National Institute of Justice

Office of Investigative and Forensic Sciences

Final Reports Submitted Under Forensic DNA Backlog Reduction Program Fiscal Year 2009 Awards

July 2012

FY09 Backlog Final Reports

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

FY09 Recipient Name	Award Number	Award Amount
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
Connecticut 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 Saftey 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
South Dakota 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
	TOTAL FUNDING	**$62,271,832**

FY09 Recipient Name: Alaska Department of Public Safety
Award Number: 2009-DN-BX-K075
Award Amount: $206,386
Final Report:

- Goal 1 – 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. This goal was to be accomplished through procurement of reagents and supplies, and of equipment and supplies to establish a second laboratory space for extraction of DNA casework samples.
  - Progress Oct-Dec 09 – Owing to special condition #22, funds from this award had not yet been released. Therefore, no procurements occurred during this award period and no analyses occurred using funds from this award.
  - Progress Jan-June 10 – In this reporting period the lab procured a Qiagen BioRobot EZ1, a PCR workstation and additional supplies to establish a second extraction laboratory for processing DNA casework requests. The additional workspace was not yet fully operational as validation of the new EZ1 had not yet occurred. During this period, the laboratory also purchased reagents and consumables for processing DNA casework. No analyses had yet been conducted with the supplies and the laboratory was exhausting supplies purchased under a previous award.

- Progress July-Dec 10 – The equipment purchased in the previous reporting period was validated and the new laboratory space was put into use for forensic DNA casework analyses.
  Goal completed

In this reporting period, additional supplies and reagents were purchased for processing forensic DNA casework requests. The laboratory saw an increase in the samples analyzed per analyst and anticipated an increase in throughput to continue as additional analysts complete training and being casework analysis. Goal completed
It is noted that the turnaround time increased significantly from the previous period. This was owing to the laboratory completing analysis of backlogged cases. As the laboratory brought additional casework analysts online, cases that were backlogged from 2007 and 2008 were analyzed. While the backlog (at the end of this reporting period) was greater than at the beginning of the award period, it had decreased by 11% from the end of the previous reporting period.

- Progress Jan-Mar 11 – In this final reporting period, the laboratory completed procurement of a liquid handler to increase the throughput of the laboratory by decreasing the turnaround time from submission of a sample to delivery of test results. The length of time required to procure this equipment was due, in part, to the procedures required to purchase equipment where the laboratory does not already have similar instruments in place. State procurement rules for a sole-source purchase were followed to justify the purchase without soliciting bids. The laboratory intends to complete validation of this equipment during this calendar year. The validation was not intended to be completed using funds from this award. Goal completed

The remaining award funds were used to purchase additional reagents for the processing of forensic DNA casework samples.
The productivity per analyst has remained near constant from the previous reporting period to this one. However, the lab has experienced an increase in samples worked per analyst since the beginning of the award.
It is noted that the turnaround time increased significantly, once again, from the previous reporting period. This is again a result of the laboratory completing analysis of backlogged cases. As additional casework analysts have come online, cases that were backlogged from 2006 are now being analyzed. However, newly submitted cases are being reported more quickly than in previous years.
Goal completed
During this reporting period, the backlog of cases awaiting DNA analysis has decreased by 32. The 166 cases analyzed to date with funds from this award is far greater than the projected 102 cases. Additionally, while many of the supplies and reagents purchased under this award have been exhausted, a number of Promega PP16 kits remain. The laboratory is continuing to use these kits for amplification of forensic DNA casework samples. It is estimated the remaining supply will last for at least another 200 cases. However, supplies and reagents will need to be procured for the other steps of the analysis. Goal completed

FY09 Recipient Name: Alabama Department of Forensic Sciences
Award Number: 2009-DN-BX-K117
Award Amount: $947,152
Final Report: This FINAL reporting period from January 1- March 31, 2012 saw the Department of Forensic Sciences continue its significant progress upon this Award, with the following summary specifically relating to each Goal of this Award:

GOALS:
1. Capacity Goals related to the continued renovation of the Mobile DNA laboratory are in the final stages, and this Goal is COMPLETE. The renovation of the Mobile laboratory is funded by a combination of the FY09 and FY10 DNA casework Awards, as well as State funding, and is in the final stages, with final completion expected in the coming 3 months. The Federal funds utilized in this Award were dedicated to creation of architectural plans and the initial phase of the renovation, which increases the evidence processing areas from 1 to 4 stations, while also having a dedicated extraction area to robotic extraction, which cumulatively increases the efficiency and workflow of the DNA testing process.

2. The Department of Forensic Sciences accelerated its efforts and focus during the reporting period, and completed a significant amount of backlogged DNA casework in-house using Federally funded supplies and overtime. The State of Alabama is excited at the significant number of CODIS hits attributable to analyses funded from this Award over the course of the Award period. This goal is COMPLETE. For the final reporting period, with fund utilized through this Award, the Agency entered 263 additional profiles into CODIS, identified an additional 313 hits to previously unsolved casework, and utilizing overtime and supplies, completed an additional 196 cases during the January to March, 2012 reporting period. Cumulatively, for the entire award period, through in-house based analyses that focused funding on supplies and overtime, the Department of Forensic Sciences entered a total of 1,397 profiles into CODIS, identified 313 CODIS hits to previously unsolved casework, and completed testing on a total of 1,339 cases.

3. Provide continuing education opportunities for 19 scientists to attend the Bode, Promega and National CODIS conferences: This Goal is COMPLETE as scientists attended the conferences during the prior reporting periods.

4. Purchase equipment to increase the infrastructure and enhance the capacity of the DNA Laboratory: This Goal is COMPLETE as the State has purchased and the following equipment items - a refrigerator/freezer, three (3) centrifuges, 2 safety cabinets, two microscopes, 3 LIMS terminals, 3 vortexes, 2 widefield microscopes, and a hot block.

FY09 Recipient Name: Arkansas State Crime Laboratory
Award Number: 2009-DN-BX-K088
Award Amount: $685,500
Final Report: The goal 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.

Progress Oct. - Dec. 09 - The lab has already sent and processed a large number of cases using the funds. We will continue to send cases to Orchid and continue to decrease our backlog. Preparations have begun to renovate the lab space and collect the required paperwork to begin that work. Finally, the lab has been evaluating the GeneMapper ID-X software and structuring the validation plan, training classes, and implementation of the new software.

Progress Jan. - Jun. 10 - The lab has completed the outsourcing of samples using the funds of the grant. The lab is now finishing the review of this data. The renovations of the lab space are still proceeding. All equipment for the renovated space has been purchased. The lab has purchased and has been trained on the GeneMapper ID-X software and are currently validating the software for implementation with the next two months.

Progress Jul. - Dec. 10 - The lab has completed the review of outsourced data. The renovations of the lab space are completed. The lab has validated and implemented GeneMapper ID-X software. We have the final purchases completed and the final report will be coming soon. The change is overall turn around time is due to the physical evidence section getting older cases completed and sent on to DNA. Therefore, the overall time is increased.

Progress Jan. 11 - The lab have purchased additional Genemapper ID-X software and an EZ-1xl extraction robot.

Final Report: The Arkansas State Crime Laboratory was able to outsource 762 cases during the entire grant period. From those 762 cases the lab was able to upload 536 sample profiles into CODIS. During the entire grant period the lab had 272 CODIS Hits from the 536 samples uploaded (71 samples 10-1-09 to 12-31-09, 173 samples 1-1-10 to 6-30-10, and 28 samples 7-1-10 to 12-31-10). These numbers are slightly different from the report numbers in previous reports due to the fact that the lab was reporting on outsourced samples from the previous grant that were not subtracted from the numbers (The overall difference was 7 samples). The lab outsourced mainly property crimes, and reported a 51% CODIS Hit percentage. The lab renovated lab space to increase the amount of space the DNA analysts had for samples extraction. Equipment was purchased to furnish the room, an EZ-1xl extraction robot, Fridge / freezer, centrifuges, vortexers, pipettes, and heat blocks. The lab also purchased GeneMapper ID-X software. This upgrade added several security functions and time saving abilities. Due to the outsourcing and infrastructure enhancements that this grant funded the lab has reduced the backlog from 766 cases to 73, which is a 90% reduction of what it was Sep. 30th 2009. The lab continues to strive to reduce the backlog numbers and the turn around time for cases.

FY09 Recipient Name: Arizona Criminal Justice Commission
Award Number: 2009-DN-BX-K100

Award Amount: $798,225
Final Report:
Mesa PD Report
Goal 1 – Increase the lab's capacity by purchasing a Qiagen QiaCube and related equipment.
Progress – Equipment purchased and delivered. The instrumentation validation is complete. The analysis and summary are in progress. The two document scanners are used for case documentation of DNA cases. A thermal mixer and a lab quality freezer have been purchased. Goal completed
Goal 2 – Increase the lab's capacity by developing a software interface to allow communications between ABI 7000, ABI 7500, ABI 310, ABI 3130 and Qiagen QiaSympony.
Progress – Justice Trax, contracted vendor, has developed a LIMS interface between the DNA instruments and the LIMS and has submitted the final deliverable. The interface for the ABI 7000/7500/310/3130 instruments is working. Final side-by-side comparisons to the currently used systems have been completed. Goal completed
Goal 3 – Increase capacity by providing training opportunities for four Forensic Services Section staff members.
Progress – Two DNA analysts attended the International Symposium on Human Identification and the Advanced DNA Technical Workshop. Goal completed

Phoenix PD Report
Goal 1 – Reduce the number of backlogged DNA cases by outsourcing to accredited private laboratories, hiring a temporary scientist and lab technician and paying current staff overtime.
Progress – 228 cases were outsourced, exceeding the goal by 23. 216 profiles were entered into CODIS. 116 cases were screened and 26 DNA cases were analyzed in-house. Cumulatively, 142 of 250 projected cases have been processed using in-house resources and 228 of the projected 205 cases have been outsourced for DNA analysis. The original goal of 250 cases to be processed in-house was difficult to achieve as both simple property crime cases as well as more complex and time consuming sexual assault cases were processed using overtime. A total of 254 DNA cases (228 outsourced and 26 in-house) were delivered to the requesting agency.
Goal 2 – Increase capacity by providing training opportunities for Forensic Biology Unit staff members.
Progress – One staff member attended Promega and another attended American Academy training during this grant. Goal completed.
Goal 3 – Increase capacity by purchasing capacity enhancing equipment, new LIMS workstations and supplies.
Progress –The LIMS workstations were received and are in use. The Qiagen Robotic system has been installed. The QIAsymphony and QIAgility have been validated and is in use. The QIAcube is being validated. The thermomixers are in use with the QIAsymphony. Goal completed
NOTE: During the period January – June 2011, NIJ approved a budget modification reducing the number outsourced cases to 205 to enable the purchase of LIMS workstations and other items.

Scottsdale PD Report

Goal 1 - Reduce the number of times a sample will be rerun due to improper storage of evidence before it reached the crime lab.
Progress - The large 45 cubic foot refrigerator for the storage of sexual assault kits by the sexual assault nurse examiners (SANE) was purchased and is in use. Goal completed
Goal 2 – Reduce the amount of screening time and prep time of the DNA examiner due to the sharing and/or use of inadequate equipment and thus increase the amount of time available for the DNA examiner to perform DNA analysis on case samples.
Progress – The larger high capacity autoclave for the DNA unit was purchased and is in use. Additionally, a speckfinder and two microscopes were purchased and are in use. Goal completed.
NOTES:
[1] Scottsdale PD's number of days between submission of request and the delivery of test results to the requesting agency increased substantially because they are caught up on the backlog of high priority cases and are now working on low priority cases that have been in the queue for analysis for quite a while. One case was in the lab for a year.
[2] The average number of DNA samples analyzed per analyst/per month increased substantially because the lab has improved the way it reports and tracks samples analyzed per analyst and has increased capacity to analyze more samples with additional equipment and hiring more staff (not grant funded).

