of all DNA cases within 40 days of submission. Crimes against persons will have priority and 90% of the cases will be started within 21 days of submission and completed within 30 days. Unexpected increases in submission may adversely impact these objectives, but even with case increases of 20-30% these objective should be attainable with the projected staffing, robotics and other equipment. The grant will also provide the support needed to expand technical abilities.

The grant will increase capacity, and simultaneously address improving turn-around time. Adding resources of head-count have the largest impact in both capacity and backlog. Supplies are needed to test the additional cases. There is an inverse relationship between supplies and backlog. LIMS augmentation will enhance the report writing capacity. It is also a quality improvement. Another robot for DNA quantitation and amplification will improve capacity and backlog. Training will expose the examiners to current trends in the field.

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**FY09 Recipient Name:** Indiana State Police

**Award Number:** 2009-DN-BX-K119

**Award Amount:** \$580,160

**Abstract:** Project Goals and Objectives: The goal of this proposal is to present a plan that will improve the DNA case turnaround time, reduce the DNA backlog and enhance the DNA analysis capacity of the Indiana State Police Laboratories.

The objective is to use a multifaceted approach to achieve these goals. Overtime, equipment, DNA outsourcing and maintenance contracts, and training will be used to improve the efficiency of the Biology Section.

**Project Design:** The Indiana State Police Laboratory (ISP) has developed a comprehensive DNA backlog reduction program. This program uses overtime, new equipment, DNA outsourcing and maintenance contracts, and training to impact the DNA backlog and reduce DNA case turnaround time.

ISP analysts will use overtime to analyze cases in-house and to review DNA data from outsourced cases and/or offender samples. After review, suitable DNA profiles will be entered into CODIS.

Equipment funds will be used to purchase and validate a DNA automation system to improve DNA analysis efficiency.

Contract funds will be used to provide annual maintenance of DNA equipment and the LIMS system. Routine maintenance keeps instruments operating efficiently and reduces downtime cause by breakdowns. Criminal paternity data will be outsourced for interpretation and statistical evaluation.

Travel funds will provide training and continuing education for all 52 DNA analysts and supervisors. Training improves efficiency and case turnaround times. A site visit will be conducted at Orchid Cellmark, a vendor laboratory.

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**FY09 Recipient Name:** Indianapolis-Marion County Forensic Services Agency

**Award Number:** 2009-DN-BX-K129

**Award Amount:** \$386,773

**Abstract:** Project Goals and Objectives: The goal of this proposal is to present a plan that will reduce DNA case turnaround time, increase the throughput and reduce the DNA casework backlog, in addition to, enhancing the capacity of the Indianapolis-Marion County Forensic Services Agency to analyze DNA samples efficiently and cost effectively.

The objective is to use a combination of new equipment; employee training and development; maintaining equipment and ASCLD/LAB licensing; supplies for scientists to analyze backlogged cases; DNA case outsourcing, an internal ASCLD/LAB-ISO audit; computer software, and equipment validation. These purchases and services will enhance the laboratory's ability to reduce DNA case backlog and turnaround time.

Project Design: The purchase of new equipment and software will provide a more efficient method of analysis for the Biology Section. Employee training and development will provide the necessary tools to maintain and improve qualifications of the forensic scientists. Supplies purchased to provide a portion of the supplies needed to analyze DNA cases will continue the reduction of backlogged cases. The ability to outsource cases to an accredited private laboratory will assist in the reduction of backlogged cases and improve efficiency. The acquisition of an equipment validation contract, by an outside vendor, will allow forensic scientists the time to focus on case analysis instead of the time consuming task of validating new equipment. A contract between the agency and an individual with audit expertise, to act as part of the in-house assessment team in the performance of an internal audit, will benefit the laboratory in maintaining current ASCLD/LAB-ISO accreditation. An annual audit assessment is required by the ASCLD/LAB accrediting body to ensure all ISO 17025/DAB criterions are being met. Grant funds will be used toward service contracts, which will allow for optimization of instrumentation, thus improving efficiency.

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**FY09 Recipient Name:** Johnson County Kansas

**Award Number:** 2009-DN-BX-K105

**Award Amount:** \$385,084

**Abstract:** Over the past nine years, requests for services in the Biology section of the Johnson County Criminalistics Laboratory (JCCL) have increased dramatically; therefore, the need for additional staffing and infrastructure has increased as well. An increase in property crime and violent crime against persons in Johnson County during this timeframe has necessitated the creation of the JCCL Crime Scene Unit. This dedicated Crime Scene Unit and advances in DNA technology that allow "touch DNA analyses" has contributed to an increase in the number of submissions to the Biology section. The goal of the JCCL is to provide quality DNA analyses with a reasonable turn-around-time, while minimizing the backlog of cases that need biological processing and DNA analysis.

Over the past four years (2005-2008) the Biology section has experienced sharp increases in examination requests for biology processing and DNA analysis. Biology and DNA examination requests have increased by 224% and 298% respectively (Table 1). During the same time frame, the productivity of the Biology section has steadily increased. The number of Biology and DNA examinations completed has increased by 15% and 84% respectively (Table 2). These increases can be attributed to grant funding for additional staff (two FTE's), overtime, and technology upgrades.

Table 1 – Exam Requests

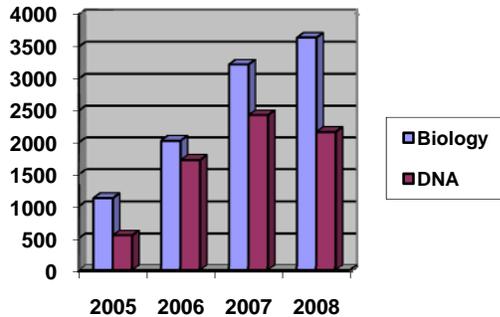
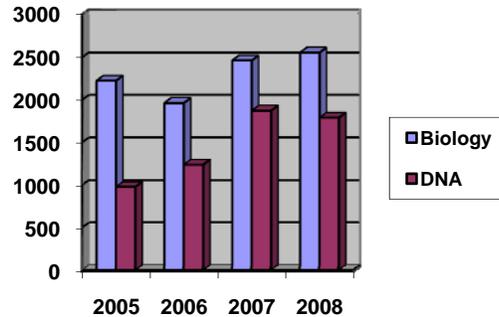


Table 2 – Items Examined



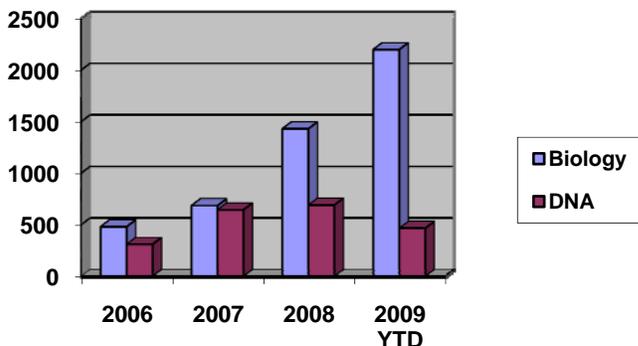
Even though the Biology section has increased its productivity over the past four years, it has not kept pace with the demand for timely biological and DNA analyses. The backlog of biology items and DNA samples waiting for analysis continues to grow. This backlog of evidentiary items for biological processing and DNA analysis has increased by 198% and 123% respectively from 2006 to 2008 (Table 3). As of May 29, 2009, the Biology section had a biology processing backlog of 2198 items and a DNA backlog of 465 items. The current statistical trend in 2009 projects the biology processing and DNA backlogs to be 3362 items and 312 items respectively by Sept. 1, 2009.

Continual improvement to the overall efficiency and effectiveness of the Biology section relies upon additional infrastructure (automation/instrumentation) and personnel. If the requested funding from the FY2009 Forensic DNA Backlog Reduction Program (October 1, 2009 – March 31, 2011) is awarded to the JCCL, it will result in increased productivity, increased throughput, and reduce the Biology/DNA casework backlogs. The funding will be used to retain two current grant funded positions and add a third grant funded position for biological processing and DNA analysis of casework samples.

The Biology section will upgrade its infrastructure by purchasing a new 3130 Genetic Analyzer. This will be the second 3130 purchased to enhance the capacity and throughput for DNA analysis. The 3130 Genetic Analyzer has four capillaries and can analyze four DNA samples in one-half hour versus current 310 Genetic Analyzer which analyzes one sample per one-half hour. The 3130 will increase the throughput and decrease the turn-around-time on DNA results. The Biology section will need to purchase a 9700 Thermal Cycler to increase the overall efficiency of the DNA analytical process. An additional Thermal Cycler in the DNA laboratory will help to prevent delays in getting samples ready for the more efficient 3130 Genetic Analyzers.

The Johnson County Sheriff's Office Crime Laboratory has been working in cooperation with the Kansas Bureau of Investigations (KBI) and the Sedgwick County Regional Forensic Science Center (SCRFSC) for DNA Backlog Reduction Program grants. The KBI and JCCL will be requesting funds from the FY2009 DNA Backlog Reduction Program grant. According to the KBI point of contact, the SCRFSC is not seeking funds through this grant. In 2007, Johnson County accounted for 9.5% of all UCR violent crimes and 12.7% of all UCR property crimes in the state of Kansas. The 2008 UCR data has not been reported by the state at this time.

Table 3- Backlogged Items



Funds are being requested from the Fiscal Year 2009 Forensic DNA Backlog Reduction Program to cover the salaries and benefits of three full-time positions for the Biology section of the laboratory. Available funds for personnel will cover 100% of the approved salary and benefits for each staff member. These three positions will be titled Forensic Scientist II. Forensic Scientists have the ability to perform biological screening and DNA analysis to determine who could be the source of a particular biological material. By having all incoming cases screened for biological material and subsequent DNA analysis with these three grant positions, JCCL can improve by producing shorter turn-around-times, maintaining acceptable backlogs, and increasing productivity. (\$231,321)

Funds are also being requested to upgrade the basic infrastructure of the DNA laboratory by purchasing (1) 3130 Genetic Analyzer (\$88,003), (2) 9700 Thermal Cyclers (\$8000 each) and (2) Maxwell 16 Robots (\$24,880 each).

**FY09 Recipient Name:** Kansas Bureau of Investigation

**Award Number:** 2009-DN-BX-K122

**Award Amount:** \$188,061

**Abstract:**

Project Goals:

1. Ensure that all backlog cases in Kansas are processed for the presence of biological material and properly analyzed with STR technology and the results eligible for upload are entered into CODIS.
2. Generate investigative leads or possible suspects for 'no suspect' cases through the use of CODIS.

Project Objectives:

1. Improve DNA analysis capacity of forensic laboratory.
2. Reduce backlogs of all case types.

**Problem:** In order to achieve these goals, cases must be screened for the presence of biological material and processed through DNA testing, in a timely manner, which with the current staffing is near that state. The DNA analysis must be completed and the results entered into CODIS. Currently the DNA analysis is not being completed within a timely fashion. While the staff is near the end of the training of five more analysts, we are in desperate need of more automation and upgrades of equipment. With the addition of a 3130 genetic analyzer to the Topeka laboratory and with the addition of small robots, i.e. Maxwell 16's, to each laboratory for automated extraction of biological known samples and high DNA samples will increase the number of cases analyzed more efficiently and more timely. This proposal would allow the KBI Forensic DNA Laboratories of Great Bend, Topeka and Kansas City to provide the necessary funding to decrease turnaround time in generating a DNA profile for CODIS entry.

**Design and Methods:** To decrease the DNA cases currently backlogged at the Kansas Bureau of Investigation, there are several steps that can aid in alleviating this backlog:

1. By September 2009, there will be seven DNA analysts on staff in the Topeka Laboratory. The current genetic analyzers are 310's and one 3130 in validation. With the appropriate funding for another 3130, it will allow the DNA analysts to more quickly analyze the samples. Also with new, more ergonomically friendly single channel pipettes and multi-channel pipettes funded this will decrease analyst time with plate set up.
2. The smaller footprint robots, i.e. Maxwell 16's, will allow the DNA analysts at all the KBI laboratories to extract some samples with little hands on with the samples. This frees the DNA analysts to report out results in a more timely fashion, which in turn will allow eligible samples to be entered into CODIS in a more timely fashion.

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**FY09 Recipient Name:** Commonwealth of Kentucky

**Award Number:** 2009-DN-BX-K064

**Award Amount:** \$571,663

**Abstract:** The Kentucky State Police Forensic Laboratories began offering DNA analysis to the Commonwealth of Kentucky in 1989. During the 20 years that DNA analysis has been performed at the Kentucky State Police Forensic laboratories many technological advances have occurred in DNA analysis. Along with these technological advances, procedural changes have been implemented to accommodate the ever advancing science of DNA analysis. Current evaluations have identified three procedural areas in the laboratory that are causing inefficiencies in regard to DNA analysis. The first is a shortage of microscopes that aid in the identification of sperm cells. With the addition of this equipment, more efficient means of screening cases could be performed which would increase the timeliness of determining what evidence is suitable for DNA analysis. Second, is a lack of analytical time dedicated to processing cases. More cases are being submitted to the laboratory that request DNA analysis and in a wider variety of case types. Evidence is being collected and submitted for DNA analysis in all types of cases. This trend leads to larger backlogs and longer turnaround times (TAT). Third is a lack of screening areas for the casework section. The objective is to expand the floor plan of the casework section. Additional space will soon be available and renovations will be performed to create more lab

space that will allow for more efficient means of screening evidence for suitability for DNA analysis.

By providing additional overtime (OT) hours, additional equipment, and renovations, the Kentucky State Police Forensic Laboratory Casework Section anticipates that the TAT will decrease along with the number of backlogged cases.

The DNA Database Section has actively been processing offender samples in-house since 2006 and has identified areas in the analytical process that could be improved. First is the existing punch which is used to take a cutting of the offender samples. This procedure can create sampling problems which require reprocessing of entire plates. An upgrade is available for this instrument that could help minimize the procedural issues. Second is that the extraction method while adequate, could be updated to a newer technology which would reduce the time and cost of the analysis. Third, the influx of offender samples will greatly increase the workload on the CODIS server and computers, creating concerns about meeting the future capacity requirements. To proactively address this coming issue the current CODIS server and computers would be replaced with new equipment that will be capable of handling the projected increase in sample numbers. By providing upgrades of existing equipment and the evaluation of alternate extraction methods, the Kentucky State Police Forensic Laboratory Database section anticipates that the time required for upload to CODIS will decrease along with the number of backlogged samples awaiting DNA analysis.

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**FY09 Recipient Name:** Louisiana State Police

**Award Number:** 2009-DN-BX-K087

**Award Amount:** \$1,430,733

**Abstract:** The goals of this project are to reduce the forensic DNA case/sample turnaround time, increase throughput of current public DNA laboratories, and reduce forensic DNA backlogged cases. These goals will be accomplished by:

- i. providing DNA analysts with newer, more efficient instrumentation by:
  - replacing older equipment with faster, more efficient instruments;
  - purchasing additional equipment to increase efficiency by reducing instrument wait times; and
  - purchasing new state of the art instrumentation and available software to develop enhanced methods of analyzing evidence.
- ii. incorporating new methods and procedures to increase capabilities and reduce sample analysis times by:
  - developing procedures which will enhance analysis of difficult and low copy number samples, optimizing the analysts' time;
  - improve accessioning and tracking of DNA samples to assure the reduction of duplication;
  - developing new, state of the art procedures for new capabilities; and
  - improving procedures on new instruments which will decrease analysis time.
- iii. providing continuing education to increase analysts' knowledge and skill levels; and
- iv. outsourcing of qualifying cases/samples to increase laboratory case output by using trained analysts to perform the testing.

In the 2009 solicitation allocation table, the state of Louisiana is estimated to receive an aggregate amount of \$1,430,733.00. It is our intent to share these funds corporately among the six accredited public laboratories performing DNA analysis. Our anticipated breakdown is as follows:

• Louisiana State Police Crime Lab	\$326,307.00
• North Louisiana Criminalistics Laboratory	\$267,247.00
• Acadiana Criminalistics Laboratory	\$243,225.00
• Jefferson Parish Forensic Science Center	\$214,610.00
• Southwest Louisiana Criminalistics Laboratory	\$200,303.00
• St. Tammany Parish Coroner's Office	\$178,842.00

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**FY09 Recipient Name:** City of Boston

**Award Number:** 2009-DN-BX-K154

**Award Amount:** \$312,794

**Abstract:** The FTD is steadily accomplishing its various objectives in the attainment of the overall goals.

The objectives, as part of the overall plan for the Division, are: To maintain high quality services and improve the overall efficiency of the BPD Crime Laboratory's DNA Section; To improve coordination and tracking of cases across units and investigators; To maintain low DNA casework backlogs and turnaround time. As part of the BPD Crime Laboratory's overall plan to meet its goals and objectives outlined above, it is critical to maintain both the independent contract DNA Analyst and Forensic Technician to meet its demands in 2009 and 2010 in reducing backlogs maintaining its ability to analyze casework in a timely manner. The responsibilities of the contracted analyst include screening potential DNA evidence, performing DNA extraction, quantitations, PCR amplifications, genotyping, data interpretation, and report writing/review. This contractor also assists the DNA laboratory on the cold case project, locating and reviewing case files, locating archived evidence, processing and screening cold cases involving no suspect contact rapes, and identifying potential biological material for DNA analysis.

The Forensic Technologist performs routine and specialized forensic examination of physical evidence containing blood, other biological fluids or tissues/cellular material. The Technologist documents physical evidence through photography, descriptions and notes, performing screening tests for biological evidence suitable for DNA analysis.

An evidence management and tracking system is a critical need for the Boston Police Crime Laboratory in coordinating with the rest of the Forensic Technology Division in responding to extremely high case loads, increases in violence, and a City's need to rely more heavily on forensic capabilities to lower crime. The Boston Police Department has funds in the 2008 DNA Backlog Reduction Grant program to purchase and place a Laboratory Information Management system (LIMS) as a significant step towards the improvement of intra- and inter-agency communication as well as the enhancement of overall productivity in forensic science services. Funds under the 2009 DNA Backlog Reduction grant program will allow us to supplement the existing efforts in the purchase and enhancement of the LIMS.