Tucson PD Report
Goal – Reduce the number of backlogged DNA cases waiting analysis.
Progress – A total of 55 cases were sent out for analysis; all cases have been returned and reviewed. Goal completed
Goal: Increase capacity by purchasing Genemapper IDX software, back up Thermometer Verification System, Autoclave and Crosslinker.
Progress: Genemapper IDX software was ordered and received. The camera and copy stand, alternate light source, PCR temperature verification kit, pipettes and station holders, UV Crosslinker were purchased and delivered. Additionally, three heatsealers, two CODIS workstations and a water purification system were purchased and delivered. Goal completed
Note: On 4/20/2011 NIJ approved a reallocation of funds from Contracted Services to Other to purchase Genemapper IDX, Back up Thermometer Verification System, Autoclave and Crosslinker.

FY09 Recipient Name: Arizona Department of Public Safety
Award Number: 2009-DN-BX-K086
Award Amount: $599,752
Final Report: During this reporting period July 1, 2011 to December 31, 2011 the Arizona Department of Public Safety Crime Laboratory requested a no-cost grant adjustment. This adjustment was required to effectively utilize the awarded funds and to improve DNA capacity.

The original grant request included funds to purchase one capillary electrophoresis instrument and funds to purchase an automated DNA processing system to be integrated into the AZ DPS Crime Lab's existing Laboratory Information and Management System (LIMS).

AZ DPS had been in the process of researching automated systems through the Arizona Procurement process, when the AZ DPS Crime Lab's LIMS provider, Justice Trax, announced a new DNA enhancement to their LIMS. Since AZ DPS could obtain the Justice Trax automated DNA processing enhancement to its existing LIMS system with little or no cost, AZ DPS requested and received approval to redirect the funds intended for the automated DNA processing system to other important DNA enhancements to improve DNA processing capacity. These approved changes were as follows:
- Purchase two capillary electrophoresis systems ($330,000.00) on this Grant Award (2009-DN-BX-K086), adding a second system to the one system previously approved.
- Purchase additional capillary electrophoresis software required to process DNA data and develop DNA profiles for entry into CODIS. The two new 3500 capillary electrophoresis instruments, above, require the new Gene Mapper ID-X software and will not operate with the old existing Gene Mapper software. Therefore, a server software license and 10 client software licenses ($88,972.00) were required for the AZ DPS Crime Lab DNA database operations. Also, AZ DPS needed to purchase an additional 25 client licenses ($180,780.00) for 25 DNA casework analysts.

As of December 31, 2011, both capillary electrophoresis units (model 3500) have been purchased, installed and validated. Also, the required Gene Mapper ID-X software has been purchased for both DNA Database analysts and DNA Casework analysts. The purchase of the instruments, software and validation was completed at the end of December 2011. Therefore, the improvement in: reduced number of days to complete DNA database sample results, increased number of DNA samples processed per analyst, and reduced number of DNA database samples backlogged, will be realized in the coming months and years. These enhancements are a very significant DNA capacity enhancement for the AZ DPS Crime Laboratory System.

FY09 Recipient Name: California Department of Justice

Award Number: 2009-DN-BX-K067

Award Amount: $2,237,690

Final Report:

Summary: Implementation of the goals and objectives of the 2009 DNA Backlog Reduction Grant faced numerous hurdles due to the budgetary climate in the State of California. Hiring of limited-term Criminalists, travel to conferences, and purchasing of equipment were delayed or denied as a result of hiring freezes, additional purchasing regulations, and lengthy delays in the passage of the State's annual budget. For many of the same reasons, the 2008 DNA Backlog Reduction Grant (2008-DN-BX-K028) had to be extended until February 2011, well into the award time period of the 2009 grant. This significantly reduced the time the Bureau of Forensic Services (BFS) had to meet its obligation of completing 302 backlogged DNA cases using grant-funded overtime. The 2009 grant received a six-month extension to September 30, 2011.

The BFS was ultimately able to reduce its backlog and increase its DNA capacity. A total of six (6) limited-term Criminalists were hired, equipped, and trained. High-throughput equipment –

two Tecan EVO 150 robotic workstations and three 3500 genetic analyzers – were purchased. 313 DNA cases were completed on grant-funded overtime and 348 biology cases that did not require DNA analysis were also completed. The DNA casework backlog on September 30, 2011 was 804. The turnaround time was 151.4 days and the samples/analyst/month was 21.0.

Goal 1 – Increase DNA throughput through the purchase of automated equipment
One Tecan, a 3500 genetic analyzer, two heat sealers and two shaking incubators were each delivered to the Redding and Santa Barbara laboratories. This set the stage for the two newest DNA laboratories in BFS to be fully equipped for complete automation of their DNA casework, thus bringing them up to speed with the five other BFS DNA casework laboratories. The training and validation of the Santa Barbara laboratory's Tecan is in progress. The validation of the Redding Tecan is slated for completion in the first quarter of 2012.

Equipment purchased under this grant:

1. Two Tecan EVO 150 robotic liquid handling instruments with automated DNA extraction capability were purchased for use in casework in the Redding and Santa Barbara laboratories. Currently the EVO 150 workstation is being used to set up quantitation in 96-well plates, normalize the DNA for amplification, and to set up amplification into 96-well plates.
2. Three AB 3500 Genetic Analyzers, the newest model of high throughput Genetic Analyzer instrument that analyzes 8 samples at once, and its analysis software GeneMapper ID-X version 1.2 (three were purchased) which provides mixture deconvolution capabilities will reduce time spent on routine data analysis, were purchased for the BFS Richmond, Redding and Santa Barbara laboratories. This system is currently being validated. This instrument should – at minimum – halve the capillary electrophoresis time compared to the current AB3130.
3. Two Artel Multichannel Verification Systems for the Redding and Santa Barbara laboratories. The MVS is critical to the verification of proper volume transfers on the Tecan.
4. Four VorTemp shaking incubators were purchased for the Redding and Santa Barbara laboratories. The VorTemp instruments are designed for simultaneous heating and mixing of small samples in both tube or 96-well plate formats. It is used for extraction and is required for the lysis step in the new PrepFiler extraction procedure. It also can be used for the manual organic extraction lysis step.
5. Four Variable Temperature Thermal sealers (Heat Sealers) were purchased for the Redding and Santa Barbara laboratories. The heat sealer is a semiautomatic instrument designed to heat seal 96-well sample plates for processing or storage.
6. Four Rainin Liquidators, a 96-well plate manual reagent dispenser, were purchased for the Sacramento, Central Valley, Fresno and Riverside laboratories. The liquidators are used in the Bureau's new Alkaline Differential Procedure that uses a 96-well plate format.
7. Four 8-channel 200ul pipettors, and eight 8-channel 1200ul pipettors were purchased for the Sacramento, Central Valley, Fresno and Riverside laboratories. These pipettors are used in the Bureau's new Alkaline Differential Procedure.

8. Four laptops for DNA analysis (with four GMID software packets) were purchased for use in casework in the Riverside (2), Fresno and Redding laboratories. These laptops were necessary to allow for more data analysis away from a workstation.
9. Four CODIS computers for the Riverside, Fresno, Central Valley and Sacramento laboratories. The current computers are old and do not support the CODIS 7.0 software.
10. Ten Dell desktop computers, one for each of the limited-term Criminalist positions.
11. Minor DNA equipment for the limited-term Criminalists consisting of vortexers, tabletop centrifuges, dry-baths, minicentrifuges, and pipettors ranging from 2 ul to 1000 ul volumes.
12. Twenty Canon Powershot SX30 digital cameras and accessories for documentation of evidence were distributed throughout the BFS laboratories.
13. Eleven Prepfiler kits for training and validation in the BFS DNA laboratories. The Prepfiler kit is currently being validated by the Richmond Research and Development group. Two of the Prepfiler kits have been sent to the Richmond laboratory for this purpose.
14. Two mobile workstations for the Redding laboratory. These workstations increased laboratory bench space in the extraction work area.

Goal 2 – Reduce the DNA casework backlog by the hiring and training of (10) limited-term Criminalists.

Between July and December, 2010, six limited-term Criminalists were hired and placed throughout the BFS laboratories (see below). Two existing Richmond Criminalists were placed into the limited-term positions and were backfilled in July, 2010. Between January and September, 2011, the Bureau was permitted to fill vacant positions and all six of the limited-term Criminalists were placed in permanent positions.

Riverside – 1
Fresno – 1
Sacramento – 1
Central Valley – 1
Redding – 1
Freedom/Santa Barbara – 1

Five of these limited-term Criminalists were trained in Biology/DNA casework from September, 2010 through September, 2011. Travel costs to the following California Criminalistics Institute (CCI) courses were paid for with grant funds:

DNA Extraction and Quantitation
Biological Fluid Identification
Microscopy of Sexual Assault Evidence
Genetic Typing Methods
STR I and STR II
Q-PCR
Statistics

Courtroom Presentation of DNA Evidence

In mid-2011, two Criminalists and an experienced DNA analyst (Retired Annuitant) were hired in the Fresno and Riverside laboratories in limited-term positions; two were subsequently placed into permanent positions. As of the end of this grant (September, 2011) only three limited-term Criminalist positions remain filled.

Goal 3 – Reduce the DNA casework backlog through the use of grant-funded overtime

Overtime usage with 2009 grant funds began on July 1, 2010 and ended in August, 2011. A total of 313 DNA cases were completed, 160 profiles were uploaded to CODIS and 51 hits were obtained. In addition, 348 biology cases were screened as a result of federal assistance that were not transferred to the DNA unit for further testing.

Overtime was also used to train new personnel in biology screening and DNA analysis. DNA analysts were trained in the use of the TECAN using grant overtime and overtime was also used to train DNA analysts on the alkaline differential procedure for the rapid analysis of sexual assault evidence (RADS program). Overtime was used in the validation of the TECAN and the alkaline differential procedure. The Richmond and Sacramento DNA laboratories are using the TECAN for high-throughput casework. The Fresno and Central Valley laboratories have completed their validation which is currently in review, and the Riverside laboratory's validation is in progress.

The number of DNA cases received has continued to increase, but for the first time, the number of cases completed (including administratively closed cases) has exceeded the number of cases received and the DNA backlog has decreased. This trend will continue as more automated equipment is placed online, as processes – such as automated extraction – are implemented, and as the Criminalists hired as limited-term personnel become qualified and efficient DNA casework analysts.

Reporting Period	DNA Cases Received	DNA Cases Completed	Administratively Closed Cases	Ending DNA Backlog
October 1, 2009 Start of Grant:				859
Oct-Dec 2009	479	319	43	976
Jan-Jun 2010	1218	892	72	1230
Jul-Dec 2010	1231	1220	167	1074
Jan-Jun 2011	~~1341~~ 1286 *	1360	128	872
Jul-Sept 2011	745	677	136	804

*= This number was erroneously reported in previous progress reports

Neither the turnaround time nor the samples/analyst/month have changed appreciably over the course of this grant. The reasons for this are:

- The cases completed on grant-funded overtime included a large number of cases that had been in the BFS backlog for a long time; this resulted in a small increase in the overall turnaround time.
- Newer analysts have qualified for casework and they are not yet as efficient as more experienced analysts
- Although the high-throughput equipment has been validated in most of the BFS DNA laboratories, it is only being used for casework in Sacramento and Richmond. Over the next few months, the samples/analyst/month should gradually increase as the high-throughput instrumentation is put to use.

	Turnaround Time	Samples/Analyst/Month
October 1, 2009	143.5 days	22.4
September 30, 2011	151.4 days	21.0

Other Activities

Travel to the 21st International Symposium on Human Identification (Promega) did not occur. Nine Criminalists attended the American Academy of Forensic Sciences Meeting in Chicago in February, 2011. Attendance provided continuing education hours for these Criminalists.

The BFS Uniformity of Evidence Tracking Meeting was held in the Richmond lab on May 18 – May 20. 27 persons attended. Decisions were made to establish uniformity throughout the Bureau for rape kit processing, tracking and long-term storage of DNA extracts. The decision was made to purchase a Bureau-wide dry storage system for DNA extracts with 2010 DNA Backlog Reduction Grant funds. This system will free up needed freezer space, and will give the Bureau the flexibility to retain extract and dilution plates generated by the automated TECAN analyses.

FY09 Recipient Name: City of Los Angeles
Award Number: 2009-DN-BX-K053
Award Amount: $1,023,151
Final Report:

OBJECTIVE 1: TO IMPROVE DNA ANALYSIS CAPACITY

Goal: Reduce the time to complete a case.

Progress: During this reporting period, turn-around time increased slightly from 109 days to 115 days. Turnaround time for the lifetime of the grant increased from 71 days to 115 days. This is due to the assigning of older cases in the backlog and the method for computing turnaround time (date requested to date delivered to the requesting agency). Turnaround time is expected to improve with the 2010 Grant as analysts will be working on cases with more recent request dates.

Goal: Increase in DNA analysis throughput for the laboratory.

Progress: Samples per analyst per month increased 20% from a baseline of 15.9 to 19.0.

OBJECTIVE 2: TO REDUCE BACKLOGGED DNA CASEWORK

Goal: To reduce the backlog by 650 cases, from the backlog of approximately 5,000 cases, by performing 150 screening and/or DNA profiling cases on overtime with existing personnel, by submitting 500 sexual assault cases to contract laboratories and by increased productivity.

Progress: The backlog decreased approximately 35% from a baseline of 3107 to 2017. This was accomplished with a combination of grant funding to submit cases for contract laboratory analysis, the use of grant funded over time to complete analysis, technical and administrative reviews of backlogged casework, and the grant funded staff overtime to complete the mandatory review of contract laboratory data prior to entering profiles into the CoDIS database.

Contract Labs:
LAPD's goal was to submit for screening and DNA typing an additional 500 backlogged sexual assault kits and 80 previously screened samples to contract laboratories. During the lifetime of this grant, 374 sexual assault cases were screened and typed for DNA at contract laboratories utilizing funds from this grant. Additionally, 596 sexual assault kits were submitted to contract laboratories for screening and DNA typing, utilizing grant funded staff overtime for only a portion of the shipping preparation costs. The actual screening and DNA typing of these 596 cases was paid for from sources other than this grant.

Screening and DNA typing (in-house):
Another part of our backlog reduction goals included the use of grant funded staff overtime to screen and profile sexual assault cases in-house. The proposed goal was to reduce the backlog by 150 cases by screening 150 cases at a rate of 8 hours per case; to perform DNA typing on 20 cases at a rate of 20 hours per case; to perform sub-contractor data review (SCR) on 120 cases. The actual result was that 132 cases were screened and profiled in house. The difference between the stated goal and the actual result was due to the increased number of screened cases for which in-house DNA typing was performed, actually all 132 cases, a direct result of increased efficiency and capacity.

Equipment:
In order to increase casework capacity, equipment was ordered to accommodate the needs of an ever increasing staff. As an update to the last progress report, the one supervisor and nine analysts that were planned to be hired, were indeed hired. The nine analysts were deployed at the Piper Tech Center (PTC). In addition, two acting supervisors were appointed. Two of the supervising positions were deployed at PTC while one was deployed at the main facility (HDFSC), improving the analyst/ supervisor ratio at both facilities. During this reporting period, one stereo microscope for the gross examination of evidence and eight copies of Applied

Biosystem's Genemapper ID V 3.2 were purchased for the purpose of improving our ability to process evidence and data in a timely manner (the Genemapper ID copies were purchased for the eight laptops obtained and assigned to new DNA analysts during the last reporting period).

Training:
For this reporting period, in order to remain current on CoDIS matters, our CoDIS administrator was sent to training in Sacramento, CA, entitled "Cold Hit Outcome Project."

The large number of profiles uploaded to CoDIS (280) during this reporting period is largely the result of the number of sexual assault evidence kits (374) sent out under this grant, and the significant effort that the SDU made to get the profiles reviewed and uploaded into CoDIS as expeditiously as possible.

Because of this grant, the LAPD obtained 32 “Cold” hits we would not have had else wise. To illustrate the importance of obtaining these hits, consider the case of a 2009 Armed Robbery. Synopsis: Victim meets an unknown female (suspect 1). Suspect 1 agrees to go to victim's house to "party" but first tells the victim to drive her to another residence. Suspect 1 goes inside the residence and comes out with an unknown male (suspect number 2). Suspect 2 beats and stabs the victim. Both suspects 1 and 2 rob the victim and flee in the victim's vehicle. Victim's vehicle is later recovered with blood inside. Blood is tested and submitted to CoDIS. CoDIS hits to a suspect on parole for drug charges. Victim identifies the suspect as the unknown male who robbed and stabbed him. Male suspect is arrested and charged with two felony counts, 211 (armed robbery) and 215 (carjacking). This case was successfully solved directly because of the funds made available to LAPD under this grant.

FY09 Recipient Name: City of Oakland
Award Number: 2009-DN-BX-K112
Award Amount: $247,624
Final Report:

This project is still in progress

FY09 Recipient Name: City of San Diego
Award Number: 2009-DN-BX-K054
Award Amount: $375,518
Final Report:
Personnel: We proposed spending $35,000 to hire an entry-level DNA Criminalist. A criminalist has been hired, trained, and is actively completing casework. We also proposed spending $141,076 in Criminalist overtime to augment the DNA typing resources of the laboratory. We have expended all of our overtime allotment, and were able to increase our casework output significantly.

Travel: We expended funds to pay for three DNA analysts to attend the American Academy of Forensic Sciences Meeting in Seattle. Funds were specified for seven analysts to attend the BODE DNA Users Meeting in San Diego. In addition, funds were used to send two analysts to the California Association of Criminalists DNA workshop. Our DNA technical lead attended the Applied Biosystems Advanced Troubleshooting course using grant funds. We elected not to send a second analyst to the CODIS meeting in Virginia beyond the federally funded travel for our CODIS Manager.

Equipment: All equipment ordered on this grant has been received, set up, validated, and is currently in use in our DNA section with the exception of the QIAgility system. This system is in the process of being validated. The following is a list of equipment purchased:

1. (1) Acuspin Micro Centrifuge
2. (6) Micro Centrifuge rotors
3. (1) Crime-lite ML with filters
4. (1) Silver 96-Well Geneamp PCR System 9700
5. (7) Nikon Cameras
6. (1) QIAgility System

Supplies: The pipets have been ordered, received, and assigned to analysts. Two rolling exam tables were purchased and are now in main Forensic Biology. The vortex mixers and heat blocks have been ordered and assigned to analysts. All computer equipment ordered on this grant has been received and is currently being utilized by the DNA analysts.

Contracts: All reconstruction projects financed by this grant have been completed. The new work areas are in use and houses our new grant funded analyst.

Casework Goals: Our casework goals under this program were to analyze 175 burglaries, 45 robberies, 50 sex crimes, 30 assaults, and 30 homicides. Over the course of this grant (funds were expended from 5/1/2010 – 6/1/2011) we have completed 87 homicide cases, 136 robbery cases, 113 assault cases, 217 sex crime cases (to include child abuse), and 784 burglaries. In addition, we completed 503 other cases, to include car thefts and felony possession of guns. Of these cases, 7 homicides, 11 robbery cases, 9 assault cases, 15 sex crimes, 62 burglary cases and 40 car thefts/felony possession of guns/gang cases can be attributed directly to overtime monies. Our grant funded criminalist completed an additional 32 sex crime cases, 5 assault cases and 2 homicide cases.

Progress on our stated goals:

Goal 1: Decrease our turnaround time from 65 to 60 days. At the end of our last reporting period, our turnaround time had increased from 65 to 89 days, due largely to a continued and sustained increase in case submissions. At the end of this reporting period, our turnaround time has dropped to 78 days, as we have added a new analyst due to grant funding, as well as have utilized grant overtime.

Goal 2: Increase number of samples analyzed from 41 to 45 per month. At the end of our last reporting period, the number of samples had decreased to 32. This was due in large part to the increased number of property crimes being analyzed that generally have a lower number of items per case. At the end of this reporting period, we have increased our number of samples to 35 from 32.

Goal 3: Reduce the backlog from 366 to 330 cases. At the end of our last reporting period, our backlog had grown to 430 cases, again due to the unprecedented increase in case submissions. At the end of this reporting period, our backlog has dropped to 392, and is continuing on a downward trend.

Information on the completion of the remainder of the goals set forth in this grant is detailed in the following attachment.

FY09 Recipient Name: Contra Costa County
Award Number: 2009-DN-BX-K098
Award Amount: $273,929
Final Report:

Semi-Annual Progress Report #3: July 1, 2010 to December 31, 2010
Turnaround Time: At the end of this reporting period the average turn around time was 273 days, an increase to the turnaround time at the beginning of the grant period. This increase can be explained in part by the age of the cases analyzed. When older backlogged cases are processed the average turnaround time increases. *One of our grant objectives was to improve the turnaround time in the Biology Unit and we continue to target older cases while managing our newly submitted rush requests needing rapid turnaround times.*

Semi-Annual Progress Report #4: January 1, 2011 to March 31, 2011
Turnaround Time: At the end of this reporting period the average turn around time was 278 days, an increase to the turnaround time of 189 days at the beginning of the grant period. However, over the past nine months our turnaround time has remained in the 273 to 278 day range. This increase can be explained in part by the age of the cases analyzed. When older backlogged cases are processed the average turnaround time increases. Over the entire grant period the Forensic Biology Unit has completed 252 cases, which is a 52 case increase over the proceeding eighteen month period. *One of our grant objectives was to improve the turnaround time in the Biology Unit and we continue to target older cases while managing our newly submitted rush requests needing rapid turnaround. Although the bottom line number does not reflect an improvement, the Forensic Biology Unit has increased the volume of cases by approximately 10% over the past eighteen months and as we continue to work our oldest cases our stats continue to reflect our accomplishments with higher turn around times.*

Semi-Annual Progress Report #3
July 1, 2010 to December 31, 2010
Average number of samples analyzed per analyst per month: During this six month reporting period seven DNA analysts contributed to the statistics, however, two additional DNA analysts have completed competency and their casework will soon be reflected in the laboratory totals.
Semi-Annual Progress Report #4: January 1, 2011 to March 31, 2011
Average number of samples analyzed per analyst per month: During this three month reporting period seven DNA analysts contributed to this statistics. Over the entire reporting period the numbers have remained somewhat consistent, even though the unit has undergone significant change. Three new DNA analysts were trained, our supervisor and technical lead retired, and

two staff members took family leave for the birth of their children. As of April 1, 2011 the Forensic Biology Unit has both a new supervisor and technical lead. As of May 10, 2011, both staff members have returned from maternity/paternity leave to full duty. The technical and administrative reviews have been adversely affected from the turnover in both supervision and technical lead. The Forensic Biology Unit should now be in a position to move forward in a positive direction, and the expectation is that the number of samples analyzed per analyst per month should improve.

Semi-Annual Progress Report #3: July 1, 2010 to December 31, 2010
Backlogged DNA Cases: The number reflected encompass our total Forensic Biology backlog, however, DNA specific requests constitute 129 of the 273 total cases.

Semi-Annual Progress Report #4: January 1, 2011 to March 31, 2011
Backlogged DNA Cases: The number reflected encompass our total Forensic Biology backlog, however, DNA specific requests constitute 133 of the 278 total cases.