The *Forensic DNA Backlog Reduction Grant Program* serves to advance the overall quality, efficiency and productivity that the BPD Crime Lab delivers to the BPD and the SCDAO, particularly during a period of staffing and fiscal challenges. Over the years, NIJ grant funds have been instrumental in the BPD Crime Laboratory's ability to enhance its performance.

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**FY09 Recipient Name:** Massachusetts State Police

**Award Number:** 2009-DN-BX-K123

**Award Amount:** \$958,640

**Abstract:** The Massachusetts State Police Forensic Services Group, MSPFSG, is committed to providing quality forensic services. The DNA Unit at the MSPFSG continues to strive to decrease the turnaround time and backlog of cases while increasing the number of samples analyzed by each DNA analyst monthly.

The MSPFSG proposes the following initiative to enhance the capacity of the DNA Unit: 1) Infrastructure improvements of replacing old computers with new computers and scanners to quicken data retrieval and review; 2) increasing throughput by purchasing, validating and placing on line nine extraction robots; 3) decreasing turnaround time with improved data transcription by expanding the DNA matrix worksheets and reports which will move data electronically instead of manually; and 4) increasing capacity by specialized training on troubleshooting the instrumentation in use in DNA Unit, training on TrueAllele® and training on advanced DNA analysis topics which will allow less instrument down time and more throughput by a highly trained staff.

The MSPFSG proposes to decrease case backlogs by: 1) Hiring two temporary DNA technicians to assist at handling, screening and preparing samples for analysis and validating new technology; and 2) Sending to an external vendor 354 samples from 300 cases for DNA testing. The combined capacity enhancement initiatives and the backlog initiatives will assist the MSPFSG at reducing case backlogs, decreasing the turn around time and increasing throughput. These improvements will allow the MSPFSG to continue to serve the law enforcement community in the state by offering quality DNA forensic services.

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**FY09 Recipient Name:** Anne Arundel County MD

**Award Number:** 2009-DN-BX-K055

**Award Amount:** \$132,000

**Abstract:**

a) Project Goals / Objectives:

- i) Support continuing increase in casework productivity of the Forensic Biology Unit to eliminate the existing case backlog thereby decreasing the overall turnaround times for newly submitted Forensic Biology cases through retention of the existing temporary grant-funded analyst;
- ii) Support continuing use of CODIS function through replacement of the existing database hardware and software systems due to repeated malfunctions that negatively impact casework productivity and severely risk permanent data loss;
- iii) Support continuing increase in casework productivity by acquiring the necessary

Temperature Verification Unit needed to validate and implement the newly-acquired higher capacity thermalcyclers for casework use.

b) Project Design and Methodology:

The purpose of the Anne Arundel County Police Crime Lab (AACoPCL) 2009 DNA Backlog Reduction Program Formula grant proposal is to provide a means to enhance the support of current operations to achieve an overall increase in casework productivity. As such, the expected decrease in the Unit's case backlog will significantly improve case turnaround times for new submissions. The increase in overall casework productivity of the Unit will be accomplished by: 1) extending the employment of an existing grant-funded temporary contractual analyst position for another period (18 months), 2) replacing a faulty and inadequate server and associated software used with the CODIS DNA database system, and 3) acquiring the compatible temperature verification unit for validating and maintaining required calibration checks on the new thermalcyclers.

The Biology Unit backlog is expected to continue to exceed 200 cases through September 30, 2009 with turnaround times averaging up to 200 days. It is expected that the backlog will noticeably level off then begin to decrease throughout 2010 with the on-going case output contribution of the third analyst who remains grant-funded through at least March 2010 (alternate funding source). Submissions will have stabilized from the spike noted with the substantial influx of property crime cases that occurred last year. As the backlog diminishes with the case output by the additional analyst, the overall case turnaround times will decrease to less than 100 days per case for future case submissions that can be prioritized and examined in a timelier manner. The goal targets at least six or more DNA cases to be completed per month per analyst representing a minimum of 12 (not including controls) or more evidentiary DNA samples processed monthly by each of three analysts over the grant period. Experience has shown the number of DNA samples able to be processed however far exceeds this minimum case specimen value due to case batching techniques. Since the laboratory does not currently impose limits on the number of items that can be submitted for analysis in a case, the actual average number of DNA samples analyzed and tracked using the LIMS per analyst per month regularly approaches 40-60 specimens which includes the controls run. This amount represents most cases actually having more than 1-2 evidentiary specimens for at least 6 DNA cases expected for completion each month per analyst, hence 12 sample minimum for example cited. Furthermore, case batching for analysis allows use of 'shared' control samples so there tends to be more evidentiary samples typically included among that 40-60 sample amount run monthly by each analyst.

The additional analyst currently contracted to perform the job duties has already completed the necessary training and is performing independent casework under alternate grant funding sources. Since being certified to perform independent casework analyses, this analyst has produced over 40 percent (>60cases, 42 of which involve DNA analysis) of the total case analysis output (149 cases comprised of 226 DNA specimens analyzed) for the Unit to date in 2008. The remaining 60 percent of the case output is only currently possible due to the shared ancillary duties this additional analyst contributes thereby allowing greater flexibility for all analysts to optimize individual case flow and time management.

The server needs replacement due to extensive troubleshooting of both software and hardware issues that have escalated over the past year. The CODIS Manager as well as CODIS and Police Department IT personnel have attempted to make various upgrades and patches to the existing configuration and are unable to do so. System malfunctions and limitations therefore cannot support the necessary repairs or enhancements. A significant issue is the malfunctioning backup hardware that prevents current data retention in the likely event of a total system failure. Given the scope of error messages and problems thus far encountered, replacement of the entire unit is critical. This is strongly supported by the CODIS Bulletin (#BT070907) issued stating that “The FBI CODIS Unit requests that all NDIS... participating laboratories immediately initiate planning and budgeting for hardware and software upgrade.” A three year replacement schedule is recommended by the FBI although the existing unit is over five years old. Replacement of the existing CODIS system will allow the CODIS Manager, who is also a caseworking analyst, to readdress casework examinations instead to further assist with the backlog reduction effort. All eligible DNA profiles will be entered into the local LDIS CODIS database with subsequent upload of relevant DNA profiles to SDIS/NDIS as appropriate. All DNA profile information derived or stored at the Anne Arundel County Police Department Crime Laboratory is subject to the full scope of Departmental and Federal confidentiality measures of forensic evidence materials and information.

Two upgraded DNA thermalcyclers were acquired via alternate grant funding. In order to validate these instruments for casework use and maintain the appropriate quality checks and scheduled maintenance, a temperature verification unit is used to test the temperatures in the wells of the heat block. These units are specific to the thermalcycler model based on the size and shape of the probe attached such that the existing unit in use cannot be used on the new models. The upgraded models represent a significant increase in specimen capacity due to higher capacity heat blocks in each and there are two of them which creates significantly increased flexibility for coordinating analytical schedules among the three analysts currently competing for the single lower-capacity thermalcycler in use. This would alleviate this bottleneck in overall Unit productivity to again allow a greater number of cases to be completed more quickly for backlog reduction. All of these measures together will ensure that over 350-400 additional cases are completed during the 18 month project period versus simply remaining in the backlog that will quickly exceed 400 unassigned, and therefore unanalyzed, cases plus the analysts’ assigned existing caseloads.

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**FY09 Recipient Name:** Baltimore County Maryland

**Award Number:** 2009-DN-BX-K061

**Award Amount:** \$245,479

**Abstract:** The goal of this project is to increase the capacity of DNA analysis and the overall efficiency of the Biology Unit by continuing the project proposed in the NIJ DNA Capacity Enhancement Grant awards received by this agency in 2004 (2004-DNBX-K132), 2005 (2005-DA-BX-K008), 2007 (Forensic DNA Backlog Reduction Program 2007-DN-BX-K112), and 2008 (Forensic DNA Backlog Reduction Program grant award 2008-DN-BX-K024.) This goal of increasing both capacity and efficiency will be accomplished by achieving three objectives: 1) continue to increase the capacity and amount of automation in the current case analysis

procedures, 2) implementation of software that reduces the amount of time that analysts need to expend in order to finalize validation projects as well as update and track written documents, and 3) to provide additional infrastructure support to the increased number of personnel of the Biology Unit and the currently renovated expanded laboratory space.

Since the Baltimore County Police Department Forensic Services Section Biology Unit was established in 1995, the physical space of the Biology Unit has significantly increased. The Biology Unit has grown from one “biology lab” for two analysts, to seven positions, including a supervisor/technical leader, four analysts and two existing vacancies, and a laboratory consisting of a serology examination laboratory, a newly expanded DNA extraction laboratory to accommodate the placement of robotics, two amplification laboratories, and modification of the administrative area to perform duties related to CODIS.

To further automate the DNA analysis process beyond the extraction step, the set up of PCR and Quantification reactions will be conducted on the QIAgility robot. Outside validation support will be acquired to ensure that the validation is done expeditiously and therefore bring the instruments online quickly. Implementation of the Applied Biosystems Quant Duo™ Kit will facilitate the amplification process by reducing the time spent conducting multiple amplification and CE loading strategies. The addition of GMID-X software will greatly facilitate the data analysis process, and the addition of the VALID software would smooth the progress of collection, analysis and summarization of validation and quality control data. Building on existing equipment by the addition of camera systems on the compound microscopes for the detection of single sperm, as well as the additional purchase of small equipment such as pipettes and microcentrifuges, will make analysis more efficient. The utilization of document control software will properly track the numerous documents produced in the laboratory and assist in the process of ISO 17025 accreditation. Finally, continuing education to conferences outside the local area will be provided for three analysts.

All requested funding is to be used for additional instruments, upgrading equipment, validation of the new equipment and training of current personnel. This will allow for more efficient analysis, resulting in a ten percent increase in the number of samples analyzed per analyst per month and a ten percent decrease in turn around time for results.

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**FY09 Recipient Name:** City of Baltimore

**Award Number:** 2009-DN-BX-K096

**Award Amount:** \$438,696

**Abstract:** Excessively high-crime has plagued the City of Baltimore for many years. The current administration, lead by the Honorable Sheila Dixon, has vowed to reverse the culture of violence through innovative strategy, collaborative efforts, and prosecutorial might. To that end, a primary focus has been the Baltimore City Police Department’s Crime Laboratory [BPD-CL], specifically as it relates to DNA analysis. While the BPD-CL contains a commended, accredited, full service DNA laboratory, processing this type of evidence is costly and time consuming.

Moreover, thousands of cases remain in backlog awaiting DNA analysis. The proper collection, testing, and matching of these samples are critical to the effective administration of justice. Unfortunately, ever-shrinking fiscal budgets, increased demand, and low staffing levels conspire to reduce the BPD-CL's DNA program's effectiveness.

The goal of this project is to reduce the backlog of DNA evidence awaiting analysis. The practical application of this effort will be the hiring of two casework technicians, the addition of a Qiagen Symphony isolation robot, and the overtime and reagents necessary to perform the screening and analyses. The acquisition of these resources will satisfy two goals; one, the reduction of actual DNA backlogged cases, and two, a BPD-CL that is "freed up" to aggressively pursue the current caseload with innovative approaches and thus professionally serve the more than 650,000 residents of Baltimore City.

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**FY09 Recipient Name:** Maryland State Police

**Award Number:** 2009-DN-BX-K060

**Award Amount:** \$351,908

**Abstract:** The Maryland State Police Forensic Sciences Division (MSP-FSD) requests funds to reduce forensic DNA sample turnaround time, increase throughput of the DNA laboratory, and reduce the DNA casework backlog within the Forensic Biology Section. MSP-FSD eliminated its DNA database backlog in 2007. This was accomplished by the outsourcing of database samples to a vendor laboratory followed by data review and entry into CODIS by MSP-FSD staff. The current focus of MSP-FSD is to eliminate the current casework backlog, to accommodate the increased number of database samples associated with new database legislation, and to ensure that the lab is compliant with national and international quality assurance standards.

There is currently a backlog of 500 cases and funds to outsource 250 of them have previously been obtained via the NIJ 2004 Casework Backlog Reduction Program. This outsourcing has commenced and will be completed by September 2008 leaving a projected backlog of 250 cases at that time. Simultaneous to the current outsourcing of casework, efforts are underway to make the in-house testing capabilities as efficient and cost-effective as possible. This is being accomplished through the implementation of an automated testing platform within the Forensic Biology laboratory consisting of automated sperm searches using the Independent Forensics Sperm Hy-Liter system, automated DNA extraction using Qiagen Qiacubes, and automated RT-PCR and PCR setup using Corbett CAS workstations. It is anticipated that the validation of this automated testing platform will be completed by September 2008 and therefore a significant amount of the remaining backlog should be eliminated in-house. It is projected that 100 cases will still need to be outsourced through this grant to eliminate the casework backlog.

Furthermore, the review of outsourced cases tends to be a significant bottleneck. Therefore this request is for funding that will provide for an external consultant to reduce that bottleneck by reviewing cases that cannot be uploaded to CODIS.

The recently concluded Maryland General Assembly passed a bill that requires DNA database samples to be collected from certain arrestees in addition to the currently collected convicted offenders. While the majority of items associated with this new law will be secured through

other funds, there currently is no means for securing extra file cabinets to store the influx of database cards that will accumulate in the upcoming years.

Lastly, MSP-FSD is an ASCLD/LAB accredited facility and in order to maintain that accreditation it is necessary to ensure that all quality assurance needs are being addressed. Some needs that are currently not sufficiently provided for in the MSP budget are training events, journal subscriptions, texts, and pipette calibrations.

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**FY09 Recipient Name:** Montgomery County

**Award Number:** 2009-DN-BX-K085

**Award Amount:** \$100,663

**Abstract:** The Montgomery County Department of Police, Crime Laboratory, Forensic Biology Unit (MCCL FBU) is an ASCLD accredited local government crime laboratory conducting forensic DNA analysis for a population of 932,131 citizens of Montgomery County, Maryland. This project is to improve the forensic DNA service scope, reduce response time and the DNA case backlog by outsourcing validation of new forensic DNA analysis technology. Validation will be outsourced to an experienced accredited contractor to conduct precision and reproducibility studies using known and non-probative evidence samples as required by the FBI/DAB Quality Assurance Standards for Forensic DNA Testing Laboratories. The new technologies to be added are combined autosomal and Y-STR quantitation procedures and a Y-STR profiling system.

The validation will include both manual and robotic procedures in order to permit flexibility to optimize sample evidentiary potential, yet maximize output for those samples amenable to high throughput. Assistance will be provided for preparation of documentation manuals and training of DNA analysts in the new techniques. As a result, the time spent to complete validation and implement new technology will be dramatically reduced. Existing qualified casework analysts will be freed to continue casework through the majority of the validation, therefore the casework lab output will be greatly improved, and hence a casework backlog will be prevented or largely reduced.

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**FY09 Recipient Name:** Prince George's County

**Award Number:** 2009-DN-BX-K073

**Award Amount:** \$342,847

**Abstract:** PROGRAM GOALS AND OBJECTIVES: The Prince George's County Serology/DNA Laboratory, an ASCLAD-LAB accredited Laboratory is requesting funds under the *Forensic Casework DNA Backlog Reduction Program* for the purpose of outsourcing backlogged cases, overtime for screening and reviewing outsourced cases and installing a document management system.

The goal of this project is to outsource 225 DNA backlogged cases. Since the laboratory was allowed to enter profiles into the CODIS in February 2009 there has been an increased submission and request for services. With the present staff it is unlikely that a substantial reduction in the backlog can be accomplished without outsourcing funds and overtime funds for

the review of cases. Chronic staff shortages has aided in the inability of the laboratory to reduce its backlog. It is anticipated that a combination of outsourcing, in-house analysis and funding for reviews, the backlog cases can be reduced to a number below half of the present backlog of approximately 458 cases.

Additionally another goal is to acquire a document management system to streamline all the document of the serology/DNA unit. The present documents in the unit are located in various areas of the laboratory. The implementation of a document system will assist in the coordination of all the units administrative documents for audit purposes as well as ensuring that that the laboratory maintain proper security of its operation.

The main overall objective is to reduce the backlog of DNA cases to below half of the present approximately 458 cases. This project will allow analysts to begin screening samples and review previously outsourced cases. It will also allow for upload of suitable profiles into the combined DNA index system (CODIS) in a quicker manner than is being done presently.

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**FY09 Recipient Name:** Maine State Police

**Award Number:** 2009-DN-BX-K159

**Award Amount:** \$99,483

**Abstract:** The Maine State Police Crime Laboratory has experienced a significant increase in criminal DNA cases over the past several years. A current backlog of over 210 cases exists. Currently staffing output/analyst/year is 205. The Maine State Police Crime Laboratory has a 3 person, State-funded DNA staff and one grant funded DNA position (FY08 Forensic DNA Backlog Reduction Program). Current staffing is insufficient to keep up with case submissions. The anticipated backlog in October 2009 will be 220.

Utilizing past NIJ DNA Capacity Enhancement grants, the Maine State Police Crime Laboratory has been able to substantially increase the DNA unit's capacity. However, the Unit lacks personnel, as well as supplies, to tackle the backlog.

To maximize the Crime Laboratory's output, one full-time Forensic DNA Analyst would be hired for the twelve month grant period. The grant funded Forensic DNA Analyst is expected to examine/analyze an average of 17 cases per month. Optimally, this will result in 205 cases examined/analyzed during the twelve month life of this grant. The continuation of this position will prevent the case backlogs from nearly doubling during that twelve month period as well as a significant increase in turnaround time (currently at 45 days median).

Additionally, we are seeking funding for supplies needed in the testing of DNA cases. The Supplies required are QIAmp columns, Rotor-Gene kits, and Perkin Elmer 3130 genetic analyzer consumables.