Semi-Annual Progress Report #3: July 1, 2010 to December 31, 2010
Grant funded CODIS profiles entered/Hits generated: During this reporting period the grant funded employees completed twelve cases for a total of 70 samples. Six samples were uploaded to CODIS and three CODIS hits were generated. One of the grant funded employees completed her DNA competency in August of 2010, and her contribution to the Forensic Biology Unit shall be reflected in future progress reports.

Semi-Annual Progress Report #4: January 1, 2011 to March 31, 2011
Grant funded CODIS profiles entered/Hits generated: During this reporting period the grant funded employees completed seven cases for a total of seventeen samples. One sample was uploaded to CODIS and one CODIS hit was generated. Over the entire grant period, the two grant funded employees while funded under this award uploaded 12 samples to CODIS and 9 hits were generated. Please note that during the 2nd reporting period there were five profiles uploaded to CODIS and five hits were generated, however, these figures were not reflected in the metric submitted.

Semi-Annual Progress Report #3: July 1, 2010 to December 31, 2010
Grant funded cases completed: During this reporting period, one grant funded DNA analyst completed nine cases. The second analyst completed her DNA competency in August of 2010 and completed three cases. *One of our grant objectives was that each DNA would complete a minimum of 20 DNA cases during the grant period.*

Semi-Annual Progress Report #4: January 1, 2011 to March 31, 2011
Grant funded cases completed: During this reporting period, the two grant funded DNA analysts completed seven cases (five by one and two by the other). *One of our grant objectives was that each DNA would complete a minimum of 20 DNA cases during the grant period. The first DNA analyst to date has completed 25 cases, which was five over our goal. The second newly competent DNA analyst has completed only 10 cases since August 2010, which is ten less than*

our stated goal, however, she was not producing casework for eleven of the eighteen month grant period. Overall, there were 35 cases completed, five cases less than our stated goal.

Success Stories
The two grant funded analysts have had some successes during the grant period. A DNA profile was generated from a cigarette butt recovered from a bank robbery that lead to a CODIS hit and an investigative lead. In another case, semen was found on a head hair sample in connection to a sexual assault. The semen yielded a DNA profile that when uploaded to CODIS generated a hit and one of two suspects was identified. Finally, the cap of a bottle recovered from an arson scene yielded a DNA profile that associated the suspect to the scene of the crime.

FY09 Recipient Name: County of Alameda, California
Award Number: 2009-DN-BX-K074
Award Amount: $290,255
Final Report: Goals: The goal of this grant proposal is to continue funding two full-time Criminalists as well as provide funding for a service/maintenance contract.

Progress Report (July – December 2009)

Approximately $266,000 of the 2009 DNA grant is allocated for funding staff. Approximately $24,000 is allocated for service/maintenance contracts.

At this time the ACSO Crime Lab has not expended any funds for this grant proposal. It is anticipated that funding from this grant proposal for staffing will begin drawing down in May 2010. These funds will be used to continue funding the two Criminalist positions previously funded by the 2006, 2007 and 2008 DNA grants.

It is anticipated that funding for the service/maintenance contract will be obligated in May 2010.

Progress Report (January – June 2010)

At this time the ACSO Crime Lab has expended approximately $121,000 to continue funding the two Criminalist positions previously funded by the 2006, 2007 and 2008 DNA grants.

Funding for the service/maintenance contract was obligated in June 2010.

Progress Report (July – December 2010)
At this time the ACSO Crime Lab has expended approximately $240,000 to continue funding the two Criminalist positions previously funded by the 2006, 2007 and 2008 DNA grants.

The ACSO Crime Lab has used approximately $15,000 for a service / maintenance contract. The service / maintenance contract was less than anticipated (pro-rated) so the remaining $9000 will be used for funding staff.

The remaining funds will be used to continue funding the two Criminalist positions. All funds are anticipated to be spent by the end of the grant period.

Final Progress Report (January – March 2011)

The ACSO Crime Lab successfully met all the goals of this grant proposal. In summary funds from this grant proposal continued to fund two Criminalist positions (DNA Technical Lead and Criminalist) previously funded by the 2006, 2007 and 2008 DNA grants and service / maintenance contracts for DNA instrumentation.

The overall success of this grant can be observed by maintaining case productivity, the decrease of turn around time from 186.64 days (start) to 44.17 days (end) as well as an increase in capacity of samples analyzed / month / analyst which is directly related to the addition of staff.

In 2010 the DNA unit completed 179 cases with a turn around time of 50 days.
In 2009 the DNA unit completed 173 cases with a turn around time of 139 days.

Without the assistance of funds from this grant the ACSO Crime Lab would not be as successful as it is today in meeting the needs of our law enforcement agencies including our own.

FY09 Recipient Name: County of Kern
Award Number: 2009-DN-BX-K050
Award Amount: $245,810
Final Report:
Narrative: January – June, 2010 - Reporting Period
GOALS and OBJECTIVES

1. Re-hire two DNA Forensic Scientists (Criminalists):
   A. First Progress Report Oct-December, 2009 – Kern County suffered significant budget cuts, which necessitated the lay-off of existing experienced staff. Kern County Civil Services rules require that employees who are laid off be placed on a re-hire list, and that any department wishing or in a position to hire an employee must first offer the laid-off employee the opportunity to be re-hired. The LAB has Criminalists on the County lay-off list. This rule in itself is a benefit to the grant as it enabled the LAB to re-hire two employees with DNA experience, expertise in the field and the ability to interpret analytical results. These employees will not require the extensive background and training new employees would. GOAL MET: 2 Criminalists were re-hired with funding provided by the DNA 2009 grant.
2. Rebuild capacity:
   A. First Progress Report Oct-December, 2009 – The first quarter indicates that capacity is being maintained and improved. Analyst baseline line samples per month were 6.3 and ended the quarter at 9.1. Goal is on track. TAT was higher this quarter, but was attributed two the closure of cases from 2002 and 2004.

B. Second Semi Annual Report January-June, 2010: At the end of this reporting period capacity is being maintained, analyst analyzed an average of 8.8 samples per month. Goal is on track. TAT was down from the first semi-annual report.

3. Reduce Backlog:
   A. First Progress Report Oct-December, 2009 - Backlog has been reduced. The baseline as of 9-1-09 was 365 cases and the first quarter ended with 123 backlogged cases. The change to 30 days from the original 90 days open will impact on the backlog numbers. Goal is on Target
   B. Second Semi Annual Report January-June, 2010: Backlog log is down from the original count of 365 to 167, but cases and sample still continue to come in at an increase rate. Goal is on Target
4. Participate in and expand the DNA Property Crime Program:
   A. First Progress Report Oct-December, 2009 - The Pilot Property Crime DNA program was very successful and with the re-hire of the two analysts, the DNA Section of the Lab transitioned from the pilot program with one agency to the DNA Property Crime program was opened to other local law enforcement agencies. CODIS entries are increasing as are CODIS hits. This is due in large part to the Property Program which is experiencing excellent results.
   B. Second Semi Annual Report January-June, 2010: The DNA Section has been able to continue to work property crimes. CODIS profiles and Hits are rapidly increasing as expected. CODIS entries for this reporting period were 111 profiles enter with 43 hits. (See attached graph of 2004 through 2010 (at six months) statistics.)
5. Assist the Kern County Sheriff's Department with their "Cold Case" program:

Uploads for 2010						
Jan	Feb	Mar	April	May	June	Total
26	14	21	21	10	19	111

HITS							
Year	2004	2005	2006	2007	2008	2009	2010
CODIS Hits	9	5	4	6	3	59	43

<u>Narrative: July – December, 2010 - Reporting Period</u>

GOALS and OBJECTIVES

1. Re-hire two DNA Forensic Scientists (Criminalists):
   A. First Progress Report Oct-December, 2009 – Kern County suffered significant budget cuts, which necessitated the lay-off of existing experienced staff. Kern County Civil Services rules require that employees who are laid off be placed on a re-hire list, and that any department wishing or in a position to hire an employee must first offer the laid-off employee the opportunity to be re-hired. The LAB has Criminalists on the County lay-off list. This rule in itself is a benefit to the grant as it enabled the LAB to re-hire two employees with DNA experience, expertise in the field and the ability to interpret analytical results. These employees will not require the extensive background and

training new employees would. GOAL MET: Two (2) Criminalists were re-hired with funding provided by the DNA 2009 grant.

2. Rebuild capacity:
   A. First Progress Report Oct-December, 2009 – The first quarter indicates that capacity is being maintained and improved. Analyst baseline line samples per month were 6.3 and ended the quarter at 9.1. Goal is on track. TAT was higher this quarter, but was attributed too the closure of cases from 2002 and 2004.
   B. Second Semi Annual Report January-June, 2010: At the end of this reporting period capacity is being maintained, analyst analyzed an average of 8.8 samples per month. Goal is on track. TAT was down from the first semi-annual report.
   C. Third and Final Report, July-December, 2010: The overall TAT for the last six (6) months decreased by 34.3 days to 96.3 days. The July to September's TAT was 37.6 and October to December's TAT was 154.7, which may be attributable to the three holidays during that reporting period. The number of analyses per month per analyst increased to 9.0, which is an overall improvement of 3.7 from the baseline. Goal met.
3. Reduce Backlog:
   A. First Progress Report Oct-December, 2009 - Backlog has been reduced. The baseline as of 9-1-09 was 365 cases and the first quarter ended with 123 backlogged cases. The change to 30 days from the original 90 days open will impact on the backlog numbers. Goal is on Target
   B. Second Semi Annual Report January-June, 2010: Backlog log is down from the original count of 365 to 167, but cases and sample still continue to come in at an increase rate. Goal is on Target
   C. Third and Final, July-December 2010 – Final Report: The final backlog count is 165, which included completion an additional 213 samples, of which 227 were completed. The backlog will fluctuate as more and more cases are submitted. However, as of this final report the Lab's backlog has been reduced by 186 cases. Goal met.
4. Participate in and expand the DNA Property Crime Program:
   A. First Progress Report Oct-December, 2009 - The Pilot Property Crime DNA program was very successful and with the re-hire of the two analysts, the DNA Section of the Lab transitioned from the pilot program with one agency to the DNA Property Crime program was opened to other local law enforcement agencies. CODIS entries are increasing as are CODIS hits. This is due in large part to the Property Program which is experiencing excellent results.
   B. Second Semi Annual Report January-June, 2010: The DNA Section has been able to continue to work property crimes. CODIS profiles and Hits are rapidly increasing as expected. CODIS entries for this reporting period were 111 profiles enter with 43 hits. (See attached graph of 2004 through 2010 (at six months) statistics.)
   C. Third and Final Report, July-December, 2010: Within the Lab DNA analyses are prioritized, with the most violent, those included in Part I of the FBI UCR, being analyzed first. The Lab recognizes the importance of the Property Crime Program as an opportunity to obtain DNA, enter those profiles into CODIS, and identify offenders, before the offender's activities escalates into more serious crimes. Therefore, resources will be utilized to continue this essential service in as much as time permits. Goal met.

5. Assist the Kern County Sheriff's Department with their "Cold Case" program:
   A. First Progress Report Oct-December, 2009 - The DNA Section continues to work Cold Cases submitted by the Kern County Sheriff's Department; however, at this time it appears that the Sheriff's Department is not participating the cold case program. Goal is on target. As samples are submitted, the Lab processes as time allows.
   B. Second Semi Annual Report January-June, 2010: No change. Cold Cases will be worked as evidence is submitted to the Lab and as assigned priority dependent upon staffing.
   C. Third and Final Report, July-December, 2010: No change. The Kern County Sheriff's Office is working cold cases as time permits; however, due to budgetary issues staffing, devoted to the cold case files, was eliminated. The Lab, Sheriff's Office and the largest police department in the County will be applying for the NIJ Cold Case grant to address this issue.
   Note: For the period January 1 through December 31, 2010, the total CODIS entries for the Lab were 180 and "Hits" were 86, with a success rate of 48%. . First Progress Report Oct-December, 2009 - The DNA Section continues to work Cold Cases submitted by the Kern County Sheriff's Department; however, at this time it appears that the Sheriff's Department is not participating the cold case program. Goal is on target.
   B. Second Semi Annual Report January-June, 2010: No change. Cold Cases will be worked as evidence is submitted to the Lab and as assigned priority dependent upon staffing.