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**FY09 Recipient Name:** State of Michigan

**Award Number:** 2009-DN-BX-K126

**Award Amount:** \$2,466,470

**Abstract:** The Michigan State Police (MSP) Forensic Science Division services all law enforcement agencies in the state of Michigan. Casework backlogs remain a challenge for the Division, due to an increasing volume of case submissions and staffing levels that are challenged to meet the growing demand for service. MSP requests FY 2009 Forensic DNA Backlog Reduction Program funding to reduce DNA casework backlogs and increase the throughput of its laboratory system.

MSP will utilize grant funding to: (1) provide payroll support for additional laboratory personnel; (2) make overtime available to laboratory staff directly engaged in handling, screening, and analyzing forensic evidence that may contain DNA for the purpose of backlog reduction; (3) purchase laboratory supplies for forensic DNA analysis and consumables required for the training of new DNA personnel; (4) contract with accredited fee-for-service vendor laboratories to conduct DNA analyses; (5) travel to contracted outsourcing laboratories to review practices and procedures; and (6) train new DNA analysts.

All DNA analysis performed under this program will be maintained under applicable federal privacy regulations and all eligible profiles obtained will be entered into the Combined DNA Index System (CODIS) and uploaded to the National DNA Index System (NDIS), when applicable.

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**FY09 Recipient Name:** Hennepin County, Minnesota

**Award Number:** 2009-DN-BX-K127

**Award Amount:** \$116,521

**Abstract:** Automation of the manual aspects of DNA extraction, amplification and data analysis has the greatest potential to increase sample through-put and reduce case backlogs and turn around times. With this funding the HCSO-CLU intends to purchase a 3130 Genetic Analyzer, and one (1) thermal cycler to increase the labs capacity to move samples through the final stages of DNA detection. Using earlier NIJ grant funds and the labs own resources, we have addressed the automation solution to many of the upstream DNA processes by installing equipment that automates the DNA extraction and PCR set-up portions of the DNA testing process. By purchasing a 3130 and an additional thermal cycler, the lab will have the final components in place to meet the sample processing needs of the laboratory for the near term. The final bottle neck to be addressed will be in the data analysis stage of DNA testing. The lab intends to address this problem in the future if additional funding is available.

A second issue that will be addressed with this funding is long term storage of DNA samples. Cold storage for DNA samples is limited and expensive; the lab intends to purchase a system for drying DNA samples so they can be preserved at room temperature.

Finally, the increase in sample processing capacity requires a co-commitment increase in supplies and consumables. The lab is requesting funds to purchase capillary arrays, liquid sensing pipette tips, and general lab consumables.

The HCSO-CLU anticipates a steady increase in the submissions of cases for DNA testing, driven in part by the success of NIJ funded DNA Field Experiment. With this funding of \$116,521 and the HCSO-CLU commitment to automating the DNA testing process we will significantly reduce case backlogs and turn around times for forensic DNA testing.

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**FY09 Recipient Name:** MN Department of Public Safety

**Award Number:** 2009-DN-BX-K158

**Award Amount:** \$568,899

**Abstract:** Project Goals and Objectives: The MNBCA is applying for funding through the Forensic DNA Backlog Reduction Program FY 2009. This application addresses two areas: The identification of backlogged DNA cases and the improvement of areas identified as bottlenecks and general inefficiencies in the DNA laboratory by increasing capacity/efficiency which will ensure the prevention of future backlogs.

Project Plans and Methods: The MNBCA will identify backlogged cases and work to expedite DNA analysis by making improvements to current LIMS procedures and utilizing current automation. Instrumentation improvements will allow higher throughput utilizing a smaller footprint. Scientist training will speed the introduction of new techniques. All of these improvements, once implemented will increase throughput and reduce turn-around time and current case backlogs.

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**FY09 Recipient Name:** MO Board of Police Commissioners

**Award Number:** 2009-DN-BX-K138

**Award Amount:** \$425,877

**Abstract:** The Kansas City, Missouri Police Department operates a Crime Laboratory that has experienced tremendous success with prior NIJ DNA Backlog Reduction grants and is committed to continuing that success with the FY 2009 *Forensic DNA Backlog Reduction Program – Kansas City* grant. Prior grants have focused on the identification and analysis of unsolved “cold” cases. The Kansas City Police Crime Laboratory (KCPCL) has been able to maintain its work in this area as new “cold” cases are reviewed and submitted to the laboratory. Backlogs still exist though in the screening and DNA analysis of regular cases. In addition, requests for analysis of property crimes have dramatically increased as field officers have gained training in the collection of biological samples and as the power of DNA evidence has become more widespread. The main objective of this grant program will be to expedite the DNA analysis of all pending casework such that the overall turnaround time, as well as the number of cases pending analysis decreases. These objectives will be met through the use of two grant funded criminalists in the Trace Evidence Section who will be responsible for screening cases for biological evidence. Criminalists in the Trace Evidence Section will also work overtime to screen additional cases for biological evidence. Qualified DNA analysts (including a grant funded DNA criminalist) will work overtime to perform DNA analysis on pending cases. Two contract technicians will perform many entry level tasks within the DNA Section as well as aid in the screening of biological evidence. In addition, several capacity enhancements will be addressed to help streamline and expand the capabilities of the DNA Section. Finally, a portion of the grant funds will be used for the validation of a new DNA technology in the laboratory.

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**FY09 Recipient Name:** Missouri State Highway Patrol

**Award Number:** 2009-DN-BX-K136

**Award Amount:** \$434,900

**Abstract:** The Missouri State Highway Patrol (MSHP) Crime laboratory provides PCR-STR DNA analysis on samples from crime scene evidence without cost to all law enforcement agencies within Missouri. The need for DNA analysis continues to increase at a rate greater than present funding and resources support. Our continuing goal is to increase the capacity of our DNA testing services by improving the efficiency of our analytical process and expanding service to other parts of the State.

The MSHP Laboratory's portion of Missouri available funds for 2009 has been calculated to be \$434,900. This amount is based on the Highway Patrol's portion (10,411 = 32.1%) of the State's 32,462 UCR, Part 1 violent crimes reported to the FBI in 2007. The Laboratory will use the awarded funds to purchase two 3130 Genetic Analyzers and laboratory workstations for the analysis of evidence, to cover our annual maintenance agreements for 10 instruments, and to hire consultants to assist us in the validation of our Tecan EVO 100 liquid handling system. It is expected that once implemented, these improvements will increase efficiency resulting in a time savings of between 10-20% and an increase throughput by 30%. Any remaining funds will be used for supply enhancements at the Jefferson City facility.

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**FY09 Recipient Name:** St. Charles County

**Award Number:** 2009-DN-BX-K134

**Award Amount:** \$31,915

**Abstract:** As DNA evidence continues to become more prevalent and valuable to criminal investigators, crime laboratories must have the ability to test the numerous and varied DNA samples submitted in an efficient and timely manner to maximize the usefulness of this valuable evidence. The continuing prudent use of available NIJ funding allows the St. Charles County Sheriff's Department Criminalistics Laboratory [SCCSDCL] to enhance and improve the services it provides to the law enforcement community of St. Charles County, Missouri.

The SCCSDCL's portion (\$31,915) of Missouri's aggregate amount (\$1,356,038) for the fiscal year 2009 Forensic DNA Backlog Reduction Program will be used to reduce its DNA backlog and increase sample throughput. This program will provide overtime funding for the laboratory's forensic scientists to screen, process and analyze evidence as well as validate new DNA technologies during the program period. A thermal cycler will also be purchased under this program to eliminate a bottleneck in laboratory's DNA analysis process.

Two goals of this program are to reduce the turnaround time for DNA cases to less than 75 days and to increase the average number of DNA samples analyzed per analyst to over 20 per month. Achieving these goals will increase the overall productivity and efficiency of the SCCSDCL - positively impacting the investigations and prosecutions of all laboratory cases, especially those with DNA evidence. This program will also strengthen the SCCSDCL's commitment to the local law enforcement agencies it serves.

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**FY09 Recipient Name:** St. Louis County

**Award Number:** 2009-DN-BX-K116

**Award Amount:** \$143,616

**Abstract:** An important objective of the St. Louis County Police Department Crime Laboratory is to provide more efficient and cost effective processing of forensic DNA samples. The Laboratory serves more than one million citizens and provides services to the St. Louis County Police Department, as well as 91 municipalities, 60 of which have their own police departments. The Biology/DNA Unit within the Crime Laboratory has seen a significant increase in the number of cases submitted for biological screening and DNA analysis each year due to the success of obtaining profiles from samples which would previously have not been submitted to the laboratory. The DNA/Biology Unit currently employs five qualified DNA analysts, one analyst that performs biological screening analysis, and one biological screening trainee with an anticipated training completion date of July, 2009. The biological screener and trainee position are both currently funded by the 2008 Forensic Casework DNA Backlog Reduction Grant. Maintaining these two grant funded employees with the 2009 Forensic Casework DNA Backlog Reduction Grant funding will reduce the turn-around time by freeing our qualified DNA analysts to pursue DNA cases.

The Biology/DNA Unit would like to add two additional part-time employees with grant funding. One part-time employee would work as an analyst in the biological screening unit; the other part-time employee would work as a technician. These new grant funded employees will be directly engaged in either, handling, screening, and analyzing forensic casework evidence that may contain DNA, or directly engaged in capacity enhancement-specific activities such as validating new DNA/Biology analysis technologies.

Without the continued support of the grant funded employees the DNA analysts will be required to spend the majority of their time in screening evidence and only doing DNA on cases set for trial. By maintaining two full-time analysts and adding two part-time grant funded employees all non-suspect cases submitted to the laboratory will be processed for DNA in addition to cases requested by the prosecuting attorney's office. This will result in an increase of eligible samples entered into the CODIS database as well as a decrease in the turn around time for DNA cases. Funding through the 2009 Forensic DNA Backlog Reduction Program will allow the St. Louis County Police Department to continue to provide efficient analysis of DNA cases.

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**FY09 Recipient Name:** St. Louis Metropolitan Police Dept

**Award Number:** 2009-DN-BX-K132

**Award Amount:** \$319,731

**Abstract:** Project Goals and Objectives: The goals of this project are simple. The St. Louis Metropolitan Police Department will perform biological screening and DNA analysis on any backlog case. The St. Louis Metropolitan Police Department reported a total of 7,654 Part 1 Violent Crime offenses which is 23.6% of the state of Missouri's total. The goal of the St. Louis Metropolitan Police Department is to screen and/or perform DNA analysis on evidence in at least 320 cases. If an eligible DNA profile is obtained, the profile will be entered into CODIS for national searching. By using additional employees and overtime funds to increase throughput, the backlog would be reduced creating a more efficient DNA laboratory. The overall objectives

will be to reduce the number of untested forensic casework samples, enter profiles into CODIS and obtain hits, and prosecute the suspects.

Proposed Project: The project will be designed in the following manner. A biological screening will be performed on the backlog cases, and DNA analysis will be performed on the backlog casework samples. The CODIS administrator will oversee the importing of all eligible samples. The CODIS administrator will also perform uploads to the State CODIS Administrator for searching against the state and national databases. If a hit has occurred or a suspect is confirmed, the St. Louis Metropolitan Police Department will do everything in its power to assist the State of Missouri in the prosecution of these identified individuals.

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**FY09 Recipient Name:** Mississippi Department of Public Safety

**Award Number:** 2009-DN-BX-K059

**Award Amount:** \$388,418

**Abstract:** The Mississippi Crime Laboratory System (MCL), which operates the only forensic DNA laboratory in the state, is an ASCLD accredited system consisting of a central full-service laboratory in Jackson and three regional laboratories. The Mississippi Crime Laboratory System undergoes external audits once every two years. MCL is a participant in NDIS and maintains all DNA analyses the under the applicable federal privacy regulations.

Significant progress has been made in the enhancement of the structure and function of the MCL Bioscience Section (DNA and Serology) and in the reduction of the backlog of unworked cases. The Bioscience Staff has been increased, training is ongoing and state of the art instrumentation has been added. At the present time, all DNA analysis, are performed in the Jackson Laboratory. The regional laboratories receive evidence from agencies in their region and provide weekly courier service to the main lab for evidence requiring examinations not available at the branch lab. Conventional Serological Examinations have been added to the services provided by two of the three regional laboratories, the Meridian and the Batesville Laboratories. The Gulf Coast Laboratory which was completely destroyed in Hurricane Katrina was could not take on these additional services because the laboratory is housed in a temporary facility and lacks the space required for a Bioscience Unit at the present time. However, construction of a new Gulf Coast Laboratory has begun with a completion date of February 2010. The new Laboratory includes space for basic Serology examination, DNA analysis, and all CODIS functions. Once completed, the new Gulf Coast Bioscience laboratory unit will receive Bioscience cases from the agencies served by the Gulf Coast laboratory; provide proper evidence documentation, perform serology examinations, and provide DNA analysis as appropriate. When Bioscience examinations (Serology and DNA) can be carried out in the Gulf Laboratory, it will no longer be necessary to forward evidence to Jackson for these examinations. Not only will this increase the efficiency and timeliness of the MCL response to requests for Bioscience examinations by an estimated 20%, but providing these services locally means that communication will be enhanced and more effective case management and coordination can be achieved.

We propose to accomplish these goals by: (1) expanding the services offered in the Gulf Coast regional laboratory to include Serology and DNA (2) adding an experienced DNA analyst and a Biology Trainee to the Gulf Coast laboratory (3) acquire the equipment necessary for use in the

basic DNA analysis processes: extraction, quantitation, amplification, fragment separation and data analysis, (4) Expedite the validation of the new instrumentation by offering overtime wages to the Bioscience staff to perform the necessary validation tasks without reducing the time they have to analyze cases and (5) outsource some DNA cases from the backlog. The MCL DNA backlog has been significantly reduced but DNA requests are increasing. Therefore, funds for outsourcing some DNA analyses are requested to avoid an increase in the backlog of unworked cases. Based on current case production, we expect to be able to work 1000 cases in house in the 18 months of the project using State Funds. We are requesting \$20,000 in federal funds to outsource cases. Based on past experience averages and a charge of \$390 for STR testing per evidence sample and \$190 per reference sample, this amount should fund the analysis of 16 cases consisting of 37 evidence samples and 31 reference samples.

We also request funds to purchase Buccal Swab kits to provide to the Department of Correction to support the ongoing development of the “Mississippi All Felons Data Base”.

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**FY09 Recipient Name:** Montana Department of Justice

**Award Number:** 2009-DN-BX-K135

**Award Amount:** \$125,818

**Abstract:** The goals and objectives of this project include: i) a reduction in forensic DNA sample turn-around-time, ii) an increase forensic DNA sample throughput and iii) a decrease the forensic DNA casework backlog.

With funding from the FY08 Forensic DNA Backlog Reduction Program, the Montana Department of Justice Forensic Science Division Laboratory hired a DNA technician to achieve the goals of the program.

The plan for this project is to use the Federal funding requested in this FY09 program to:

- i) continue to employ the DNA technician and to train the technician as a DNA Analyst to extend the employee’s capacity to assist with the program goals,
- ii) Purchase a Qiagen EZ1 Advanced XL robotic DNA extraction instrument (with an extended warranty) for casework sample processing
- iii) purchase genetic analyzer capillary arrays for validation of the DNA extraction instrument
- iv) provide external training for the grant funded DNA Analyst in 2009, 2010 and 2011 and
- iv) Provide external training for up to four existing DNA Analysts in 2009.

In order to achieve these goals, the employee will undergo an abbreviated training program to qualify her as a DNA analyst. This training will include: interpretation of single source and mixed DNA profiles, statistical calculations, the use of CODIS, report writing as well as technical and administrative review of casework. The abbreviated training program will culminate in an analytical competency test and a moot court trial. The robotic DNA extraction instrument will be purchased and brought on-line to drastically decrease sample processing “hands-on” time and thereby increase sample and case and sample throughput capacity.

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**FY09 Recipient Name:** City of Charlotte

**Award Number:** 2009-DN-BX-K150

**Award Amount:** \$351,398

**Abstract:** The Charlotte-Mecklenburg Police Department (CMPD) Crime Laboratory seeks \$351,398 to implement multiple projects in an effort to decrease turnaround time and streamline operations in the examination of DNA casework. The funding will allow the CMPD to maintain and support two Criminalist positions funded under the 2008 Forensic DNA Backlog Reduction Program. It also provide in-house Y STR training and be used to outsource DNA samples collected in property crimes to reduce the backlog in that section and increase the number of samples in the database. Equipment will be purchased that will allow the laboratory to work more samples in a shorter amount of time and make it possible for Crime Scene Investigators to collect higher quality samples for the lab.

The CMPD would be unable to maintain these Criminalist positions without funding and would ultimately see an increased backlog if the positions were lost. Additionally, the laboratory's equipment is insufficient to meet the needs of the department. Funding from this grant will provide the assets necessary to reduce the backlog of cases by an estimated 20% percent during the grant period and reduce the time needed for processing from an average of 210 days to an average of 180 days. This will result in more rapid identification of individuals responsible for crime and a quicker exoneration of the innocent, which will further aid the criminal justice system.

The CMPD Crime Laboratory is a unit of the City of Charlotte, and part of the Charlotte-Mecklenburg Police Department. It is an ASCLD-Lab accredited laboratory, undergoes external audits every two years, and uses CODIS on a daily basis to upload profiles to SDIS which are then uploaded to NDIS. All DNA analysis performed under this program will be maintained under the applicable federal privacy regulations.