FY09 Recipient Name: County of Orange
Award Number: 2009-DN-BX-K094
Award Amount: $475,294
Final Report: Performance Measures:
The TAT (39 days) increased from the last reporting period (36 days) due to the following:

- Five of our high volume/property crime DNA analysts are currently training in DNA typing methods. The amount of time devoted to their typing training increased during this progress report period so they could qualify to perform DNA typing on casework samples by the beginning of 2012. Because of their increased focus on training, property crime case TAT increased from 38 days to 47 days. Violent crime casework TAT remained the same at 35 days. This resulted in an overall casework TAT increase of three days.

Goal 1 - increase the throughput of the DNA laboratory by purchasing a second large capacity robotic DNA extraction station that will be dedicated to extracting high volume crime evidence. Modified to: purchase a second walk-in freezer for the DNA Section and a maintenance contract for our Qiagen Universal BioRobot.

Progress Oct. – Dec., 2009: a large capacity robotic DNA extraction station – the Tecan HID EVOlution – was purchased on December 31, 2009 using 2008 DNA Backlog Reduction/Capacity Enhancement Grant funds. The robot will be installed and validated during the first quarter of 2010. A second Tecan robot will not be purchased with 2009 Backlog Reduction/Capacity Enhancement grant funds and a budget

modification was submitted and approved in December. A second extraction robot will be purchased using the 2009 Forensic DNA Unit Efficiency Improvement Grant later in 2010.

The funds that were going to be used to purchase a second extraction robot will now be used to purchase and install a walk-in freezer with a redundant refrigeration system next to our incoming evidence freezer in the DNA section. A second walk-in freezer is needed to accommodate the increase in evidence that is being submitted for DNA analysis, particularly property crime evidence. The redundant refrigeration unit will provide efficient refrigeration for both the new and existing freezers and will ensure that both freezers will be adequately and consistently cooled.

By not purchasing a second large extraction robot, additional funds were available and we used these funds to purchase an 18 month maintenance contract for our Qiagen Universal BioRobot. The BioRobot is a liquid handling system that is an essential part of our DNA processing line and is used to set up quantitations and amplifications. The maintenance contract was finalized in December, 2009 and preventative maintenance on the BioRobot has been scheduled.

Progress Jan. – June, 2010: this goal was modified during our last progress report. The funds that were going to be used to purchase a second large capacity extraction robot were re-allocated to purchase a walk-in freezer with a redundant refrigeration system for the DNA section and an 18 month maintenance contract for our Qiagen Universal BioRobot (see above). The maintenance contract was implemented and our first preventative maintenance was performed on the robot in December, 2009. The freezer project is on-going. A county project engineer and architect were assigned to the project in June, 2010 to design the freezer and refrigeration system.

Progress July – Dec., 2010: the maintenance contract for the Qiagen Universal BioRobot is in place and will end in June, 2010. County funds will be used to extend the contract.

The walk-in freezer and redundant refrigeration system project is still in process. The architectural firm completed the blueprints and specifications needed for the bid for the fabrication and installation of the system. The bid process will be coordinated by OC Public Works.

Progress Jan - June, 2011: OC Public Works completed the bid process for the walk-in freezer and redundant refrigeration system project. The awarding bid was for $106,000 and the company was Fast-Track Construction Corporation. On July 19, 2011, the bid will go before the Orange County Board of Supervisors for final approval. Once approval is obtained, the contractor will be allowed on site to being the project. The project is estimated to take eight-ten weeks and is expected to be completed by the end of September, 2011.

The estimated cost of the walk-in freezer and redundant refrigeration system varied throughout the project and was finalized in June at the completion of the bid process. Some of the grant funds that were budgeted for the freezer are now available for other purchases. We will use excess funds for back-up power supplies (Goal 6) and also to purchase swab dryers and swab racks with transport cases for the CSI team to use in the coroner's office when collecting samples during autopsies, and in the field when collecting DNA swabs from biological evidence.

Progress July-December, 2011: the new walk-in freezer and redundant refrigeration system was installed during the months of October and November, 2011. We have been storing bulk evidence in it since the beginning of December. We are in the process of purchasing storage racks and bins using 2010 and 2011 DNA Backlog Reduction/Capacity Enhancement grants funds.

We purchased and implemented new swab dryers (2) and swab racks with transport cases (4) for the CSI team to use in the coroner's office when collecting samples during autopsies, and in the field when collecting DNA swabs from biological evidence.

We intended to use county funds to pay for the maintenance contract on our primary Qiagen Universal BioRobot (#1) after June, 2010. Our purchasing/contract department automatically charged an additional 18 months of the maintenance contract for this robot to the 2009 DNA Backlog Reduction/Capacity Enhancement Program grant. This was discovered by our financial analyst in September, 2011. The grant funded portion of the maintenance contract expired on December 23, 2011 and the contract was renewed using county funding.
Goal Completed

Goal 2 – purchase an automated laser swab cutter.

Progress Oct. – Dec., 2009: we are evaluating whether or not a laser swab cutter is needed in our laboratory. We have been researching the various types of swabs that are available for collecting DNA evidence. We are considering changing from plain cotton tip swabs to a swab that either breaks off at the tip or slides off of the shaft.

Progress Jan. – June, 2010: a requisition was submitted to purchase three semi-automated laser swab cutters from BSD Robotics, Inc., which is located in Brisbane, Australia in May, 2010. We intended to purchase one laser swab cutter with funds from this grant and two laser swab cutters with funds from the 2009 NIJ Forensic DNA Unit Efficiency Improvement Grant. On June 10, 2010 we received an e-mail from Allan Morrison, the General Manager of BSD Robotics, informing us that the company was purchased by Luminex Corporation whose senior management decided not to continue the manufacture of laser swab cutters anymore. Mr. Morrison was to send us information regarding another company who could possibly produce a similar laser

cutter but to date, no additional communication has been received from him, even after several reminder e-mails have been sent.

We are still looking for another distributor or manufacturers of a laser swab cutter. However, we are uncertain if there is even something else available or how much another manufacturer's swab cutter will cost if we can find one. We used some of the money originally budgeted for the laser swab cutter to cover the cost of a computer to be used by our IT section software developer for him to create new DNA Manager/LIMS protocols, and to modify and upgrade existing protocols. We are also currently researching and evaluating different types of swabs and DNA collection materials to try and find a DNA sampling device that can be easily and quickly processed and implemented into casework without the use of a laser cutter.

Progress July – Dec., 2010: we are no longer looking for another distributor or manufacturer of a laser swab cutter. We evaluated three push-off swabs and selected a Fitzco CEP™ (collect, eject, protect) cell collection swab. The CEP™ swabs have a cotton paper "brush" at the tip that is made of multiple layers of FP705™ absorbent paper. The cotton paper brush expands when it is moistened which helps to sample all of the surface area of an object. After collection, the paper brush is easily ejected from the shaft for DNA extraction. We tested the CEP™ swab and two polyester push-off swabs by measuring the recovery and release of DNA from items spiked with known amounts of biological fluid. We compared the DNA recovery to samples collected with the regular cotton tip swabs that we currently use in the field and in the laboratory. The CEP™ performed better than both polyester swabs and was comparable or better than the regular cotton tip swabs.

Our OC District Attorney's Investigation staff will be offering DNA Collection for First Responders training at the beginning of 2011 with the assistance of the OC Crime Lab. The CEP™ swabs will be introduced to the OC law enforcement agencies during the training. The CEP™ swabs cost more than the regular cotton tip swabs and we will have to show the agencies that there is a better chance of recovering DNA from evidence using these swabs, plus the lab will be able to process these swabs quicker which will result in better DNA profiles and faster entry of the profiles into CODIS. Goal Completed

Goal 3 - replace our three of our five existing EZ-1 six channel extraction robots with the EZ-1 Advanced XL 14 channel robots

Progress Oct. – Dec., 2009: a purchase order was issued and three new EZ-1 Advanced XL 14 channel robots were delivered to the laboratory on December 31, 2009. The robots will be installed and performance checked in the laboratory by January 29, 2010. Three of our old EZ-1 six channel robots will be returned to Qiagen for credit when the new robots are on line.

Progress Jan. – June, 2010: our new EZ-1 Advanced XL 14 channel robots were installed, performance checked, and placed into service for the extraction of reference standards and body fluids. We returned three of our EZ-1 six channel robots to Qiagen in exchange for a credit on the purchase order.
Goal Completed

Goal 4 - increase the throughput of the DNA laboratory by purchasing additional copies of GeneMapper IDX expert system software.

Progress Oct. – Dec., 2009: GeneMapper IDX expert system software was installed and has been used in our laboratory for casework since September 30, 2009. Our IT staff has been able to integrate GeneMapper IDX export files into our LIMS which then imports DNA profile allele calls directly into our DNA reports. Our current GeneMapper IDX software is shared among 23 DNA analysts and three supervisors. A purchase requisition was submitted on October 7, 2009 to purchase four additional client copies of GeneMapper IDX using funds from this grant. The additional copies will allow more analysts to access the software when they need it and will reduce the amount of time waiting to obtain results.

Progress Jan. – June, 2010: our GeneMapper IDX copies have been received in the laboratory. The additional copies were purchased using funds from this grant and funds from the 2009 NIJ Forensic DNA Unit Efficiency Improvement Grant. Three new computers were purchased and we are waiting for them to be delivered. Once the computers arrive, the GeneMapper IDX server copies will be installed on them and the client copies will be placed on the DNA analysts' personal computers. Once in place, the DNA analysts will be able to access the GeneMapper IDX software whenever they need it and they will no longer have to share copies.

Progress July – Dec., 2010: the additional GeneMapper IDX copies have been installed on the three new server computers and each analyst now has their own copy to access.
Goal Completed

Goal 5 - send six 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 to provide training opportunities that will assist us in preparing our staff for casework and satisfy DAB continuing education requirements.

Progress Oct. – Dec., 2009: no action at this time.
Progress Jan. – June, 2010: no action at this time.

Progress July – Dec., 2010: four DNA analysts attended the International Symposium of Human Identification (Promega), including the mixture interpretation workshop, in October, 2010. We sent four analysts instead of six because we did not include airfare in our initial budget thinking that Promega would again be held in Las Vegas, NV.

(Typically, each Promega meeting is held twice in a location before it moves to a new site.)

We used $418 from our training budget to partially fund the costs of our back-up CODIS administrator attending the annual CODIS Users meeting in Salt Lake City, UT in November, 2010.

Two DNA analysts have registered to attend the 2011 AAFS meeting that will be held in Chicago, IL from February 21-26, 2011.

Progress Jan – June, 2011: 2 DNA analysts attended the 2011 AAFS meeting in Chicago.
Goal Completed

Goal 6 – provide advance in-house training by bringing Applied Biosystems' scientists to our laboratory to provide in-house training in basic and advanced GeneMapper IDX.
Progress Oct. – Dec., 2009: GeneMapper IDX expert system software was installed and has been used in our laboratory for casework since September 30, 2009. GeneMapper IDX was easy to implement and all of our DNA analysts have been trained to analyze data using it. We no longer require basic GeneMapper IDX training at our laboratory. Advanced GeneMapper IDX training is still being considered. We are currently installing a Tecan HID EVOlution robot with Applied Biosystems Prepfiler chemistry. Once the robot and Prepfiler system are installed, we are contemplating having Applied Biosystems come to the lab to provide training in the Prepfiler chemistry and robot protocols.
Progress Jan. – June, 2010: we decided not to have Applied Biosystems provide either Basic or Advanced GeneMapper IDX in-house training because of our experience with GeneMapper IDX and the ease of learning how to apply it. We contracted with Applied Biosystems to assist us with the validation of the Tecan robot/Prepfiler extraction system. The validation package includes analyst training in robot operation and Prepfiler chemistry. We will not need to spend additional funds for training.