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**FY09 Recipient Name:** North Carolina Department of Crime Control And Public Safety

**Award Number:** 2009-DN-BX-K152

**Award Amount:** \$1,579,363

**Abstract:** History: The North Carolina State Bureau of Investigation Crime Laboratory is an ASCLD-LAB accredited laboratory that provides DNA testing for a population of about 8,900,000 people. The North Carolina State Bureau of Investigation (SBI) has been performing forensic DNA analyses for law enforcement agencies across the State since 1990. However, as the reliability and the reputation of the use of DNA analysis for forensic means increased, so did the demand for its use. In order to reduce the in-laboratory backlog and focus the laboratory's resources on those cases most needing attention, the SBI implemented a case acceptance policies on three different occasions. This policy limited the cases worked by the crime laboratory to only those cases which contained know blood standards from all individuals associated with the crime. In addition, the analysis of property crimes and other minor crimes was cut to a minimum. In this manner, case turnaround times were kept to a minimum and the overall level of service was enhanced.

With the advent and maturation of the Combined DNA Indexing System (CODIS), forensic DNA analysis is increasingly being used as an investigative tool. The number of requests for analysis on all types of cases consistently outpaces the laboratory's ability to work these cases. To meet this demand, the SBI has and continues to devote additional personnel. Up until December of 2002, there were ten analysts in the Forensic Biology Section that were certified in either Body Fluid Identification or DNA analysis. In December of that year, the Attorney General began to push for additional analysts whose primary goal was to identify and work the thousands of untested rape kits that sat on the shelves of law enforcement agencies across North Carolina. His plan was to ask the North Carolina General Assembly for six additional DNA analysts each year for the next four years. The section was immediately granted six new positions that year. In 2003, the section was allotted two sets of increases, 1) six additional DNA analysts to work on forensic casework and 2) two additional DNA analysts and two database analysts whose job responsibility would be to assist with the increase in workload as a result of North Carolina becoming an all-felons state with regards to CODIS. Although the Forensic Biology section was given these increases in staff, the legislature did not provide funding for additional space. In 2004, the General Assembly approved for an expansion for the Crime Laboratory, but due to overcrowding in the section, no additional personnel were allocated. In 2005, the Section broke ground for a \$5.1 million, five-story laboratory expansion and was allocated an additional six DNA analysts. In 2007, using funds from the 2005 DNA Capacity Enhancement Grant, this existing facility was renovated and finished with hoods, telephones, casework, etc. The grand total number of positions in the Forensic Biology Section now stands at approximately 44 analysts. The training for the majority of these new employees is now essentially complete.

As part of National Institute of Justice (NIJ) DNA Backlog Program grants, the Section worked numerous backlogged cases and obtained CODIS hits thereby solving cases which would not have been solved had it not been for the funds provided by these grants. In the past year alone, with the assistance of grant money from NIJ, the Section worked nearly 1000 cases to reduce the on-hand backlog, entered 643 DNA profiles into CODIS, and obtained 59 CODIS hits, as of the last report. In addition, the Section was able to remove all restrictions on all un-subject cases. One unusual negative consequence, however, is that the DNA program has become a victim of its own success. As more cases get solved solely as a result of DNA analysis, word spreads from officer to officer and agency to agency and case submissions have increased dramatically. This is particularly true with unsolved property crimes and those cases involving "touch DNA evidence". Therefore, in spite of grant money provided by NIJ, case backlogs have not decreased much but have increased over time.

Project goals and objectives: In an attempt to reduce this backlog, the SBI proposes the following goals:

- 1) To work an additional 1000 cases in-house with an eye toward working more unsolved cases and entering additional profiles into CODIS; and
  - 2) To continue the process of validating new systems and equipment to better automate and streamline the analysis process.
  - 3) To provide funding for mandated training for analysts and for maintenance contracts.
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**FY09 Recipient Name:** North Dakota

**Award Number:** 2009-DN-BX-K140

**Award Amount:** \$100,000

**Abstract:**

- A. Agency: Office of Attorney General, Crime Laboratory Division  
Jurisdiction: North Dakota
  - B. Project Title: Forensic DNA Backlog Reduction Program – North Dakota
  - C. Project Period: October 1, 2009 to March 31, 2011
  - D. Amount Requested: \$100,000
  - E. Brief Description of Proposed Project: Funding will be used to purchase supplies for in-house DNA analysis of forensic casework samples and validating a new robotic system.
  - F. Overall Objective(s): The overall objective is to decrease the current backlog of forensic casework in the DNA Unit of the Forensic Section of the Crime Laboratory Division.
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**FY09 Recipient Name:** Nebraska State Patrol

**Award Number:** 2009-DN-BX-K108

**Award Amount:** \$245,194

**Abstract:** The Nebraska State Patrol is a unit of state government with an existing ASCLD/LAB accredited crime laboratory. The Nebraska State Patrol Crime Laboratory undergoes annual DNA audits, including an external DNA audit every two years.

The purpose of the Nebraska State Patrol Crime Laboratory DNA Backlog Reduction program is to reduce the time required to process forensic DNA samples, to increase throughput and reduce existing DNA forensic casework backlog. \$245,194 in funding provided by the National Institute of Justice is requested.

To accomplish program goals, objectives and performance measures have been established. When completed, improvements over current operations in forensic DNA casework backlog reduction and crime laboratory capacity enhancement for DNA analysis will have occurred. The following information details the Nebraska State Patrol Crime Laboratory DNA Backlog Reduction program.

**Objective 1:** Improve the Crime Laboratory's DNA analysis capacity.

**Performance Measure:** Reduce the average number of days between the receipt of a forensic DNA sample and the delivery of results to the appropriate agency from 127 to 100 days.

**Performance Measure:** Each analyst will increase the number of samples analyzed each month from 25 to 30.

**Objective 2:** Reduce the number of backlogged DNA cases

**Performance Measure:** Reduce number of backlogged DNA cases from 138 to 88 cases.

**Performance Measure:** The number of CODIS hits made.

Four tasks will be undertaken to enable the successful completion of this project. Those tasks are: 1) Hire an additional forensic scientist, 2) provide overtime to all forensic scientists, 3) obtain a Porter Lee Beast LIMS DNA Module, and 4) provide staff training.

When complete, the outcome of this program will be a measurable improvement in the number of days between the submission of a sample to the delivery of test results, an increase in the overall DNA analyses completed, and a reduction in the Nebraska State Patrol Crime Laboratory's backlog of forensic DNA casework.

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**FY09 Recipient Name:** New Hampshire Dept. of Safety

**Award Number:** 2009-DN-BX-K124

**Award Amount:** \$100,000

**Abstract:** Project Goals and Objectives: Funding is being requested to identify and test backlogged serology and DNA casework samples. It is hoped that by the end of the award period, the number of backlogged cases awaiting screening and/or processing for DNA will be reduced, and results will be provided in a timelier manner than is currently possible.

Project Plans and Methods to Achieve Goals: Funding will be used for overtime hours by serology and DNA analysts to work on cases above and beyond what could be accomplished during regular business hours. Funding to purchase consumables for serology screening and DNA analysis is being requested. Training will be provided to ensure continuing compliance with the FBI's Quality Assurance Standards. Service contracts for the 310 genetic analyzers will ensure analysis time is not lost due to technical issues with the instruments.

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**FY09 Recipient Name:** New Jersey Department of Law and Public Safety

**Award Number:** 2009-DN-BX-K161

**Award Amount:** \$1,306,652

**Abstract:** The New Jersey State Police, Office of Forensic Sciences (DNA Laboratory, Hamilton Technology Complex) proposes to use funding from the FY09 Forensic DNA Backlog Reduction grant to renovate the existing facility space to relocate the in-house CODIS laboratory unit. This laboratory is tasked with the analysis of samples collected from convicted offenders with a qualifying offense. This new area within the present structure will improve the efficiency with which DNA database samples are analyzed, and more importantly free its current location for its original intended use, the processing of low copy DNA samples. We also propose to utilize the grant funding to analyze ~550 violent crime cases from the case backlog and upload the resultant DNA profiles generated into the CODIS database. The accomplishment of this task will provide for the analysis of potential DNA evidence and databasing of DNA profiles from a substantial number of the New Jersey State Police backlogged cases.

The New Jersey State Police CODIS Unit has uploaded a total of 187,249 convicted offender profiles in addition to 7170 forensic unknowns, placing us in the top ten in the nation. Prior to 1996, all convicted offender samples were outsourced, but with assistance of NIJ grant funds an in-house CODIS Laboratory was put on line in 2006, enabling samples to be processed more efficiently and at reduced expense. Due to this initiative over 85,000 convicted offender samples have been processed to date in-house. The NJSP Office of Forensic Sciences CODIS Laboratory processes an average of 25,000 convicted offender samples per year. This number could effectively quadruple if NJ Legislation requiring the collection of samples at time of arrest is approved. As it exists, the CODIS Laboratory would not be able to handle the onslaught of samples predicted if this legislation is enacted.

The New Jersey State Police CODIS database contains over 7170 forensic unknown profiles. The funding through this DNA Backlog Reduction Program will provide the opportunity to expand that number with profiles from additional cases. The lab cannot presently attain the reduction in the backlog without the use of an overtime program. Consequently, in order to analyze the estimated 550 cases it will be required that an overtime program be instituted in order to accomplish the complete analysis from preliminary screening to mailing of a final DNA report to the appropriate agencies.

The overtime program will help to reduce the current bottleneck in the screening of cases for biological evidence, which can then be further analyzed for DNA and the results uploaded into CODIS. In addition, overtime funded through the NIJ grant would allow the lab to significantly decrease its turn-around time on other cases coming in the door. All results that yield eligible profiles will be uploaded to the CODIS database.

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**FY09 Recipient Name:** Las Vegas Metropolitan Police Department

**Award Number:** 2009-DN-BX-K057

**Award Amount:** \$489,000

**Abstract:** The City of Las Vegas and the surrounding area of Clark County, Nevada have a current population in excess of 1.95 million persons, and in 2008 hosted approximately 2.9 million visitors per month. The Las Vegas Metropolitan Police Department (LVMPD) is the sole provider of forensic DNA analysis services to not only Las Vegas and Clark County, but to all of southern Nevada. This service area includes the adjacent Nye, Lincoln and Esmeralda Counties with an additional population of approximately 50,000 individuals. In addition to providing a full range of forensic casework analyses, the LVMPD Forensic Laboratory also operates and administers the Southern Nevada Combined DNA Index System (CODIS). The database is a CODIS Local installation with both casework and convicted offender responsibilities. As required by Nevada Revised Statute, ordinances were passed by Clark, Nye, Lincoln and Esmeralda county governments establishing the LVMPD Forensic Laboratory as the official DNA testing laboratory and repository for all DNA specimens collected under statute from the four southern Nevada counties.

The LVMPD Forensic Laboratory is accredited by the American Society of Crime Laboratory Directors Legacy Program, and the Biology/DNA Detail of the LVMPD undergoes external audits every two years to remain in compliance with standards set forth by the Federal Bureau of Investigation in the *Quality Assurance Standards for Forensic DNA Testing Laboratories* and the *Quality Assurance Standards for DNA Databasing Laboratories*.

The Biology/DNA Detail of the LVMPD has traditionally processed violent offenses and biological evidence associated with homicides, sexual assaults, robberies, attempted homicides, and kidnapping cases. However, in recent years, the LVMPD Forensic Lab has recognized the impact it can make by performing DNA analysis, not only on the violent offenses occurring in our community, but also on the full range of property crimes, including burglaries and the rampant vehicle thefts in Southern Nevada. It has been 2 years since the Biology/DNA Detail of the LVMPD started performing DNA analysis on property crimes, and as of May 1, 2009,

burglaries and auto thefts comprise 56% of the total DNA case backlog (615 cases) and 68% of the UCR Part I Crimes backlog (512 cases).

As a direct result of the Forensic Lab's property crimes initiative, case requests for DNA analysis have flooded the Forensic Laboratory, resulting in a 94% increase from January 2008 to April 2008 (368 DNA requests) as compared to January 2009 to April 2009 (712 DNA requests). In addition, the Biology/DNA Detail has been encouraging fellow local law enforcement agencies of Southern Nevada to submit their DNA cases to the LVMPD to be analyzed at no cost to their agency. As a result, the LVMPD has seen a large increase in the number of case submissions from law enforcement agencies besides the LVMPD. As of May 1, 2009, 14% (70 cases) of the UCR Part I crimes backlog was comprised of cases representing eight non-LVMPD agencies from all over Southern Nevada.

To enhance forensic casework capacity, improve casework efficiency, alleviate current bottlenecks being experienced in casework processing, and to maximize examiner's time as mundane tasks are subjected to automation, the Biology/DNA Detail is requesting funds for the purchase of two thermalcyclers, a liquid handling robot for extraction and thermalcycler set-up, a 7500 Sequence Detection System (SDS), a temperature monitoring system, a paginator, and crime scopes. Funds are also being requested to purchase industrial freezers which will alleviate a severe shortage of frozen-storage space for biological evidence. Grant funds are also being requested to purchase convicted offender and sex registrant kits which will enable proper collection of buccal swab specimens for entry into CODIS. A request to purchase 7500 SDS software upgrades will allow the Biology/DNA Detail to remain current with quantitation software specially marketed for the forensic community. Finally, the Biology/DNA Detail is requesting funds to outsource the validation service of the casework liquid handling robot. Outsourcing the validation will ensure the process is completed in an expeditious manner, enabling the instrument to be introduced into casework as quickly as possible while alleviating a decrease in casework production because an examiner must focus on a lengthy instrument verification.

The Biology/DNA Detail is requesting funds in the amount of \$489,000 for the in-house analysis of 615 forensic DNA cases that are contained in the backlog as of May 1, 2009. These funds will be used to purchase instrumentation and software which will increase examiner sample throughput and decrease forensic DNA case turn-around-time.

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**FY09 Recipient Name:** Washoe County Sheriff's Office

**Award Number:** 2009-DN-BX-K099

**Award Amount:** \$390,766

**Abstract:** The funds requested under this project will assist the DNA laboratory at the Washoe County Sheriff's Office (WCSO) to improve turnaround time for casework sample analysis and decrease the total case backlog. These improvements will be accomplished by purchasing equipment, and upgrading computers, implementing instrument automation to facilitate the analysis process, implementing new technologies and providing funding for backlog casework analysis. The purchase of equipment, computers, and instruments will assist the analysts in more efficiently extracting, quantifying and amplifying DNA samples, facilitate data entry, and promote rapid screening and documentation of evidence. Additionally, the WCSO provides convicted offender collection kits to numerous agencies throughout northern Nevada. The

acquisition of additional kits will allow for kit availability to all agencies as they are needed. Finally, the purchase of new projectors will assist analysts in the presentation of data in the courtroom and in educating our customers about new and existing technologies and services that are available to them.

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**FY09 Recipient Name:** City of New York

**Award Number:** 2009-DN-BX-K162

**Award Amount:** \$799,920

**Abstract:** The Office of Chief Medical Examiner [OCME] Department of Forensic Biology serves as the public forensic DNA laboratory for the City of New York – a geographical jurisdiction of approximately 8 million people throughout the five boroughs. Supported by a staff of 150 criminalists, supervisors and managers, the Department of Forensic Biology performs DNA testing on nearly every category of crime: homicide, sexual assault, felony assault, property crimes and weapons possession.

The number of vouchers submitted for DNA testing increased fourfold in 2007 and continued to increase through 2008 (see Figure 1 in Program Narrative). Accordingly, the average number of days needed to complete a case (this includes testing, report writing, and two levels of review) increased to approximately 146 days. To address the current backlog of OCME cases, funds are requested to hire four criminalists and one administrative personnel.

To reduce the probability of developing future backlogs, grant funds will be used for validation and implementation of a sample screening assay and a long term DNA storage procedure. Funds are requested to hire a postdoctoral fellow who will validate the assay and storage protocol. This person will also create internal laboratory training materials for the new protocols and will facilitate their implementation for casework. Through the screening assay, the OCME aims to identify evidence samples that are not immediately useful for casework. An evidence profile is often not immediately useful if: it represents a mixture of DNA from several individuals in approximately equal proportions, if no suspect sample is available, if it is redundant with other profiles generated in the case, or if the DNA is degraded and does not produce a full profile. Together, the proposed screening assay and storage strategy have the potential to greatly reduce the number of samples that are fully processed in our laboratory without losing information that is relevant for casework. Personnel who would otherwise be processing these samples can be reassigned to other duties, thereby reducing turnaround time for all samples processed within the laboratory.

Funds are also requested to purchase reagents and equipment. A portion of the funds will be used to cover travel expenses for criminalists to attend conferences. Participation in conferences fulfills the laboratory's continuing education requirement.

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**FY09 Recipient Name:** County of Erie

**Award Number:** 2009-DN-BX-K110

**Award Amount:** \$376,670

**Abstract:** The Erie County Central Police Services Forensic Laboratory performs forensic DNA analysis for the law enforcement agencies of Erie County, New York (population 900,000). Additionally, we provide forensic DNA analysis for all of Niagara County (population 200,000) and occasional forensic DNA analysis for law enforcement agencies from 4 neighboring counties. We currently have 8 full-time DNA analysts and two part-time DNA analysts (one in training). With the success of CODIS, casework requests have been steadily increasing, especially in the area of forcible sexual assault, burglary, weapons possession, robbery and assault. Additionally, we are experiencing an increase in the number of items submitted for each case and more requests for DNA analysis on evidence associated with homicides. This has resulted in a significant backlog and a need to decrease the turn-around time. In order to further increase the analytical capabilities of this lab, it is necessary to hire one DNA Analyst and to also perform a portion of the lab work using overtime. It is anticipated that the additional DNA Analyst and the additional overtime spent on casework will result in a decrease in the turn-around time and a decrease in the number of backlogged cases, since the analysts will be able to process more cases in a shorter period of time. The long term goal is to analyze the current backlog of cases and to then provide a 30 day turn-around time for new cases. The funding from this grant will result in the completion of 376 additional cases using overtime to provide additional analytical time. Additionally, a portion of the funding will be used to purchase the supplies necessary to analyze the 376 additional cases and to train the new DNA Analyst.