<u>We reallocated the training funds for the following three purchases.</u>

The first was to obtain two days' worth of script/protocol development for the Qiagen Universal BioRobot. Qiagen software development engineers created a protocol so we could start the liquid handling process with samples in 96-well plates instead of individual extraction tubes. They also created a normalization protocol for the BioRobot. Both processes were necessary to accommodate the sample extracts that will be prepared by the Tecan robot/Prepfiler extraction system. Both protocols have been implemented on our Universal BioRobot.

The second purchase will be a new computer system with upgraded memory, hard drive, and software for our IT section software developer to use to create new DNA Manager/LIMS protocols, and to modify and upgrade existing protocols.

The third purchase will be Microsoft Exchange 2010 client e-mail licenses for the DNA analyst's computers. E-mail is used by the Orange County Crime Lab to communicate internally and with police agencies, the district attorney's office, and other county agencies. Our e-mail system is built into our DNA Management/LIMS system and is used to notify analysts when their laboratory analyses are complete and to transfer data between the instruments, LIMS and the analysts. Our e-mail system is ~10 years old and needs to be upgraded. With this upgrade, all of our operations will be more reliable and dependable, the security of the information will be more credible, and there will be no interruption in the timely delivery of results and reports.

Progress July – Dec., 2010: both of the scripts were completed by Qiagen and installed on the Universal BioRobot.

The new computer system for our IT section was delivered and is currently being used by our IT software developer. The first project it was for was to modify our laboratory's on-line work request submission process to make it more user-friendly for the CSI personnel and investigators who submit work requests. Our IT software developer also created a message exchange and tracking function to facilitate communication between the lab and the agencies which will result in work requests being accepted and processed faster by all sections of the laboratory.

The Microsoft Exchange 2010 client e-mail licenses were purchased and installed on analyst's computers. With this upgrade, all of our operations will be more reliable and dependable, the security of the information will be more credible, and there will be no interruption in the timely delivery of results and reports.

<u>Since the last progress report, two budget modifications were made and approved. The following were added and are intended to improve the laboratory and DNA Section's computer and LIMS network.</u>
VMWare vSphere Essentials Plus Redundant and Fault Tolerant Software Virtualization for our Work Request Web Server: this purchase allows for 24 hours, 7 days a week up-time and redundant back-up of the Orange County Crime Laboratory's (OCCL) Work Request and Case Status website. This website receives all of the requests for DNA work from each of the county's law enforcement agencies. This is the primary communication mechanism between these agencies and the OCCL with regards to evidence requests and case status updates. vSphere will allow this system to operate continually without downtime assuring that all of our customer agencies can submit work requests and receive status updates continually. This software has been purchased but not yet installed.

Anti-virus and Malware Replacement for OCCL Computers and Servers: this software will replace and upgrade OCCL's current anti-virus software system with a more current and reliable manufacturer's product. The software will assure the integrity of our data systems and the confidentiality of our casework data is not compromised not only for the DNA Section but for other areas of the laboratory as well. The cost of this software package is $3,000. This software is in the process of being purchased. Uninterruptible Power System (UPS) for the PCR area of the DNA Laboratory: we will install a UPS in the PCR area which will cover the thermal cyclers, genetic analyzers, and the robots that set up the plates for the genetic analyzers. As additional funds become available, from either this grant or other capacity enhancement grants, we will continue to add modular units to this uninterruptable power system and connect it to the other DNA equipment and systems. This project has not yet been started.

Progress Jan – June, 2011: The VMWare vSphere software was purchased and installed. The anti-virus and malware replacement software was purchased and installed. We also purchased four sets of computer memory chips ($1,120) to increase the capacity of the computer server that supports our laboratory's Work Request and Case Status (WRCS) system. The WRCS system is used by the Orange County law enforcement agencies to submit work requests to our laboratory. The OC Crime Laboratory manages the work requests through the WRCS system and also uses it to communicate with the agencies with regards to case information and status updates. Now that the final cost of the walk-in freezer and redundant refrigeration system has been established (see Goal 1) we now know how much funding is available (~$127,000) to purchase and install module units to our uninterruptable power system in the DNA Section. Our Information Technology (IT) and Facilities Support personnel are currently obtaining information regarding the back-up power supply units and their costs. We anticipate having back-up power attached and available to our critical robotic equipment by the end of September, 2011.

Progress July-December, 2011: We actually budgeted $131,888 to purchase uninterruptable power supplies (UPS) for the critical robotic equipment in the DNA Section. Our Information Technology (IT) and Facilities Support personnel obtained four quotes and forwarded them to our purchasing department. The estimates that they received were for the equipment and installation which averaged $130,000. To meet the deadline of this grant (all funds spent or encumbered by December 31, 2011) the installation portion of the project was removed from the request for purchase (RFP). If the installation portion of the project had been kept in the RFP then additional review and approval by our county Board of Supervisors would have been required which would have delayed this project for an additional 3-4 months. The system requirements went out over Bid Sync and numerous responses were received. The lowest bidder came in at $60,601. This bid was accepted and was much lower than the original equipment quotes received by our Facilities and IT personnel. The UPS have been ordered but not received by the laboratory yet.

Since the installation of the UPS were removed from the bid process (the estimate was $25,000), and the price for the equipment was much lower than initially anticipated, that left approximately $60,000 in funds that needed to be rebudgeted. A purchase order for 30 new DNA computers and monitors had been approved in November, 2011 under the 2010 DNA Backlog Reduction/Capacity Enhancement Grant. The total cost of the 30 computers and monitors was $58,253. We submitted a budget modification GAN to transfer the cost of the new DNA computers and monitors to this grant to use the remaining 2009 grant funds and to close-out the grant on time. This GAN (#13) was approved on December 15, 2011.

The new DNA computers and monitors were received before the end of December, 2011. Some of the computers and monitors have been installed but the computers that will be used by the DNA analysts who do DNA typing cannot be installed until we receive Gene Mapper IDX upgrades that are compatible with Windows 7. The upgrade request has been made and we anticipate implementing all of the DNA analyst computers by the end of February, 2012.

Installation costs of the UPS were transferred to the 2010 DNA Backlog Reduction/Capacity Enhancement Grant. A new budget modification GAN (#3) was submitted for the 2010 DNA Backlog Reduction/Capacity Enhancement Grant on December 19, 2011.

This goal and the three modifications made to it have been completed. All of the software has been purchased and implemented. The new programming computer was purchased and is used by our programmer to update the DNA Manager program, the work request and case status (WRCS) website, and our DNA report writing module. Protocol and script development for our Qiagen liquid handling robot was completed. All Gene Mapper IDX software has been installed, and new DNA computers and monitors were purchased and are currently being installed. The purchase order for the UPS has been completed and we are waiting for them to be delivered. The remaining portions of the UPS project will be continued under the 2009 DNA Unit Efficiency Improvement Grant (purchasing the batteries for the UPS) and the 2010 DNA Backlog Reduction/Capacity Enhancement Grant (UPS installation).
Goal Completed.

Goal 7 - analyze DNA evidence from a minimum of nine unsolved homicide cold cases and enter qualifying DNA profiles into CODIS.

Progress Oct. – Dec., 2009: fifteen homicide cold cases were submitted for review prior to our acceptance of this grant. All fifteen cases were selected to be worked using grant funds and are in the process of being examined for biological evidence.

Progress Jan. – June, 2009: sixteen cases were received and assigned to DNA analysts to work on overtime. Ten cases have been completed to date. DNA profiles eligible for

CODIS entry were obtained in four cases. Two cases, a 1974 Santa Ana homicide (blood on the victim's slip) and a 1992 Santa Ana homicide (DNA from a gun grip), had cold hits and suspect identifications resulting from the profiles developed using grant overtime.

Progress July – Dec., 2010: the remaining six cases were completed which resulted in an evidence profile from a 1996 Santa Ana PD homicide case being entered into CODIS. There were no new CODIS hits during this report period.

A total of 142.5 overtime hours were used to analyze all sixteen cases. At the end of this report period there were a total of five DNA profiles entered into CODIS and two CODIS (SDIS) cold hits leading to suspect identifications.
Goal Completed

FY09 Recipient Name: County of San Bernardino
Award Number: 2009-DN-BX-K066
Award Amount: $506,133
Final Report:

This project is still in progress

FY09 Recipient Name: County of San Mateo
Award Number: 2009-DN-BX-K092
Award Amount: $117,916
Final Report: The Sheriff's Office Forensic Laboratory's goals under this grant were to decrease the number backlogged cases and turnaround times.
Award funds were used to:

- Send two (2) examiners to training;
- Purchase chemicals to process DNA casework; and
- Fund a part-time Contract Criminalist to perform casework and case reviews.

At the beginning of this grant period, the number of backlogged cases was 154 cases and the turnaround time was 205 days; at the end of this grant period the number of unassigned backlogged cases was 283 and the turnaround time was 228 days. The Forensic Biology Section completed 563 cases during the grant period (01 October 2009 until 31 March 2011).
The overall number of backlogged DNA cases and the turnaround time increased during this grant period and the number of samples analyzed per analyst per month decreased due to four major factors:

1. The Section Supervisor was on parental leave from May 2010 until December 2010. The Laboratory did not meet its goal of reducing the DNA backlog. The increase in backlogged cases and turnaround time was a result of the Supervisor's parental leave (whose duties also included processing of evidence and technical and administrative reviews of cases) and an analyst's removal from bench work in order to cover technical and administrative reviews of biology reports.

2. A qualified DNA examiner was on parental leave from July 2009 until February 2010. Although this examiner returned to the San Mateo County Sheriff's Office Forensic Laboratory in February, she chose to return as a part-time employee and, as a result, she only works 20 hours per week.
3. A qualified DNA examiner went out on parental maternity leave as of January 2011.
4. A qualified DNA examiner was permanently transferred to another section of the Laboratory.

As a direct result of the parental leaves of the one supervisor and two employees, the temporary promotion of one examiner to Acting Supervisor, and the permanent transfer of one trained examiner to another section, less casework was assigned and completed by the unit, leading to an increase in backlogged cases and turnaround times.

Unfortunately, since neither the permanent transfer of an examiner to another section nor the parental leave absences of three members of the unit were considered at the beginning of this grant period, we did not anticipate a slowdown in case production. In totality, the absence of these unit members and the removal of one trained examiner from the bench to be the Acting Supervisor, our number of backlogged cases and their turn around times will continue to be larger than first estimated.

As of April 29, 2011, the Forensic Biology Section's current staffing is as follows:

- One (1) Supervisor
- Two (2) fully trained and qualified full time examiners
- Three (3) partially trained full time examiners
- One (1) partially trained part time examiner
- One (1) fully trained and qualified part time contract criminalist
- One (1) fully trained and qualified full time examiner out on maternity leave

All supplies were purchased, received, and put in place at the Forensic Laboratory. This has relieved the bottlenecks that were existent due to the lack of ability to use various instruments and techniques prior to their validation.

Goal 1: Send Criminalists to Training..... *GOAL COMPLETED*

Two Criminalists from the Forensic Biology Section attended the American Academy of Forensic Science (AAFS) 62nd Annual Scientific Meeting held in Seattle, Washington from February 22 through February 27, 2010. During this meeting, over 700 scientific papers, breakfast seminars, workshops, and other special events were presented to the attendees.

Goal 2: Purchase Chemicals..... *GOAL COMPLETED*

- 11 AmpFLSTR Identifiler PCR Kits and 11 Quantifiler Human DNA Kits were ordered. These kits were used to perform casework on backlogged samples, to complete one phase of training for two (2) employees who are now qualified to perform casework on non-complicated, single source samples, and validate the Qiagen BioRobot EZ1 automated workstation and Applied Biosystems 4 Capillary 3130 Genetic Analyzer/DNA sequencer.
- 6 Quantifiler Duo DNA Kits were ordered. These kits were used to validate Y-STR Technology at the San Mateo County Sheriff's Office Forensic Laboratory. Currently, all Forensic Biology staff has been trained in its use; however, the Laboratory has not had the opportunity to use it in casework yet.

- 10 EZ1 Investigator DNA Kits were ordered. These kits were used to validate the Qiagen BioRobot EZ1 automated workstation. The Forensic Biology staff is using the EZ1 when processing evidence.

Goal 3: Fund a part-time contract Criminalist..... *GOAL COMPLETED*

The Criminalist (Contractor) was selected based on her casework experience and was competency and proficiency tested to ensure compliance with the San Mateo County Sheriff's Office Forensic Laboratory protocols and DNA Quality Assurance Standards established by the Director of the FBI. The employee was also subjected to a background investigation conducted by the San Mateo County Sheriff's Office's Bureau of Professional Standards.

This Criminalist continued to support the Forensic Biology Unit staff by directly engaging in handling, screening, and analyzing forensic casework evidence that may contain DNA. In addition, this part-time contractor/consultant supported the Forensic Biology Unit staff by performing comprehensive technical and/or administrative reviews of DNA casework and reports.

During this grant period, the Criminalist, using grant-funded supplies, completed 77 laboratory cases, with an average turnaround time of 81.2 days. She analyzed 13.6 samples per month, developed 185 DNA profiles, and was responsible for 11 CODIS entries which resulted in 7 CODIS hits.

PROGRAM INCOME / MATCH

Program Income – Match:

Since the San Mateo County Sheriff's Office Forensic Laboratory is considered a Fee For Service Laboratory, $12,273 Match (Recipient Share) is required. Therefore, additional supplies ordered and received during this grant period (from October 1, 2009 through March 31, 2011) are found on the following documentation:

Date Vendor Amount

02/02/10 VWR $1,116.86
02/02/10 VWR $1,082.22
02/02/10 VWR $76.13
02/04/10 Seological Research Institute $531.72
02/10/10 VWR $186.91
02/15/10 VWR $1,082.22
03/22/10 VWR $318.06
03/25/10 Millipore $510.00
03/29/10 Millipore $2,622.79
03/30/10 VWR $11.54
04/08/10 Qiagen $2,748.76
04/12/10 VWR $228.70
04/16/10 VWR $565.62
04/16/10 VWR $520.48
05/05/10 VWR $3,228.98
05/18/10 VWR $127.12
05/18/10 Seological Research Institute $531.76

05/20/10 VWR $124.83
05/21/10 VWR $253.25
05/27/10 VWR $444.39
06/01/10 VWR $1,739.85
06/01/10 VWR $252.24
06/02/10 VWR $1,429.14
06/04/10 Seological Research Institute $268.72
6/9/2010 VWR $304.38
6/18/2010 VWR $1,058.89
6/18/2010 VWR $786.72
6/24/2010 VWR $529.28
6/24/2010 Millipore $2,622.84
TOTAL: $25,304.40

The San Mateo County Sheriff's Office Forensic Laboratory's supplies ordered and received during this grant period for our MATCH Funds totaled: $25,304.40.

NON-FEDERAL AMOUNT / ($7,226)
In the original grant application submitted by Sheriff's Office Forensic Laboratory, funding was requested for *Personnel* - Criminalist Extra-help ($49,666) and *Fringe Benefits* ($7,226). The Fringe Benefits were to be paid for with non-federal funds (Sheriff's Office).
Through GAN#1 - funding from *Personnel* ($49,666) and *Fringe Benefits* ($7,226) was moved to *Consultants/Contracts*. The Forensic Laboratory decided to hire a Consultant Criminalist (contractor) rather than creating an Extra-help position.
Through GAN #7 – the *Consultants/Contracts* balance of $7,226 was moved to Supplies.
The Sheriff's Office purchased the following supplies with non-federal funds:

- 5 Capillary Array which were used for fragment analysis and sequencing application.
- 5 EZ1 Investigator DNA Kits *(in addition to the 10 previously mentioned in this report)* which were used to validate the Qiagen BioRobot EZ1 automated workstation.

FY09 Recipient Name: County of Santa Clara
Award Number: 2009-DN-BX-K079
Award Amount: $329,243
Final Report: Final report-January 1, 2011 to March 31, 2011
The two main goals for this award were to reduce the backlog and turn-around times, each of which is discussed in further detail in the paragraphs that follow. To achieve these two goals, the laboratory used grant funds to pay the salary and benefits of two Criminalists, and to secure a validation service for the Tecan/HID Evolution robotic system.

Both Criminalists funded under this award have been focused on completing backlogged casework (screening and DNA testing). During this reporting period, the grant-funded analysts completed 38 cases with an average turnaround time of 104 days. They generated 14 profiles for CODIS entry, and 16 CODIS hits were obtained that could be attributable to work performed by grant-funded employees. They also completed 16 technical reviews in this reporting period.

The laboratory completed an informal competitive bid process in July and selected Applied Biosystems as the most qualified vendor to perform the robot validation. The validation commenced October, was suspended soon after due to mechanical and software problems with the robot, and began again on January 24th. The laboratory work associated with the robot was completed as of February 28th. Per the agreement between the laboratory and Applied Biosystems, the validation reports and a teach-back training would be made available to the laboratory 12 weeks after the laboratory experiments were completed (~May 23rd). To date, the validation reports have not been received and the training has not been delivered. Correspondence with the vendor about deadlines has been consistent and well-documented. On June 23rd, 2011, they verified that the data analysis is complete and they are in the process of completing the written summaries.

The laboratory has done an independent analysis of the data run by Applied Biosystems during the validation in an effort to keep up project momentum and to forecast any potential issues or additional studies that need to be performed. The cursory review of this data indicated that the system functions with a high level of reproducibility, sensitivity, accuracy, and efficiency.

Goal #1 – Backlog reduction:

In the proposal for this grant, the laboratory proposed that 75% of the cases backlogged as of October 1, 2009 could be completed by the end of the grant period. Further, the laboratory estimated that a total of 329 backlogged cases could be completed by the end of the grant period (this was to include a combination of cases backlogged as of October 1, 2009, and those that were received during the grant period, backlogged for a period of time, and then assigned and completed before the end of the grant). As of March 31, 2011, 95 out of the 102 backlogged cases have been completed (93%), 6 are in progress, and only one remains unassigned. In addition, since October 1, 2009, the laboratory has received 1348 additional requests, of which 1135 have been completed, 96 are in progress, and 119 remain unassigned.

A significant increase in the backlog has been observed over the past twelve months. This can be partially attributed to the departure of an employee that consistently completed at least 25 cases per quarter with an average turnaround time around 35 days. A second high-producing employee (~15 cases per quarter with an average turnaround time of ~30 days) separated from the laboratory at the end of November. Both positions have been filled by analysts whose experience should serve to normalize and further reduce the turnaround time. One employee has been signed-off to do casework, and the other is still in training. The contributions made by the newly qualified analyst are not apparent in the statistics for this reporting period because he did not complete his first set of cases until April.

The events that occurred right before this reporting period and during the reporting period were reviewed to identify any factors that would have contributed to an increase in the backlog and a decrease in productivity. The following factors were sited: 1) productivity typically decreases during the holiday season due to scheduled time-off, 2) approximately ten analysts spent a week at training in February, 3) there was a quality control issue with the TE buffer purchased through a vendor which shut the unit down for approximately one week in March, and 4) a quality

control issue was identified with the lot of Yfiler® kits received from Applied Biosystems, and the manufacturer could not replace the lot until the end of March.

Another source of the increase could be the analyst's involvement in other activities such as preparation for ISO accreditation and validation studies.

Goal #2 – Improve turnaround times:

In the proposal for this grant, the laboratory proposed improving turnaround times as follows:

1. From an average of 115 days to 100 days for non-violent crimes (date of submission to date of review)
2. From an average of 87 days to 75 days for violent crimes (date of submission to date of review)

At the end of this reporting period, the average turnaround time from date of submission to date of review was 91 days when considering all cases (i.e. violent, non-violent, and other). The average turnaround time for non-violent crimes was 90 days from the date of submission to the date of review. The average turnaround time for violent crimes was 97 days from the date of submission to the date of review.

At the end of this reporting period, the laboratory has met the goal for non-violent crimes (date of submission to date of review). However, the laboratory did not achieve the goal set for turnaround times for violent crimes (date of submission to date of review). This failure may be more attributable to the complexity of the violent crime cases that were submitted to the laboratory, than to lack of effort by analysts or lack of efficiency in the laboratory. Analysts are often processing more items of evidence in violent crime cases (especially those that involve gang activity and/or multiple victims and suspects) and exhausting all efforts to find probative evidence (e.g., performing Y-STR testing in additional to autosomal testing, taking multiple cuttings from the same item).

The increase in turnaround times may also be attributed to the factors previously sited: 1) productivity typically decreases during the holiday season due to scheduled time-off, 2) approximately ten analysts spent a week at training in February, 3) there was a quality control issue with the TE buffer purchased through a vendor which shut the unit down for approximately one week in March, and 4) a quality control issue was identified with the lot of Yfiler® kits received from Applied Biosystems, and the manufacturer could not replace the lot until the end of March.

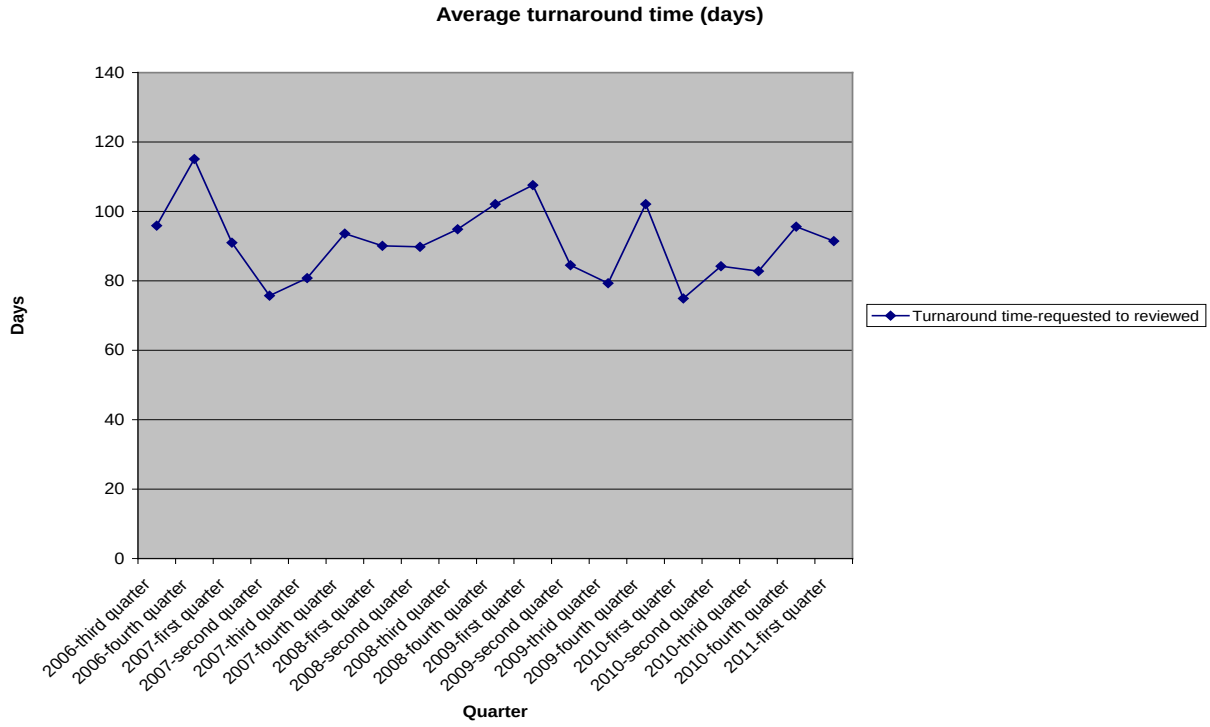
During this reporting period, more samples were processed per analyst per month than in the first reporting period (October 1, 2009 to December 31, 2009) (14.6 versus 8.75). The number of samples processed per analyst per month in this reporting period is exactly the same as the number processed in the second reporting period (January 1, 2010 to June 30, 2010). The greatest number of samples processed per analyst per month was 22.5 in the third reporting period (July 1, 2010 to December 31, 2011).