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**FY09 Recipient Name:** County of Westchester

**Award Number:** 2009-DN-BX-K106

**Award Amount:** \$257,283

**Abstract:** Funding from this grant will go toward satisfying two ends: increasing the capacity to perform DNA analysis, and reducing the backlog created by uncompleted cases in the Forensic Science Laboratory of the Westchester County New York Division of Forensic Sciences. The accomplishment of these goals is tantamount to continuing our pledge to furnish DNA results to investigating agencies within thirty days.

Our laboratory has been online with STR DNA typing since 1999. In ten years the demands on, and expectations of, all forensic case-working laboratories has intensified such that analytical turn-around time must be greatly reduced and the typing techniques employed must be increasingly more sophisticated. Currently our laboratory employs nuclear STR typing and Y-STR typing techniques. In addition, the FBI Quality Assurance Standards, to take effect in July 2009, impose novel requirements for casework analysis and policy. The most notable of these is the requirement to have and follow a documented procedure for mixture interpretation that addresses major and minor contributors, inclusions and exclusions, and policies for reporting of results and statistics.

To maintain pace with evolving trends and national accreditation requirements for DNA analysis and to continue to provide outstanding service to the police and law agencies we service, our laboratory will require upgrades in instrumentation and software applications, access to training

opportunities and travel monies, the flexibility to offer overtime to existing staff, and the capability to hire temporary support staff. This augmented capacity will enable us to further reduce the amount of time required to complete casework that has initially met our thirty day turn-around criteria, thus substantially minimizing our current backlog. We anticipate the momentum created by this optimized workflow will preemptively reduce future bottlenecks at the examination and analytical DNA stages of casework.

In this grant we are requesting funding that would allow us to: continue the trend of providing the most probative case results to the requesting agency within thirty days, increase our capacity to complete ancillary casework procedures, and reduce our backlog of “UCR Part 1 Violent Crimes” forensic casework.

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**FY09 Recipient Name:** Monroe County

**Award Number:** 2009-DN-BX-K109

**Award Amount:** \$318,365

**Abstract:** The Monroe County Public Safety Laboratory (MCPSL) is a regional crime lab that provides forensic services for an eight county region of New York State. On January 1, 2008, there were sixty-one (61) homicides, three hundred sixty-four (364) sexual assaults, fifty-nine (59) robberies, sixty (60) assaults, two hundred twenty-four (224) burglaries, and one hundred twenty (120) other types of cases awaiting DNA analysis.

From 2009-2011, funding from both Federal and State sources will be focused on increasing the analysis capacity of the MCPSL biology section. County and State funding will be used to maintain the existing staff and to train them in more types of analytical techniques. Federal resources will be used to acquire new instruments, maintain quality assurance of existing instruments and to provide the required continuing education for existing DNA analysts.

The goals of this project are to:

- coordinate funding with existing grants to maximize the laboratory’s analysis capacity
- provide continuing education and maintenance of critical equipment to compensate for the laboratory’s current budget gap
- increase casework capacity and reduce turnaround time by purchasing and validating a liquid handling system for PCR setup
- improve upon the quality assurance of critical equipment by purchasing and implementing use of a new temperature and drift monitoring system
- provide supplies for evidence collection and validation of “touch DNA” collection techniques
- purchase equipment to make use of the space in the new crime laboratory facility

Coordination of all resources is essential for the current and future success of Forensic DNA operations at the Monroe County Public Safety Laboratory. By implementing state of the art technology and increasing the capabilities of the staff through training, the laboratory will continue to work towards elimination of the backlog and reduction of casework turnaround time.

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**FY09 Recipient Name:** Nassau County

**Award Number:** 2009-DN-BX-K144

**Award Amount:** \$289,860

**Abstract:** The objective of the FY2009 NIJ Forensic DNA Backlog Reduction Program is to reduce the overall turnaround time for the handling, screening, and analysis of forensic DNA samples, increase laboratory throughput, and reduce existing DNA forensic casework backlogs. Examination bottlenecks encountered during the screening of sexual assault case type evidence will be addressed through automation of the spermatozoa confirmation and isolation process. The laboratory proposes to validate the NicheVision Fully Automated KPICS Sperm Finder Ultra 4 Slide System and Automated Physical Cell Capture Device. New York Sexual Assault Evidence Collection Kits can have a total of five slides which are currently searched for the presence of spermatozoa under light microscopy, a time consuming and inefficient method. In addition, the proposed system employs micro-dissection of spermatozoa from standard slide format, eliminating the need for a lengthy differential extraction procedure which often results in inefficient separation of female and male component DNA and the need to interpret complex mixtures. In conjunction with the micro-dissected evidence, the laboratory will validate a Qiagen EZ1 Advanced XL robotic extraction system to automate the extraction of semen positive case evidence. The EZ1 Advanced XL has been selected since all reagents required are packaged into a single capsule minimizing analyst error and reducing time required for extraction preparation. The use of fully automated systems is expected to result in a decrease in the length of time required to supply scientific reports to the laboratory's user agencies. The reduction of analysis "hands-on" time will be utilized to increase the laboratory's capacity for property crime type evidence which accounted for 63% of cases rejected in 2008. The methods proposed for this project will be measured by the expected decrease in case turnaround time and increase in the number of CODIS eligible profiles entered into the database.

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**FY09 Recipient Name:** New York State Police

**Award Number:** 2009-DN-BX-K118

**Award Amount:** \$1,000,000

**Abstract:** The New York State Police Forensic Investigation Center (NYSP FIC) has implemented a comprehensive program to enhance the productivity of its Biological Science Section (Section). The goal is to develop the capacity to meet the growing demand of law enforcement for forensic STR DNA testing. To achieve this aim, the Section, with support provided by the National Institute of Justice through its Forensic DNA Capacity Enhancement and Backlog Reduction Programs, has undertaken elimination of its DNA Casework and Database backlogs. At the same time, the Section also aims to attain a 30-day turn-around for all submitted samples. To keep pace of Casework Unit submissions, the Section needs to achieve the capacity to annually handle/screen fifty thousand evidence items, to perform STR DNA analysis on twenty thousand forensic casework items and to produce three thousand case reports. Similarly, to avoid a backlog, the Section's DNA Database Unit must acquire the capacity to annually analyze approximately 120,000 samples from qualifying offenders.

The productivity enhancement program includes components that are the focus of the 2009 Forensic DNA Backlog Reduction Program: 1). Reduction in the average time required to complete DNA forensic sample analysis, 2). Increased throughput as measured by the number of

DNA samples analyzed per analyst, and 3). Reduction of the DNA forensic casework backlog. Current grant funds are requested to increase efficiency of the DNA Database Unit by acquiring a high-throughput Applied Biosystems 3730 Genetic Analyzer, by upgrading its capillary electrophoresis analytical software, and by validating improved DNA extraction and amplification kits for use in its automation facility. Similarly, the Casework Unit will validate and adopt new DNA extraction and amplification kits for both its manual and automated processes. The validation and accompanying LIMS enhancements will be carried out by grant-funded consultants to lessen the “downtime” of staff forensic scientists. Support for forensic DNA analysis by commercial labs and funds for staff overtime are also requested to provide DNA testing of property crimes to help control growth in the number of pending cases while the enhancement program is implemented. Funding is also requested for training and continuing education of the Section’s DNA Analysts which will include exposure to new technologies that may promise further increases in the efficiency and productivity of the Biological Science Section.

At the end of the project period, the specific target outcomes of the program described herein are to include 1.) A substantial reduction of the forensic DNA casework backlog at the New York State Police Forensic Investigation Center, 2.) A demonstrable increase on a per case and per item basis in the productivity of individual Forensic DNA Analysts, and 3.) A corresponding decrease in casework turn-around times as measured from submission date to delivery of DNA test reports.

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**FY09 Recipient Name:** Onondaga, County of

**Award Number:** 2009-DN-BX-K120

**Award Amount:** \$207,139

**Abstract:** The Onondaga County Center for Forensic Sciences – Forensic Laboratories will utilize funds from the 2009 DNA Backlog Reduction Grant to obtain additional analysis tools and increase bench hours to reduce the current backlog and decrease the turn-around time for DNA cases. In particular, the laboratory will purchase verification services and training for a new DNA quantitation kit enabling faster screening for samples containing male DNA and for implementing the Genemapper™ ID-X expert review system to increase the efficiency of interpretations of DNA profiles. The laboratory will also purchase equipment and maintenance agreements to enhance the quality assurance system and replacement computers to increase the efficiency of using the laboratory information system to its fullest potential. The laboratory will also utilize training funds to obtain discipline specific training, ensuring that the staff remains up-to-date on new technologies and to provide in-house training to assist in the implementation of new procedures such as Y-STR profiling. We will also increase bench hours by providing staff with overtime with which to perform analysis on backlogged DNA cases and for on-going in-house validations. Use of these funds will enable the laboratory to successfully implement the proposed improvement plan to reduce turn-around time and current backlogs to further enhance the services offered to the criminal justice community in New York State.

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**FY09 Recipient Name:** Suffolk County

**Award Number:** 2009-DN-BX-K072

**Award Amount:** \$372,598

**Abstract:** The 2009 Forensic DNA Backlog Reduction program is intended for increasing the throughput and timeliness of forensic analysis of evidence submitted to the Suffolk County Crime Laboratory Biological Sciences Section. This task is to be completed through the procurement of equipment and software as well as upgrades to existing equipment to increase capacity and efficiency. Funds will be used for the purchase of supplies, such as capillary arrays and kits, used in DNA analysis; outsource backlogged DNA samples to an accredited fee-for-service vendor laboratory for DNA Analysis and maintain sustainability and quality assurance of DNA instrumentation through purchase of maintenance/service contracts.

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**FY09 Recipient Name:** City of Columbus

**Award Number:** 2009-DN-BX-K121

**Award Amount:** \$215,461

**Abstract:** Columbus Police Crime Laboratory DNA Backlog Reduction Project 2009 seeks to enact improvements that will enable the crime laboratory to process DNA samples efficiently and effectively thereby reducing the backlog of DNA cases awaiting analysis. Program objectives include decreasing the average number of days between submission of a sample and delivery of test results by five days; increasing the DNA analysis throughput for the laboratory by 5 samples per month per analyst; and decreasing the backlogged casework awaiting analysis by 34%. To achieve the projects goal and objectives, supplies will be purchased and overtime provided to existing analysts to perform analysis on backlogged casework; salary and fringe benefits will be provided to hire a new Forensic Scientist who will be trained in the analysis of Forensic Biology; and training will be provided to current and new DNA analysts so that they can keep abreast with new technologies.

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**FY09 Recipient Name:** City of Mansfield

**Award Number:** 2009-DN-BX-K146

**Award Amount:** \$163,718

**Abstract:** Project Goals & Objectives

- 1) To maintain low turnaround times for Mansfield cases and reduce DNA sample turnaround time for Columbus Division of Police cases.
- 2) To increase the number of cases and samples currently being analyzed.
- 3) To reduce the forensic casework backlog of the Columbus Division of Police.

**Project Plan:** The Laboratory will utilize grant award funding to pay the expenses associated with a DNA analyst, analyst overtime, and supplies associated with backlog cases. Renovations will expand efficiency of current DNA laboratory facilities.

**Methods for Achieving Goals:** The Mansfield Division of Police Laboratory currently accepts backlog case work samples from surrounding agencies. The Laboratory will expand this service to the Columbus Division of Police in an effort to reduce their current casework backlog.

Analysis and technical review of the Columbus cases will be completed by the staff of the Mansfield Police Laboratory to insure CODIS submission with minimal delay.

The laboratory will continue to increase the number of cases and samples currently being analyzed by soliciting cases from surrounding agencies. The laboratory will utilize recently vacated jail space adjacent to the DNA laboratory for exam room renovations.

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**FY09 Recipient Name:** Cuyahoga County Coroner's Office

**Award Number:** 2009-DN-BX-K149

**Award Amount:** \$63,718

**Abstract:** The method proposed to reduce the DNA case backlog by the Cuyahoga County Coroner's Office stems from our continuity of service in providing DNA analyses on all of the homicide cases in the Cuyahoga County as well as other counties in our region of the state, in an effective and timely manner. The FY09 Forensic DNA Backlog grant award will enable the Cuyahoga County Coroner's Office to process backlogged case work through the use of Quantifiler Duo DNA Quantification kits, PowerPlex16, and Identifiler amplification kits. Our laboratory will use the Applied Biosystems 310 and 3130 Genetic Analyzers to process backlogged casework within the specified period of October 1, 2009 through March 31, 2011. The funds will also be used to validate the previously purchased Promega Maxwell 16 automated sample purification system that can be used to perform the analysis of a broad range of samples, while increasing the productivity of laboratory personnel. The continued application of these technologies beyond the grant period will continue to maintain improved control over case processing. The Promega Maxwell 16 automated system has been purchased and awaits validation. The system has the capability of extracting the reference samples and requires Maxwell 16 LEV Hardware in order to be implemented in forensic casework samples. The AB 3130 Genetic Analyzer and Quantifiler Duo kit have been validated and need to be applied to casework in order to assist with case processing and therefore reduce the current backlog in casework. The FY09 Forensic DNA Backlog award will support the validation of the Maxwell 16 system, the use of the recently validated Quantifiler Duo kit and 3130 Genetic Analyzer, in routine casework by providing the laboratory with the Quantifiler Duo DNA Quantification kits, PowerPlex16 kits, and Identifiler kits. Supplies for the AB 3130 Genetic Analyzer, supplies to validate Maxwell 16 System, new pipettes, and a plate centrifuge for the DNA Laboratory.

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**FY09 Recipient Name:** Hamilton County

**Award Number:** 2009-DN-BX-K157

**Award Amount:** \$95,000

**Abstract:** The primary objectives of this project are threefold:

1. To consolidate gains of previous grant funded projects to introduce robotics and improve the overall efficiency of analysts.
2. To validate the "Trigger ID" system of DNA collection and improve the overall quality of examinations.
3. To reduce the turnaround time at least 5% to less than 83 days from its current 88 days.

The secondary objective is to reduce the backlog by 16 cases. As a result of countywide budget cuts, funds for supplies are limited. Funds will be used to process backlogged DNA cases. These cases will be processed in-house using existing procedures and equipment.

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**FY09 Recipient Name:** Montgomery County

**Award Number:** 2009-DN-BX-K156

**Award Amount:** \$297,478

**Abstract:** Funds requested under this grant will be used for the following purposes:

- Required annual training for six DNA analysts
- Server upgrades for CODIS and STaCS
- Computer and tablet upgrades for casework documentation
- Software for rapid data analysis and statistical calculations
- Realtime quantitation unit
- Preventative maintenance contracts for capillary electrophoresis units, automated workstations and realtime quantitation unit
- Sample maintenance contract for LIMS software

The request for these expenditures will assist the DNA section in meeting accreditation standards, decreasing the turnaround time for casework and increasing the number of samples that the laboratory handles each year. Achieving these goals will improve our current operations.

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**FY09 Recipient Name:** State of Ohio Office of The Attorney General

**Award Number:** 2009-DN-BX-K151

**Award Amount:** \$962,807

**Abstract:** Ohio BCI&I anticipated a backlog of 2,800 DNA evidence processing requests as of September 1, 2009. Efforts are underway to bring all DNA processing in-house. New robots have been validated and are in the early stages of operations and space renovation is underway to accommodate additional forensic scientists. In the interim, funds are requested for overtime and outsourcing to continue to reduce the 2,800 cases backlog. It is anticipated that this backlog will be reduced by 940 cases with grant funding. While BCI is in the process of bringing the current caseload of outsourced violent crime and convicted offender DNA samples in-house for processing, reduction of the backlog is remains critical. To accomplish these goals, Ohio BCI&I proposes outsourcing and overtime for backlog reduction. Additionally, funds are budgeted for LIMS software upgrades and Tecan robotics training. Total funds requested are \$962,807.00.

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**FY09 Recipient Name:** City Of Tulsa

**Award Number:** 2009-DN-BX-K090

**Award Amount:** \$207,905

**Abstract:**

The goal of the DNA Efficiency Program is to provide forensic expertise through DNA analysis to multiple agencies in Northeast Oklahoma while increasing the efficiency of the DNA testing process. The DNA testing process can become more efficient by increasing the amount of evidence processed in a shorter amount of time. This program would expedite forensic DNA

testing for prosecution cases, reduce forensic DNA sample turnaround time needed to get investigative information to law enforcement, reduce the DNA forensic casework backlog, and generate more CODIS entries from evidence samples to search against the State and National Database (as permitted by State and Federal Law). This project would also increase the amount of cases accepted by the Tulsa Police Department Forensic Laboratory from surrounding law enforcement agencies in Northeast Oklahoma.

The objectives of the DNA Efficiency Program are to increase the amount of evidence samples processed in one batch from 16 to 48, decrease the overall amount of laboratory time needed to process one batch from two days for 16 samples to four days for 48 samples, increase the amount of forensic samples from evidence entered into the local CODIS database, and increase the amount of cases submitted from law enforcement agencies in Northeast Oklahoma to the Tulsa Police Department Forensic Laboratory.

**Project Plans:** The Biology Section Technical Leader of the Tulsa Police Department Forensic Laboratory will be responsible for coordinating the internal validation studies and casework management needed to get this program online. The internal validation will follow the Revised Validation Guidelines set forth by the Scientific Working Group on DNA Analysis Methods (SWGDM).

**Methods for Achieving the Goals:** To implement this evidence-based program, two key pieces of equipment are necessary: an automated sample purification system and a multi-capillary genetic analyzer. Studies have shown that usage of these pieces of equipment can increase the number of evidence samples processed per batch of DNA, and drastically reduce the amount of laboratory time required to process the same amount of samples using a manual extraction technique and a single-capillary genetic analyzer. These instruments are critical to preventing future DNA backlogs and to help the criminal justice system use the full potential of DNA technology.

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**FY09 Recipient Name:** Oklahoma State Bureau of Investigation

**Award Number:** 2009-DN-BX-K063

**Award Amount:** \$617,724

**Abstract:** The Oklahoma State Bureau of Investigation (OSBI) seeks to improve the throughput of the casework and offender DNA laboratories and to reduce the backlog of pending DNA cases. The increase in casework productivity will be achieved through modifying work processes to utilize technicians and new software and instrumentation which will increase the amount of time analysts have available for casework, increase automation, and decrease bottlenecks in the laboratory workflow. The increase in capacity for offender DNA sample processing will be achieved through the purchase of additional offender DNA collection kits necessary to collect samples allowed by recent unfunded legislation. Finally, the reduction of the casework backlog will be accomplished through the use of overtime hours for working additional cases or conducting sample analysis, documentation, or review of validation projects which will increase the laboratory's throughput.

The OSBI requests \$167,000 for the purchase of laboratory instrumentation and software that will reduce sample-processing time. Items to be purchased under this application include new microscopes which will increase the laboratory's capacity for conducting of sperm cell searches on sexual assault evidence and upgraded software for the rtPCR instruments currently in use. In addition, the OSBI requests ~\$58,475 to pay overtime salary and benefits for current employees.

The OSBI also requests \$113,355.45 to extend three new part-time technician positions, originally created under award 2006-DN-BX-K221. This funding request includes both salary and benefits for 18 months.

In addition, the OSBI requests \$75,000 to purchase additional convicted offender DNA collection kits needed to collect additional samples now allowed through a recent unfunded legislative expansion of the database.

Finally, the OSBI requests approximately \$123,893 to obtain a contract to assist the laboratory in implementing DNA process-improvement measures.

The technician positions will be used to aid in the handling, screening, and analysis of forensic biology evidence and convicted offender DNA samples. The funding for overtime will be used to work additional cases and to analyze samples and document and review sample data for validation projects which will increase the laboratory's capacity. The laboratory equipment and software will be used to aid in the elimination of current bottlenecks in forensic DNA case analysis and better utilize analysts' time when processing these samples. Finally, the contract will be used to develop and execute a strategic plan for the implementation of recommendations for DNA process-improvement previously identified through a contract for diagnostic review (award 2007-DN0BX-K134). All of these improvements together will help analysts reduce the forensic biology backlog and work towards decreasing the average turn-around time to 30 days.

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**FY09 Recipient Name:** Oregon State Police

**Award Number:** 2009-DN-BX-K139

**Award Amount:** \$492,353

**Abstract:** Project Scope and Objectives: The scope of this proposal is three fold: 1) to reduce the DNA casework backlog, 2) to enhance the DNA unit's capacity to analyze DNA database samples in-house and 3) to enhance the Forensic Services Division's capacity for DNA casework screening, processing and analysis. The objectives are: 1) to provide support for one DNA Forensic Scientist position and overtime to process and analyze incoming and backlogged DNA cases respectively, 2) to complete an ongoing renovation project to enhance the DNA unit's capacity to analyze CODIS samples in-house, 3) to purchase equipment and supplies for the analysis of DNA database and casework samples to improve efficiency and decrease the backlog, 4) to purchase equipment for the Bend laboratory's biology processing unit to enhance the capacity of screening and processing of biological evidence, and 5) to provide training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency.

Project Design and Methodology: For objective 1, grant funds will provide the salary for one full time DNA analyst and overtime for approximately seven DNA analysts to process and analyze incoming and backlogged DNA cases. The majority of the backlogged samples are no suspect(s), property crime cases. Profiles from these cases will be entered into CODIS and subsequent hits will be reported to the police agency to aid in their investigation. The additional DNA analyst and overtime will help to minimize our DNA backlog.

In 2008, we initiated a renovation project to provide laboratory space for the processing and analysis of CODIS database samples. To meet objective 2, funds from this grant will be used to continue and complete this renovation project. Specifically, funds will be used for general infrastructure for electrical, plumbing, HVAC, walls and floor, and the lab benches, cabinets and office cubical materials and installation. The additional space will provide a dedicated room to accommodate a liquid handling robot for CODIS sample extraction and office space for DNA analysts for data review and report writing. This renovation will enhance our capacity by providing the necessary space for us to process and analyze CODIS database samples in-house.

To meet objective 3, we will purchase equipment and supplies for the extraction, quantification, amplification and genetic analysis of CODIS and casework samples. The equipment will include thermal mixers, pipettes, bio-evidence hoods and an upgrade to one of our extraction robots. The majority of this equipment will be dedicated to CODIS sample processing and analysis in the newly renovated CODIS area. Supplies (e.g., 3130xL polymer & capillary array, extraction kits and quantification kits) will be purchased for the analysis of the backlogged DNA casework samples. In addition, we will purchase supplies for the convicted offender collection kits. The equipment and supplies will allow us to increase our capacity to analyze CODIS samples in-house and assist with decreasing the casework backlog.

To meet objective 4, we will purchase an alternate light source (ALS), screening tables, cameras and a paperless documentation system for the Bend lab biology processing unit. The Bend lab currently has three biologists that screen and process evidence for biological materials and anticipate training a fourth. In addition, they will be moving into a new, larger facility in July 2010. The lab is at capacity and analysts are experiencing bottlenecks waiting for equipment (e.g., ALS & cameras) to become available for the processing of biology cases. The new equipment will enhance the Bend lab's capacity for screening and processing evidence for biological materials. Ultimately, the new equipment will minimize or eliminate the bottlenecks and increase the efficiency at which cases are processed in the Bend lab.

Lastly, to meet objective 5, analysts will participate in various in-state and out-of-state training opportunities to fulfill training requirements for competency or to maintain proficiency. Training may include courses in population genetics, general and/or advanced DNA techniques as well as participation at professional conferences (e.g., NWAFS, AAFS, or the International Symposium on Human Identification). Attendance at in-state or out-of-state meetings, professional conferences and workshops will assist analysts in meeting requirements to obtain competency and assist senior analysts in maintaining their proficiency and keeping current with new technologies.

Support of this proposal will provide training opportunities, provide support for one analyst and overtime, and provide equipment and supplies to increase the capacity and efficiency of DNA evidence analysis. In addition, support of this proposal will assist with the completion of a renovation project initiated in 2008. Meeting the objectives will result in maintaining a proficient, confident workforce, will provide additional space for more efficient workflow for CODIS sample analysis, and provide resources (equipment, personnel & supplies) to increase the efficiency of evidence screening and processing. The subsequent expected outcomes will be a decrease in the DNA backlog and more timely quality service to our customers (i.e., decrease in turn-around time).

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**FY09 Recipient Name:** Allegheny County Pennsylvania

**Award Number:** 2009-DN-BX-K125

**Award Amount:** \$283,882

**Abstract:** This proposal will enable the Allegheny County Office of the Medical Examiner Forensic Laboratory (ACOME FL) Forensic Biology Serology Section to upgrade the laboratory's current DNA technology by expanding the laboratory's automation and information technologies to efficiently and cost-effectively reduce the laboratory's current backlog of forensic samples. This will allow analysts to become proactive, providing law enforcement with investigational leads through the Combined DNA Indexing System (CODIS) and a preventative approach to repeat offenders.

In this proposal, the laboratory is seeking a robotic liquid handling workstation, a RT-PCR instrument, an MVS verification system as well as the supplies for the validation of each, including instrumentation software, pipettes, and consumables. The Forensic Biology Section is also seeking to expand its DNA Laboratory Information Management System (LIMS) and electronic data management and manipulation capacities. Additionally, training in this automated workflow environment will further enhance the analyst's ability to process forensic samples. Limited funding will also be applied to the validation of the instrumentation and the identification and processing of DNA cold case samples. As an end result, the laboratory will provide exceptional service to the citizens of Allegheny County and contribute to safer communities.

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**FY09 Recipient Name:** City of Philadelphia

**Award Number:** 2009-DN-BX-K142

**Award Amount:** \$993,589

**Abstract:** Project Goals and Objectives:

The Philadelphia Police Department Criminalistics Unit is requesting a total of \$993,589.00 in funding.

- \$104,773.82 is requested to outsource backlogged cases and reduce the current backlog of approximately 4,275 cases awaiting processing for pre-screening for biological material and DNA analysis. The backlog is expected to be approximately 4680 cases by September 30, 2009.

This funding will allow for the outsourcing of 105 cases for biological evidence pre-screening and DNA analysis. After pre-screening for biological material and DNA analysis by a contracted laboratory, the Philadelphia Police Department Criminalistics Laboratory and

DNA Identification Laboratory will technically review the results and effect inclusion into CODIS. It is estimated that from the 80 cases, 40 cases will contain sufficient biological material for DNA analysis. With this grant the Philadelphia Police Department has the potential to solve a substantial amount of Violent Crimes. The outsourcing of these cases for pre-screening and DNA analysis will not only save a great deal of time for forensic scientists and investigators but will safeguard the population of the city by increasing the chances of the apprehension of sexual predators, those committing murder and/or other violent crimes.

Approximately 10 cases per month will be sent to a contracted laboratory for Pre-Screening and DNA analysis. Once cases are analyzed and returned, member(s) of the Criminalistics Unit will technically review the results and enter any qualified profiles into the CODIS Database to be uploaded to the State DNA Index System (SDIS) and National DNA Index System (NDIS). Once the DNA Laboratory completes the CODIS entry, results will be forwarded to the appropriate District Attorney's, and/or investigative unit.

The advantages and benefits to outsourcing these cases are faster access to the forensic DNA profiles, rapid identification of Perpetrators, ability to identify any patterns and the time savings for the Philadelphia Police Laboratory staff.

- \$241,222.80 is requested for overtime for the Criminalistics Unit staff to screen backlogged cases for biological material suitable for DNA analysis, conduct DNA analysis and enter any obtained qualifying profiles into CODIS: It is expected that 242 backlogged cases will be analyzed in-house during the grant period.
  - \$338,686.38 is requested to fund salaries and fringe benefits for six (6) Biologist Trainees. The additional analysts proposed under this grant will be utilized to conduct the analysis of evidence from 339 backlogged cases. The cases will be screened for the possible presence of biological material suitable for DNA analysis and a DNA analysis conducted. Reports will be generated, technical and administrative reviews conducted, and any qualifying DNA profiles obtained, entered into CODIS.
  - \$265,126.80 is requested to purchase the following equipment.
    1. Four Qiagen EZ1 Advanced XL Robotic Workstations to automate DNA purification. This will increase the efficiency of the laboratory by reducing the time necessary for DNA purification by an estimated 75%.
    2. One Qiagen QIAgility system HEPA / UV Robotic Workstation to replace the laboratories current robotic system. It will be utilized for amplification setup, quantitation setup and aliquot reagents for automated PCR setup. The QIAgility is a compact benchtop instrument that enables rapid, high-precision PCR setup and is expected to save the laboratory 15% of the costly reagents used. Its smaller footprint better utilizes laboratory space.
    3. An additional Real Time PCR instrument - Roto-Gene Q - to meet the quantitative needs of the increased laboratory staff qualified to conduct DNA Analysis. This instrument was selected because of its increased speed, sensitivity and specificity.
  - \$43,779.20 is requested to contract with C.S. Tomsey Forensic Consulting to conduct on-site and off-site peer reviews of the department's DNA, Serology and Criminalistics sections. To assess the adequacy of this unit's staffing, equipment and physical plant. Additional duties of the consultant will include the review of Serological and DNA Training and Standard Operating Procedures for completeness and efficiency with proposing suggestions to improve and streamline operations.
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**FY09 Recipient Name:** Pennsylvania State Police

**Award Number:** 2009-DN-BX-K133

**Award Amount:** \$1,088,216

**Abstract:** PROJECT GOALS AND OBJECTIVES: This proposal will provide funding for overtime to enable the Pennsylvania State Police Bureau of Forensic Services to screen backlog serology cases for potential DNA analysis and to provide overtime for the analysis of the DNA backlog cases. Funds are also requested for equipment, computer hardware and software and supplies to continue to streamline techniques to maximize throughput in the analysis of casework samples. The overtime is for the serology sections in the six regional crime laboratories to screen evidence for DNA analysis and for the two DNA laboratories to complete the DNA analysis. Supplies and equipment are proposed for both the Bethlehem and Greensburg DNA Laboratories and for the six regional laboratory serology sections.

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**FY09 Recipient Name:** Instituto de Ciencias Forenses

**Award Number:** 2009-DN-BX-K170

**Award Amount:** \$408,520

**Abstract:** The proposed goal of this effort is to continue reducing turnaround time, increasing throughput, reducing casework backlog and fostering conformance to quality assurance standards for processes and personnel. This goal will be achieved via the execution of a series of measures/objectives which will impact various aspects of the operation. One of these intends to decrease the projected forensic-DNA casework backlog projected to September 30, 2009 (i.e., 2,500) by 223 cases, through the hiring of two forensic serologists, two forensic technicians and the overtime work of five in-house analysts. The genetic profiles Front end activities to be carried out will include 1) identification, 2) handling, 3) inventorying and 4) registering of the demographic information for each of the cases to be analyzed via the Laboratory Management and Information System (LIMS), and once the analyses are completed, entrance of the pertinent case information into File-Maker-Pro Database. Another capacity enhancing measure will be accomplished through the acquisition of one state-of-the-art DNA extraction/purification unit having capacity of 14 samples, and that utilizes magnetic bead technology. This unit is very versatile, intelligent and unique in the sense that it counts with built in protocols, sample bar-coding, tracking of analysis progress throughout the entire DNA purification process, as well audit trail capabilities. It will serve as another capacity enhancement measure and will be used upon validation by the personnel participating in this effort. Another measure that is envisioned to drastically improve throughput at the PR-IFS DNA Lab involves the acquisition and implementation of a novel and promising LIMS DNA Database Module which is *especially* designed to work in the DNA-Serology environment. Some of features include the system's inter-phase ability to transfer worksheets and sample data directly to automation workstations such as the ones on board at the PR-IFS DNA-Serology Lab and their return from the analytical platform (e.g., genetic analyzer) back to the module for further case management. The system also offers all the attributes needed to work in a paperless environment. It will enhance workflow efficiency and Expert Report confection expediency, among other things. Another important measure consonant with quality assurance involves the validation of our Expert System Technology in conformance to NDIS Acceptance Standards. In order to continue providing the guidance and reassurances that our personnel need, funds are respectfully requested to hire under contract two consultants; one for the DNA casework and another one for the DNA CO operation,

which is expected to achieve operational readiness before the first trimester of 2010 comes to an end. Also, funds will be used for acquisition of supplies with which to carry out the proposed backlog-reduction and validation efforts. All single-source genetic profiles thus obtained through will be uploaded into the NDIS. The Procurement Process of instrumentation, equipment and services will be accomplished in conformance to applicable State and Federal laws of the Commonwealth of Puerto Rico. Lastly, applicable Performance Measures/Indicators will be closely monitored and reported on through the corresponding GMS modules on a timely fashion.

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**FY09 Recipient Name:** Rhode Island Public Safety Grant Administration Office

**Award Number:** 2009-DN-BX-K143

**Award Amount:** \$109,744

**Abstract:** The Forensic Biology Laboratory at the Rhode Island Department of Health is the only Forensic DNA Laboratory in Rhode Island. The Laboratory is accredited under ISO 17025 Standards by Forensic Quality Services and undergoes external audits every two years to demonstrate compliance with the DNA Quality Assurance Standards established by the Director of the Federal Bureau of Investigation. This Laboratory serves also as the state CODIS (SDIS) site. Casework is submitted by more than 40 state and municipal police departments and other law enforcement agencies.

The Laboratory's current backlog of DNA cases is 233 days. The goal of this proposal is to reduce the backlog of DNA cases by a) outsourcing backlogged DNA casework, b) providing analysts with additional training, c) updating the laboratory information management system and d) purchasing an automated case file paginator.

We believe that by outsourcing casework, providing additional training to our staff and upgrading the laboratory information management system, the overall efficiency of our operation will be improved and the backlog reduced. By the end of the grant period, we expect the turn around time will be reduced to roughly 30 days, assuming no changes in staff or workload.

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**FY09 Recipient Name:** Richland County Government

**Award Number:** 2009-DN-BX-K068

**Award Amount:** \$104,767

**Abstract:** The Richland County Sheriff's Department is currently seeking funds to enhance its capacity for DNA analysis through the DNA Backlog Reduction Program Formula Grant FY 2009. With the implementation of this grant, the following goal will be achieved; reduce backlogged DNA casework. The current DNA laboratory staff of the Richland County Sheriff's Department will conduct to reduce backlogged DNA casework. The DNA analyst and technician reference will continue to coordinate and process DNA backlogged cases during this grant period facilitating the reduction of cases.

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**FY09 Recipient Name:** South Carolina Law Enforcement Division

**Award Number:** 2009-DN-BX-K101

**Award Amount:** \$1,482,621

**Abstract:** Project Goals and Objectives - This application is for Federal assistance for the FY09 Forensic DNA Backlog Reduction Program (CFDA No. 16.741, FY2009). Funds are being sought to improve the analysis capacity of the SLED Forensic DNA Laboratory so that DNA samples can be processed efficiently and cost-effectively. SLED proposes to increase its DNA staff through grant funds.

Funds are also being sought to handle, screen, and/or analyze backlogged forensic DNA casework samples. Overtime salaries for DNA personnel will be used in accomplishing this task. The SLED DNA Laboratory is an NDIS participant lab in good standing and is eligible to upload appropriate profiles to NDIS. Therefore, the resulting evidence profiles from analysis of these cases will be entered and searched in the Combined DNA Index System (CODIS) to assist state and local agencies to ultimately solve crimes. The funds may also be used to conduct post conviction DNA testing pursuant to a court order. All DNA analyses performed at SLED using funds from this program will be maintained under the applicable federal privacy regulations. SLED is also seeking funds to renovate lab space for additional analyst workstations. Current lab space is currently over intended capacity. SLED administration has approved the hiring of additional personnel using grant funds. The renovated lab space is critical to fully and efficiently utilizing our staff.

Funds are being sought to provide external training in DNA analysis for analysts who have recently started accepting cases, as well as providing required continuing education and training for DNA analysts. New technologies presented in this training enhance the lab's capabilities in implementing new DNA methodologies and to increasing throughput through exposure to novel automation and techniques.

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**FY09 Recipient Name:** Office of The Attorney General, South Dakota

**Award Number:** 2009-DN-BX-K145

**Award Amount:** \$100,000

**Abstract:** The South Dakota Forensic Laboratory (SDFL) is the only public laboratory in South Dakota capable of forensic DNA testing. With NIJ funding and authorization from the South Dakota Attorney General, the SDFL hired three additional employees to conduct DNA-related activities. Two of the new employees have completed their serology training and one is anticipated to complete her DNA training in 2009 or 2010. The third employee serves to monitor DNA database compliance (are law enforcement officials submitting all the DNA samples they are supposed to). With previous NIJ funding the SDFL DNA examiners have been able to: 1) maintain and support the additional personnel that have increased the output of completed cases; and 2) operate at a higher efficiency by not sharing/waiting for equipment. The South Dakota Forensic Laboratory has enjoyed a 30-60 day turnaround time on DNA cases for several years now. This has largely been accomplished through the utilization of NIJ funding. This funding will allow us to continue that turnaround time.

Goal #1 – With NIJ funding, the SDFL will continue general casework capacity.

Objective#1 – purchase DNA supplies needed to analyze evidence for DNA and enter all eligible DNA profiles into CODIS.

Objective #2 – send 3 DNA examiners to continuing education training in Kansas City, Missouri in 2010.

Objective #3 – purchase a portable dehumidifier and freezer to store DNA evidentiary samples.

Goal #2 – Continue purchasing DNA database collection kits for qualifying arrested felons and enter those profiles into CODIS.

Objective #1 – purchase DNA database collection kits so all arrested felony offenders DNA can be submitted to CODIS per South Dakota state statute.

The BEAST LIMS system will adequately track progress on our proposed goals. Once the funding is received, the plan will be to immediately begin expending those funds once our remaining funds from our 2007 and 2008 awards are expended.

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**FY09 Recipient Name:** State of Tennessee

**Award Number:** 2009-DN-BX-K077

**Award Amount:** \$465,570

**Abstract:** During the fiscal year 2007-2008, the TBI's Serology/DNA labs conducted examinations on 2,073 cases consisting of 8,137 exhibits. The number of exhibits and testing is increasing due to all crime types increasing and an increase in property and epithelial "touch" DNA requests. While the addition of equipment, personnel and overtime over the last 3 years has helped increase throughput and decrease turnaround, a backlog still persists in all 3 labs. Overtime funding is reducing our DNA backlog; however, maintaining instrumentation is now the crucial factor for increasing throughput and maintaining turnaround.

Due to the current economy, the TBI will be eliminating all maintenance contracts on existing DNA instrumentation to reduce the budget. As a result, when a genetic analyzer or other instrument has technical issues, repair may not be possible and may be dependent on non-existing funds. Additionally, even when funds for repair are available, without maintenance contracts, the TBI will have to "wait in line" for service as other labs with maintenance contracts would be given priority. Grant funding will be used to maintain our current DNA instrumentation by way of maintenance contracts.

Grant Funding will also be used to maintain our existing document control system purchased under our no-suspect grant. This system houses critical DNA/laboratory documents. Additionally, funding will be used to pay the maintenance fee for our video conference system also purchased under the no suspect grant. The system connects the three DNA laboratories across our state in Memphis, Nashville, and Knoxville. Training, in service, protocol reviews, quality assurance issues, and DNA audits are some of the uses in place for our 3 DNA laboratories.

Grant funding for equipment will be used to purchase a TubeWriter work station for each DNA lab which will be used to automate the labeling of extraction, amplification, and other tubes to for storage and processing of DNA. A temperature monitoring system will be purchased for the

Nashville lab to monitor and record critical temperatures for refrigerators, freezers, dry baths, ovens, and subzero freezers in the DNA lab. This will also free up the time spent for reading and recording temperatures by analysts and technicians for casework. Funds will be used to replace the water deionization units in the Nashville and Memphis DNA labs as they are failing due to age of the systems. Grant funds will be used to purchase an additional 3130 genetic analyzer for the Memphis and Nashville lab to increase throughput.

Finally, grant funds will be used to provide mandatory training for DNA analysts from all 3 DNA labs. The meetings attended will present additional information on the new chemistries and instrumentation and new casework approaches for DNA evidence. This training will consist of traveling to the 21<sup>st</sup> Annual Human Identification Conference sponsored by the Promega Corporation, the Association of Forensic DNA Analysts and Administrators Meeting, the Bode Advanced DNA Technical Workshop and the American Academy of Forensic Sciences Meeting.

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**FY09 Recipient Name:** City of Austin

**Award Number:** 2009-DN-BX-K056

**Award Amount:** \$262,634

**Abstract:** The City of Austin is a home-rule municipality situated in Travis, Williamson, and Hays Counties of Texas. The City of Austin Police Department Crime Laboratory, managed by the Forensic Sciences Division, provides forensic and investigative services to over 743,074 persons residing within 296 square miles. In 2004, the city opened a state-of-the-art forensic facility and in 2005, received ASCLD/LAB Legacy Accreditation in the areas of biology, toxicology, controlled substances, firearms, latent print, and crime scene. The laboratory underwent a successful external audit in July of 2007, and by 2010 must attain ASCLD/LAB International Accreditation, which is the new standard.

In Austin, the UCR violent crime rate has increased by 8% from 2005 to 2008, growing from 489.6 to 532.1 violent crimes per 1,000. In 2007, the City of Austin proportion of the State of Texas total number of UCR, Part 1 Violent Crimes reported to the FBI was 4.71%.

With this application, the City of Austin requests \$262,634 in grant funding from the U.S. Department of Justice, Office of Justice Programs, National Institute of Justice FY 2009 Forensic DNA Backlog Reduction Program for a proposed project period of October 1, 2009 – March 31, 2011.

The goal of this program is to solve violent crimes citywide. To accomplish this goal, the program will focus on three primary objectives: to reduce forensic DNA sample turnaround time, to increase the throughput of the APD Crime Lab DNA Section, and to reduce DNA forensic casework backlogs. Program objectives are linked to essential services with measurable outcomes. If funding is awarded, the program anticipates vast improvements in the APD Crime Lab DNA Section by purposing funds for overtime, equipment, supplies, and training. The City of Austin requests grant funding in the amount of \$58,051 to allow existing laboratory employees to work on an overtime basis; \$106,028 to purchase essential equipment; \$89,180 to purchase supplies; and, \$9,375 to send five laboratory employees to out-of-state training. *When combined, the request for overtime and supplies for in-house processing of backlogged DNA*

*casework is \$147,231, or an average \$808 per case.*

The City of Austin's FY 2009 Forensic DNA Backlog Reduction Program, which takes an innovative approach to maximizing impact and ensuring cost effectiveness, will reduce the average number of days between submission of DNA evidence samples and the delivery of results, will increase in the number of DNA samples processed per analyst per month, and will reduce the backlog of forensic DNA casework.

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**FY09 Recipient Name:** City of Houston

**Award Number:** 2009-DN-BX-K130

**Award Amount:** \$1,311,800

**Abstract:** The Houston Police Department is requesting grant funding for the purpose of implementing automation in the DNA Section of the Crime Lab Division. The DNA Section has undergone two assessments on increasing efficiency with a most recent one by the Forensic Science Services. The grant funding will be use to plan and implement improvements designed to improve turnaround times to 30 days and decrease the backlog to a target of 100 cases. The Crime Lab currently processes evidence manually and cases are assigned to a specific analyst. We cannot continue to process evidence in this manner and must implement automation efficiently and effectively to address a growing backlog and increasing demand. Our strategy is to outsource a limited number of pre-screened cases to DNA outsource labs, employ a project manager to fast-track the automation project, purchase robots and existing protocols, validate equipment with assistance from experience labs, integrate robots with LIMS and train staff on automation.

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**FY09 Recipient Name:** County of Bexar

**Award Number:** 2009-DN-BX-K095

**Award Amount:** \$364,593

**Abstract:** As part of our ongoing effort to advance the workload capacity and reduce the backlog of pending forensic Serology/DNA casework at the Bexar County Criminal Investigation Laboratory (BCCIL), an ASCLD/LAB accredited laboratory since 1998, and to better serve our community, we propose continuing the development and implementation of a DNA backlog reduction program through the purchase, validation, and evaluation of a commercial, off-the shelf, Forensic Laboratory Information Management System (LIMS) with evidence barcode capability to replace our current, poorly functioning proprietary LIMS. The state-of-the-art LIMS software and bar code scanning equipment will enhance the efficiency of total case request turnover and increase the output capacity of Serology/DNA case samples to meet our primary goal of reducing the amount of time a sample requires for genetic analysis. Currently, there are about 50 forensic Serology/DNA cases that require examination for the presence of biological fluids (blood, semen and saliva) and/or DNA analysis. In addition, the demand for DNA testing has exceeded capacity, especially with the productivity inefficiencies incumbent in the current proprietary LIMS. The resulting DNA casework backlog represents approximately a 2 month waiting period for our client law enforcement agencies. We will accomplish this project goal by purchasing, validating, and implementing a commercial Forensic LIMS. The most cost effective

methods, as required by authorized Bexar County policy, will be used to purchase all necessary equipment and software.

The Assistant Crime Laboratory Director (ACLD) will manage and monitor this capacity enhancement program. The ACLD, acting as the Grant Manager and Point of Contact, will compile and send all necessary progress reports to the appropriate agencies.

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**FY09 Recipient Name:** Harris County

**Award Number:** 2009-DN-BX-K078

**Award Amount:** \$729,354

**Abstract:** The goal of this proposed project is to reduce our current backlog of over 771 DNA cases and to improve the Harris County Medical Examiner's Office (HCME) Biology laboratory in two major areas: speed of analysis and documentation. The implementation of this program will reduce the number of backlogged DNA cases and enhance the efficiency, capability and capacity of the HCME Biology laboratory to improve the laboratory's ability to assist in criminal and death investigations

The Harris County Medical Examiner's (HCME) Biology Laboratory will have a backlog of over 500 cases as of September 30, 2009. As a direct result of previous NIJ funding, our capacity to process cases has increased. With funds requested through this grant, we will outsource or test in-house (on overtime) backlogged DNA cases. A total of 193 cases will be tested by a combination of outsourcing/ in-house overtime screening and reviewing plus fully in-house testing via overtime, leaving a backlog of approximately 300 cases. Cases outsourced will be that have been outsourced will be reviewed by HCME DNA analysts. To insure cases are reviewed within the 90-day requirement and that current workflow is not interrupted, DNA analysts will work overtime to analyze outsourced cases. Upon completion of the analysis of the backlogged cases, any new case submissions can be analyzed more promptly.

To accelerate analysis, we plan to purchase an ABI 3730, a Tecan Evo, and one sperm finder. The goal of the proposed project is to decrease our current backlog of forensic cases awaiting DNA analyses and increase our capacity to analyze cases with the potential for DNA analysis. With the purchase of new equipment our laboratory will be able to increase our capacity and decrease our backlog.

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**FY09 Recipient Name:** State of Texas

**Award Number:** 2009-DN-BX-K071

**Award Amount:** \$2,097,729

**Abstract:** In this project to reduce the number of forensic DNA cases awaiting analysis, the eight Texas Department of Public Safety Crime Laboratories will work as a team to engage its sixty-six Forensic Scientist DNA analysts to work overtime examining evidence, developing DNA profiles, and then entering those forensic profiles into the CODIS DNA database.

In this grant application, funds are requested to pay overtime to DNA analysts, and to acquire supplies and kits to perform forensic DNA testing in house. The goal will be to complete the

analysis of evidence on 1,200 forensic DNA cases. In conjunction with this work, DNA analysts will engage in some continuing education by attending DNA training workshops.

A second part of this project will be to enhance the capacity of the eight DPS Crime Laboratories to examine forensic DNA cases, by acquiring new equipment. Especially, the focus will be on adding robots for the set-up of STR and for the genetic analyzer plate set-up. In addition, larger, higher through put genetic analyzers will be acquired moving from 4-column capillary electrophoresis instruments to 16-column instruments, and expert DNA analysis software will expedite the analysis of the DNA data. These equipment enhancements, coupled with the State of Texas' efforts to replace all eight of these DNA crime laboratories with much larger facilities, should enable much greater achievements in the forensic DNA realm.

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**FY09 Recipient Name:** Tarrant County

**Award Number:** 2009-DN-BX-K091

**Award Amount:** \$235,309

**Abstract:** The Tarrant County Medical Examiner's Office is a regional medical examiner's facility located in Fort Worth, Texas that provides services to Tarrant, Parker, Denton, and Johnson Counties. These counties represent a core population of approximately 2.75 million citizens. The Medical Examiner's Office also operates a multi-discipline crime laboratory that offers Forensic Biology and DNA analysis. The Forensic Biology/DNA laboratory not only serves the Medical Examiner, District Attorney, and other Tarrant County agencies, but also provides analysis, on a fee for service basis, to law enforcement agencies throughout the four counties served, as well as many other agencies throughout North Central Texas and the rest of the United States. Cases are also accepted for court ordered DNA testing in post-conviction cases from the defense community. In 2008, a total of 99 agencies submitted requests to the Forensic Biology/DNA laboratory resulting in a total of 848 submissions for evidence screening and/or DNA analysis. The Tarrant County Medical Examiner's DNA Laboratory is accredited by ASCLD/LAB and is also an approved FBI CODIS laboratory, participating in the local, State, and National DNA Databases. Based on data reported to the Department of Public Safety Uniform Crime Reporting Bureau indicated that the violent crimes that occurred in the core area served and worked by the TCME during 2007 was approximately 3.61% of the total violent crimes reported in Texas during that year.

The number of DNA samples analyzed at the Tarrant County Medical Examiner's DNA Laboratory is growing every year, which in turn is increasing the lab's number of backlogged cases. The DNA lab had a backlog of approximately 55 cases by the end of 2008 and will only increase in the future. Also, the Tarrant County Medical Examiner's DNA Laboratory will be implementing Y-STR and MiniSTR analyses, which will likely increase the number of DNA requests and the number of backlogged cases even more. The TCME will be one of few labs in Texas that offer autosomal STR typing, Y-STR typing, and MiniSTR typing.

In order to help reduce the backlog of cases, reduce the case turnaround time, and increase the number of DNA samples analyzed, the Tarrant County Medical Examiner's Crime Laboratory is requesting a grant of \$235,309. The grant funding would be used to purchase, install, and validate equipment that would greatly enhance the capabilities of the DNA lab. Some of the

equipment would expedite the throughput of cases and increase the quantity of samples analyzed such as the purchase of an ABI 3130 to replace one of the ABI 310 currently used, it would double the amount of samples analyzed during one run and decrease the run time in half. The purchase of an expert system would also decrease the amount of time utilized for data analysis.

The Maxwell 16 LEV Instruments would decrease the hands-on time in the lab through automation allowing the analysts to spend more time dealing with other bottlenecks in the lab such as report writing and technical case reviews. The funding would allow for the supplies for the validation of all instruments obtained, provide an additional level of security for evidence, and allow for the Forensic Biologists at the Tarrant County Medical Examiner's Office to obtain the continuing education hours that are required.

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**FY09 Recipient Name:** University of North Texas Health Science Center At Fort Worth

**Award Number:** 2009-DN-BX-K058

**Award Amount:** \$573,781

**Abstract:** The University of North Texas Center for Human Identification (UNTCHI) Laboratory for Molecular Identification, located on the UNT Health Science Center Campus in Fort Worth, maintains a full service forensic laboratory accredited under the requirements of ISO 17025 and the DNA National

Standards for DNA Analysis by the Forensic Quality Services – International Division. The UNTCHI Laboratory provides STR (autosomal and Y) and mtDNA testing to law enforcement officials throughout the State of Texas. UNTCHI has been responsible for screening and analyzing backlogged criminal forensic casework for the City of Fort Worth and law enforcement agencies throughout the State of Texas. With funding provided through NIJ all of the testing is done at no charge. UNTCHI functions as an adjunct laboratory for the Texas Department of Public Safety Crime Laboratory (TXDPS) and provides the analysis of casework samples requiring mtDNA, Y STR analysis, MiniFiler™, and all cases requiring familial/kinship analysis. The number of cases submitted to UNTCHI has more than doubled over the past two years (214 cases in FY 2006 to 475 cases in FY 2008), and we anticipate a backlog of 175 cases on 9/30/09. As a result, the number of samples requiring both screening and analysis at our facility has dramatically increased. Based upon the data for the first six months of FY 2008, the number of days from submission to report is 124 days. However, cases are being completed in approximately 12 days from the time they are started. The average number of cases worked per analyst is 11. In conjunction with the TXDPS, UNTCHI is eligible for \$573,781.00 of the available funding allotted to the State of Texas. Funding provided through the FY09 Forensic DNA Backlog Reduction program will allow UNTCHI to hire four forensic analysts and a forensic technologist, and purchase the necessary reagents and materials to process backlogged forensic cases from the City of Fort Worth, and other law enforcement entities within Texas. With continued process improvements and efficient utilization of resources, it is anticipated that the available funds will UNTCHI to screen and perform the DNA analysis on 520 forensic cases during the 12 months of FY 2009. Additional staff should also result in an overall reduction in turn around time form date of submission. All eligible forensic DNA profiles will be into entered into CODIS in conjunction with the TXDPS and uploaded into NDIS where applicable.

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**FY09 Recipient Name:** Utah Department of Public Safety

**Award Number:** 2009-DN-BX-K076

**Award Amount:** \$283,707

**Abstract:** The Bureau of Forensic Services (BFS) is requesting \$283,707.00 in 2009 NIJ/DNA Backlog Reduction Program grant funds in behalf of the Biology/DNA Section of the laboratory. The goals are to reduce DNA case turnaround time, increase the throughput in the DNA laboratory, and reduce DNA forensic casework backlogs.

The Utah Bureau of Forensic Services (BFS) consists of three forensic laboratories strategically located throughout the state, and employs 29 full-time employees. BFS is designed to assist local, state, and federal law enforcement officers and prosecutors in analyzing evidence taken from crime scenes throughout Utah.

BFS is the only ASCLD-LAB International accredited, government-owned forensic laboratory system in Utah. DNA analysis services have been provided by BFS since 1992 in the Salt Lake City forensic laboratory. All three BFS laboratories were awarded ASCLD-LAB International accreditation during June 2007.

The biology section of the laboratory is audited every year. The laboratory is audited by an external agency at least one time every two years. The external audit schedule for the last three years is as follows:

- December 11-15, 2006 – External Audit (ASCLD/LAB) Result: No findings
- July 30<sup>th</sup> -31<sup>st</sup>, 2007 – External Audit (NFSTC) Result: No findings
- August 24<sup>th</sup> -25<sup>th</sup>, 2009 – External Audit –Scheduled- (NFSTC)

When the section is not being audited by an external agency an internal audit is conducted. The biology section of the laboratory has successfully completed all of its internal and external audits and complied with all audit documents and reviews. The last internal audit was December 2<sup>nd</sup> – 4<sup>th</sup>, 2008.

Methods to achieve the goals include:

- 1) Providing external training for the DNA analysts (2010 Promega Symposium and the 2010 AAFS Meeting).
- 2) Purchasing equipment and supplies to streamline the DNA analysis process (DNA supplies, microscope, extraction hoods, and laptops).

As of May 2009, five of the six authorized DNA examiner positions were filled. Due to budget cuts BFS recently lost a DNA analyst position, and there is no plan to have that position filled. Between January and June 2009, there have been 52 DNA cases, 154 serology-screening cases, and 432 items submitted to the Biology Section for examination. The four fully trained examiners plus the supervisor are working on current cases as well as some from early 2009. The fifth examiner is expected to complete her training by the end of June 2009. The fifth DNA examiner will begin casework in July 2009, which will further assist in caseload reduction. Currently, the turnaround time is 29 days for the average DNA case, and the throughput is about 7.6 samples a month per analyst. The backlog is being reduced because of the automated equipment and training purchased with NIJ grant funds.

DNA administration estimates that the turnaround time will be maintained to less than 30 days and the throughput will increase to 10 samples a month within 12 months using the Federal funding requested in this FY 2009 program. This is dependent, however, on turnover and caseload. The laboratory is currently validating alternate DNA testing methodologies (Y-STR's and Minifilers), which may potentially increase the amount of cases and samples per case that they run. Over the past year BFS has noticed a need and a want for alternate forms of DNA testing, especially Y-STR's. The laboratory is expecting this testing to add to their caseload. BFS has begun to open their case acceptance policy as well, and are now allowing felony type burglaries/thefts and property crimes into the laboratory. The addition of these types of cases will also increase the number of cases and samples that the analysts are processing.

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**FY09 Recipient Name:** Virginia Department of Forensic Science

**Award Number:** 2009-DN-BX-K080

**Award Amount:** \$950,167

**Abstract:** The Virginia Department of Forensic Science (DFS) will utilize grant funding acquired to pay the salaries and fringe benefits for five "restricted position" (i.e., grant funded) full-time personnel. One full time forensic laboratory specialist will be hired who will contact Virginia's law enforcement agencies on a regular basis to determine the status of the backlogged cases in order to prevent unnecessary analysis from being performed on cases that have been terminated or already adjudicated. This individual will also assist the DNA examiners with support functions such as making reagents, quality control of critical reagents/equipment, and inventorying and ordering supplies. The remaining four positions will be filled by scientists who will be conducting scientific exams on items of evidence and reference samples. It is estimated that these staff additions will allow for the completion of an additional 480 backlogged forensic biology cases during the grant period from October 1, 2009 through March 31, 2011. As of May 31, 2009, there were 1,295 backlogged cases in the Forensic Biology Section statewide, with an average turnaround time of approximately 113 days for a case. It is anticipated that the four newly hired scientists will be qualified to assist with reducing the section's case backlog. Initially these new scientists will be assigned the simpler and smaller cases. Therefore, it is anticipated that each scientist will be able to analyze at least 10 cases per month, totaling 40 cases per month. This should permit the more senior and experienced examiners to focus on the time consuming, complex and difficult backlogged cases.

All eligible forensic DNA casework profiles will be uploaded to the Combined DNA Index System (CODIS) as expeditiously as possible. Thus, more timely information, derived from the analysis of these types of cases, can be provided to law enforcement agencies throughout Virginia for use in charging, arresting, and trying suspects, exonerating them, and solving cases without suspects. In addition, all DNA analyses performed under this program will be maintained in accordance with the applicable state and federal privacy regulations. Additional funds will be used for purchasing supplies associated with screening and conducting DNA analysis on the backlogged cases. New robotic systems will be purchased to replace current robotic systems used by DFS. Funding will also be used for the statewide DNA annual mandatory training in accordance with the FBI Quality Assurance Standards.

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**FY09 Recipient Name:** Vermont Department of Public Safety

**Award Number:** 2009-DN-BX-K111

**Award Amount:** \$100,000

**Abstract:** The analysis of DNA casework and the uploading of DNA profiles to NDIS are of paramount importance to the Vermont Forensic Laboratory (VFL). Previous NIJ grant programs have allowed the VFL to attack the growing casework and convicted offender backlog problem through outsourcing cases to vendor laboratories, evaluating backlog cases by contract personnel, and by the implementation of the use of new instrumentation. Our goal is to continue to make progress in reducing our backlog by applying the grant funds from the 2009 Forensic DNA Backlog Reduction Program into the methods which have had success, notably the use of additional personnel, overtime for existing staff and funding to allow the purchase of adequate supplies to conduct the necessary analyses. One individual was hired four years ago under an NIJ grant and we will continue her employment to assist in the handling and reducing any backlog of criminal forensic DNA casework samples. It is our practice to contact the officers or prosecuting attorneys prior to the start of case analysis to screen the active from the non-active cases. This person, a forensic chemist, will assist in this process, in the screening of sexual assault cases and will also assist our DNA casework analysts. Overtime money for serologists and DNA personnel will allow more time to process the backlog samples. We will also use the funding to allow us to purchase adequate supplies to continue to process a wide range of cases including property crime cases and to fund the contracts for maintenance of the capillary electrophoresis instrument and for calibration of pipettes. This combination of efforts will assist our laboratory meet our overall objective which is to provide the level of DNA analysis to meet the needs of the Vermont Criminal Justice System.

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**FY09 Recipient Name:** Washington State Patrol

**Award Number:** 2009-DN-BX-K141

**Award Amount:** \$984,340

**Abstract:** The DNA Capacity Enhancement and DNA Backlog Reduction programs have been used to drive the modernization of the Washington State Patrol Crime Laboratory Division DNA Laboratories. This modernization continues with the current FY09 solicitation.

Over the last twelve months from May 2008 to 2009 DNA casework capacity has been increasing despite losing productivity to staff turnover, training and other duties such as work preparing for ISO accreditation this fall and in continued support of crime scene response participation. There were 14 casework DNA forensic scientists that qualified for STR casework in 2008 and 4 in training that carried over to 2009. There has been progress in reducing the DNA case backlog. It has recently dropped from 847 pending requests at the end of 2008 to 779 at the end of February 2009. By continuing progress in capacity and increasing efficiency there should be additional backlog reduction and improvement in turnaround times.

There are three components to our proposal for the 2009 NIJ DNA Backlog Reduction Grant formulae funds to increase DNA analytical capacity for casework DNA samples:

1. Laboratory Equipment

- Adding additional BioRobot EZ1 DNA extraction instruments (four new instruments) to the Seattle, Vancouver, Spokane and Marysville casework laboratories adds infrastructure to increase analytical efficiency and quality.
  - The 16 capillary upgrading of three capillary AB 3130 CEs to 3130XLs at the Seattle, Vancouver and Spokane laboratories to complement the impending implementation of the BioRobot Universal instruments.
  - Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory will increase efficiency and provide the laboratory with a margin of safety should another AB 7500 instrument breakdown and/or need servicing.
2. Salary and Benefits of two DNA Forensic Scientist 3s
    - Continuation of the position in the Marysville Laboratory who is completing her training at this time and an additional position (project) to add an experienced DNA Forensic Scientist into the Tacoma lab. This person will help work on backlogged cases without the substantial delay required when training new forensic scientists.
  3. Salary and Benefits of DNA Information Technology Laboratory Employee
    - Continuation of the DNA IT employee is needed to maintain and add new instruments and forensic scientists into the state-wide DNA laboratory instrument network. This person is implementing the electronic notebook of worksheets that was developed to comply with form standardization to meet ISO standards.
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**FY09 Recipient Name:** Wisconsin Department of Justice

**Award Number:** 2009-DN-BX-K155

**Award Amount:** \$744,491

**Abstract:** The Wisconsin Department of Justice (WDOJ) Crime Laboratory System currently has DNA analysis units in its Madison and Milwaukee Laboratories. The WDOJ Crime Laboratories are accredited by the American Society of Crime Laboratory Directors / Laboratory Accreditation Board (ASCLD/LAB). This includes the Madison and Milwaukee laboratories. The most recent accreditation inspection was performed in May of 2006. As a part of accreditation, the Crime Laboratories perform yearly audits of their operations in each functional area. The DNA Units in the Madison and Milwaukee laboratories undergo external audits every two years. These audits are used as the basis for yearly reports regarding performance in adhering to the accreditation criteria. These units examine biological samples from crime scenes and obtain STR DNA profiles on them to either compare to suspects in the case or to enter into the CODIS system to obtain suspects. Both laboratories have the ability to upload profiles generated under this program to NDIS. All DNA analysis performed under this program will be maintained under applicable federal privacy regulations.

Wisconsin State law requires the State Crime Laboratory to provide DNA forensic services to process evidence involving a potential felony charge. At the beginning of 2008, there were 1,805 DNA cases unprocessed. This comprises the DNA backlog. In that year, the State Crime Laboratory received 3,260 DNA cases for processing from local law enforcement, and was able to complete 4,011 cases. Reasonable projections of future caseload combined with necessary hiring and training periods indicate that the DNA backlog will continue to grow significantly. The increase in receipts plus the current inability of existing State Crime Laboratory resources to handle current caseload indicate the compounding nature of the problem. At the present time

almost all of the analyses are performed on cases with suspects and court dates/orders. The department realizes that the DNA backlog cannot be eliminated in its entirety. No case is turned around immediately, and if every case were on the bench, some analysts would have nothing to do. The better approach is to target a manageable pending case load. The goal would be to achieve a 60 day average turn-around time. This approach maximizes resources in that it attempts to match the number of staff with the expected case submissions. The crime laboratories will use its BEAST LIMS as a means to record and track the required case related information as defined in the performance measures of the solicitation. The BEAST LIMS will track submissions, number of samples, turnaround times, and throughput and provide the required statistical data.

The goal of this plan is to continue to reduce DNA sample turnaround time, increase throughput, and reduce our casework backlog. In addition, the improvements proposed in this plan are critical to preventing future DNA backlogs. As such the Department of Justice proposes to use these funds to acquire additional DNA laboratory instrumentation and automation and address the mandatory training requirements for all DNA analysts.

Sperm Finding and Documentation System: The analysis of a sexual assault case by a forensic laboratory is a multi-step procedure. One step in this process is an often lengthy manual microscopic examination of slides of vaginal smears or smears from other crime scene evidence to determine the presence or absence of spermatozoa. This step is important since identification of the presence and quantity of sperm available is a good indicator of the potential success of a DNA extraction and analysis. However, manual screening of slides for sperm is labor intensive and can take considerable time, depending upon the nature of the slide. This often creates a workflow bottleneck, which impedes rapid turnaround of sexual assault cases. There is consequently need for effective automated procedures to facilitate swift and less labor intensive analysis of slides. Such automated methods can improve laboratory productivity, decrease case turnaround time, provide valuable information to more effectively determine which evidence items would be suitable for analysis, and assist forensic scientists in making better use of limited crime scene samples and laboratory resources. This automated processing and analysis can save valuable time and money that can be re-directed to address other important analyses. This information will be located at the Milwaukee laboratory. \$139,000

TECAN HID Evolution System: The HID Evolution System provides a comprehensive, validated solution for DNA analysts by reducing the hands-on sample handling, minimizing pipetting errors, and streamlining the transfer of sample data between instrumentation. This system, which will be located at the Milwaukee laboratory, will automatically set up quantitative real-time PCR, normalize DNA concentrations and set up PCR reactions. This will increase efficiency and case throughput. \$228,000

Expert System: This system is needed initially for a quality control check on all robot plates. It will help to insure that no contamination occurred during the robotic process. Furthermore it can be expanded to do data review, initially for the single source samples in the databank and then later for case work review. \$95,000

BEAST Customization: The BEAST program could be utilized more fully with slight modifications to some of the areas. DNA utilizes complete BEAST technology in their analysis scheme but it could be much more user friendly with some slight customizations. Also the unit's work flow could be smoother if the program was adapted to our way of working evidence and documenting it. \$40,000

Large Centrifuge: This would be utilized for processing larger DNA samples, such as urine, which are being submitted on a more frequent basis. \$8,000

Personal Centrifuges: These would be used to spin reagents at a quicker pace right at each scientist's bench. \$12,000

Microscopes: Replace aging microscopes where the stages are slipping making sperm searches difficult and to give greater capacity so scientists are not waiting to use a microscope. \$22,000

DNA Punch System: A punch processing system which would allow us to automate the analysis of DNA samples more fully using robotics. \$35,000

Complete Laboratory Wireless Capability – Milwaukee Laboratory: The laboratory wireless bench laptops for casework mobility are hindered by hard wired label printers. In order to increase laboratory time efficiency in completing casework, upgrade for complete use of wireless system is necessary. \$46,291

Brady TLS200 Portable Printers: Acquiring these printers will allow for increase in efficiency by allowing consistency in labeling tubes and packets. \$10,200

Training: With the increase in DNA staff, from 29 in 2006 to 60 in 2008, come the increase costs in mandatory annual training. The Madison laboratory has 35 analysts and the Milwaukee laboratory has 25 analysts. FBI guidelines require 8 hours of training annually. It is impractical to send all analysts to required training. As such we propose sending a certain number of analysts to various symposiums and academy training events as well as bring in qualified trainers to conduct in-house training at both laboratories. Details are included in the budget narrative and worksheet. \$37,100

Laptop Computers: The DNA analyst use laptop computers at the bench to enter and upload notes and diagrams. We will acquire two (2) laptop computers to replace failing units. 2 @ \$2,500 = \$5,000

DNA Evidence Storage: Replace the dehumidifier equipment in the DNA evidence storage area. \$10,900

Basic Infrastructure Support: We propose to obtain materials used in basic DNA analysis processes such as extraction, quantitation, amplification, fragment separation, and data analysis. By purchasing extraction technology kits (such as Prepfiler or other bead chemistry) this would allow us to optimize our forensic sampling processing workflow and generate high quality to meet and/or exceed Federal quality assurance standards. \$51,000

Without the continuation of this program for the analysis of backlogged DNA cases, the Wisconsin State Crime Laboratories will not be able to offer these analyses to state and local agencies on any kind of a consistent basis. In addition, the improvements proposed in this plan are critical to preventing future DNA backlogs. Many of these crimes would never be solved and the perpetrators would be loose on the streets to commit more offenses.

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**FY09 Recipient Name:** West Virginia State Police

**Award Number:** 2009-DN-BX-K081

**Award Amount:** \$227,834

**Abstract:** The West Virginia State Police devised a long term development plan for the Biochemistry Section (DNA) six years ago. As a part of the plan, the unit was processed mapped in 2006 to further define the original long-term plan. The goals of the plan were to increase the efficiency and output of the section without significant increases in personnel. In accordance with the plan the section has converted from gel based genetic analyzers to capillary-based units and implemented real-time PCR in its procedures. Liquid handling robots have been purchased and are being validated. Expert Systems are being evaluated to aid analysts in the analysis of the data generated by the genetic analyzers. The remaining key component identified by the process mapping is a new LIMS system including an instrument integration server, batching module, and communications module. The current system, including the LIMS and other data management software is tedious and difficult to use. The Laboratory has completed its evaluation of commercial LIMS and is in the process of sending requests for proposals to three vendors. In our evaluation of LIMS, the Laboratory has concluded that the services of an information technology contractor will be needed for a smooth transition from the current system to the new one. The areas of need that will be addressed with this grant are the acquisition of the LIMS batching module for managing the collection worksheets and case file data, the use of a contractor for the implementation of the new LIMS, and the acquisition of an additional 7500 Real Time PCR Instrument. It is expected that data analysis, case review and case file management will be improved by the implementation of the components to be purchased with the 2009 grant.

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**FY09 Recipient Name:** Wyoming Office of the Attorney General

**Award Number:** 2009-DN-BX-K107

**Award Amount:** \$100,000

**Abstract:** The Wyoming State Crime Laboratory (WSCL) is located in Cheyenne, Wyoming, and is the only full service forensic laboratory in the state which provides examinations in Chemistry, Biology, Firearms/Tool marks, Latent Prints/Questioned Documents and Trace. The fundamental mission of the laboratory is to provide, in a timely manner, a full range of forensic services to all local, state and federal law enforcement agencies throughout the state. *This projects goals and objectives are to reduce the DNA casework backlog and to increase the DNA analysis capacity at the WSCL using NIJ funding through this solicitation.*

We plan to reduce the DNA case backlog by the allocation of overtime hours to existing staff. The overtime will be used predominantly to handle, screen and analyze forensic DNA casework samples. A small amount of overtime will be used for the validation of new laboratory methods.

We plan to increase the DNA analysis capacity by the introduction of automation technology through the purchase of an automated liquid handler for use in PCR setup of both analysis and quantitation methods. The purchase of supplies necessary for our automated DNA extraction process and for the purchase of DNA analysis kits for use with casework is also included.

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