The number of cases completed in the final reporting period (183) was slightly lower than in previous quarters. Analysts completed 192, 196, 200, 267, and 215 cases in the third quarter of 2009, and quarters one through four of 2010, respectively.

This document presents final grant reports report submitted to the U.S. Department of Justice. These reports have not been published by the Department. Opinions or points of view expressed are those of the authors and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

The charts and tables that follow summarize the performance metric trends discussed above:

	Requested to Reviewed					Assigned to Completed					
	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases In Days Or Less		% Cases In Days Or Less		Average TAT (Days)	Cases Completed
	30	60	30	60		30	60	30	60		
[redacted]	2	3	50.00	75.00	32.75	4	4	100.00	100.00	11.25	4
	4	4	100.00	100.00	3.25	4	4	100.00	100.00	2.75	4
	4	5	23.53	29.41	88.47	9	15	52.94	88.24	42.24	17
	5	10	23.81	47.62	95.67	7	13	33.33	61.90	43.95	21
	6	8	31.58	42.11	100.16	8	14	42.11	73.68	50.26	19
	2	2	28.57	28.57	188.00	2	2	28.57	28.57	115.00	7
	6	6	54.55	54.55	76.36	6	6	54.55	54.55	57.82	11
	18	21	60.00	70.00	57.40	19	30	63.33	100.00	24.47	27
	3	6	30.00	60.00	99.60	4	10	40.00	100.00	29.40	10
	3	7	15.79	36.84	108.42	4	12	21.05	63.16	59.42	19
	1	1	25.00	25.00	88.25	2	2	50.00	50.00	51.75	4
	1	3	16.67	50.00	69.00	2	3	33.33	50.00	52.67	6
	0	0	0.00	0.00	146.63	0	1	0.00	12.50	93.00	8
	4	8	36.36	72.73	85.36	4	9	36.36	81.82	40.73	11
	1	3	11.11	33.33	126.22	2	4	22.22	44.44	89.33	9
	1	4	16.67	66.67	83.00	4	4	66.67	66.67	66.67	6
Totals/Averages	61	91	33.33	49.73	91.44	81	133	44.26	72.68	49.30	183



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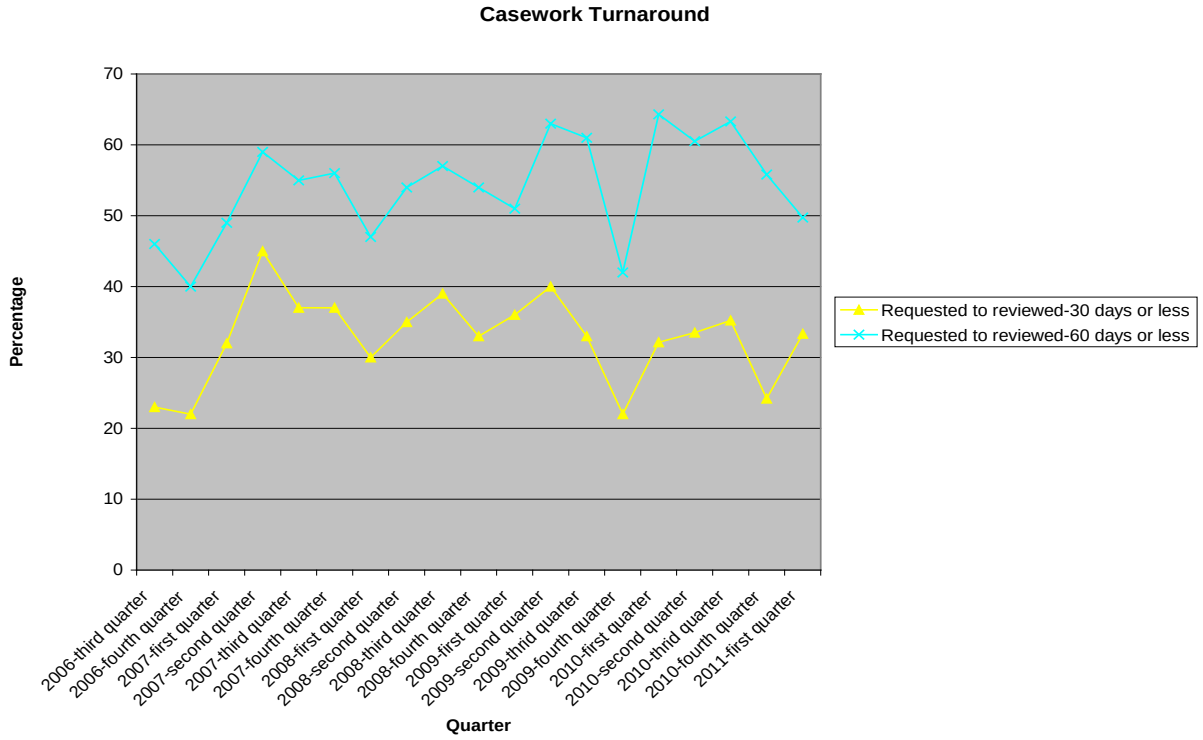

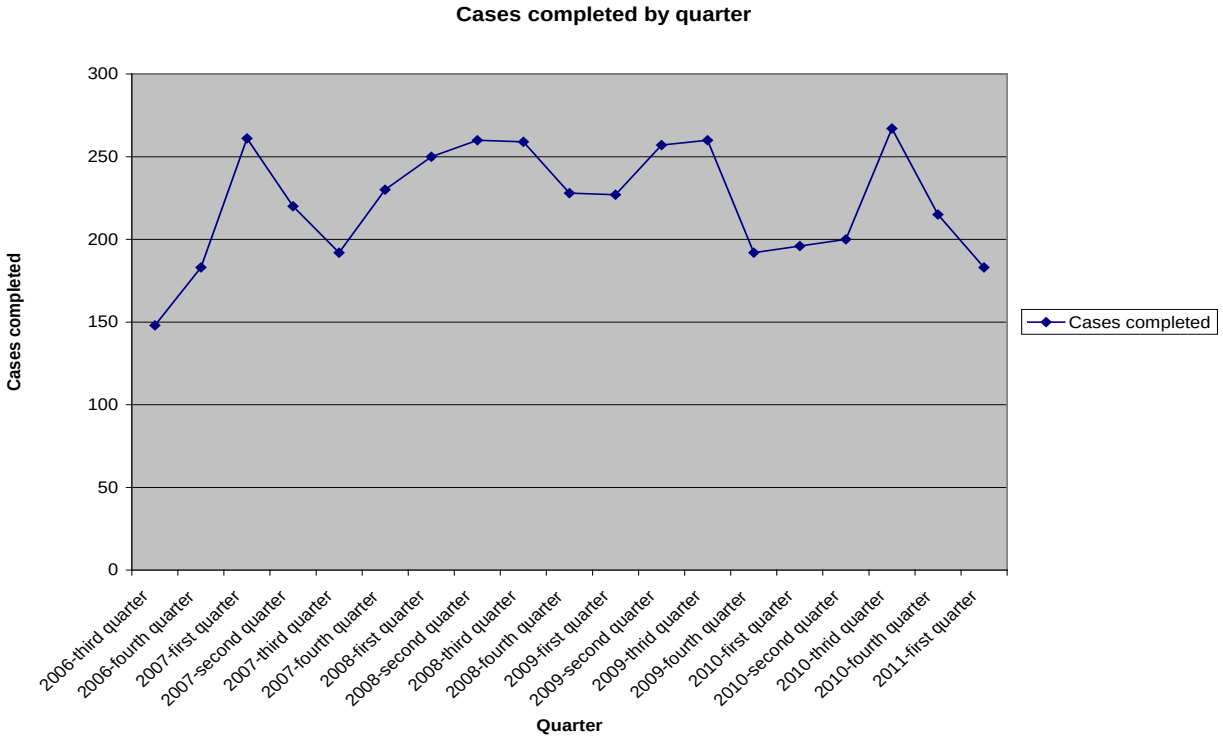

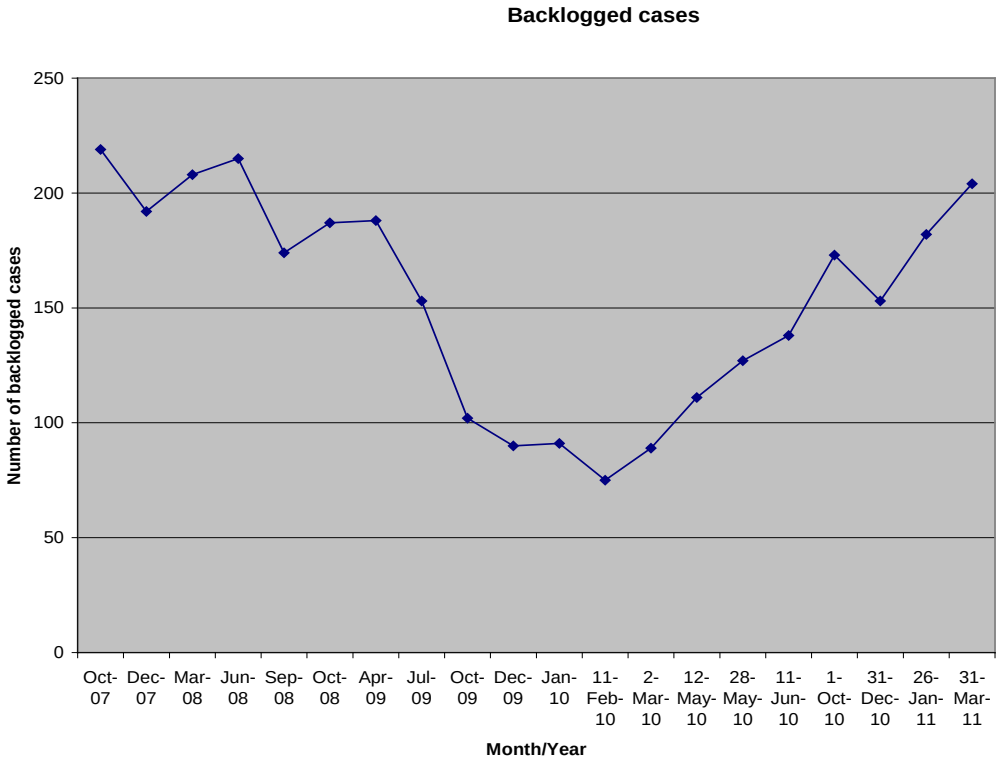

GAN activity: There was no GAN activity during this reporting period.

CODIS activity: Grant-funded employees have submitted 14 profiles into CODIS during this reporting period, and 16 CODIS hits were obtained that are attributable to work performed by grant-funded employees. The following charts summarize the laboratory's CODIS hits through March 31, 2011:

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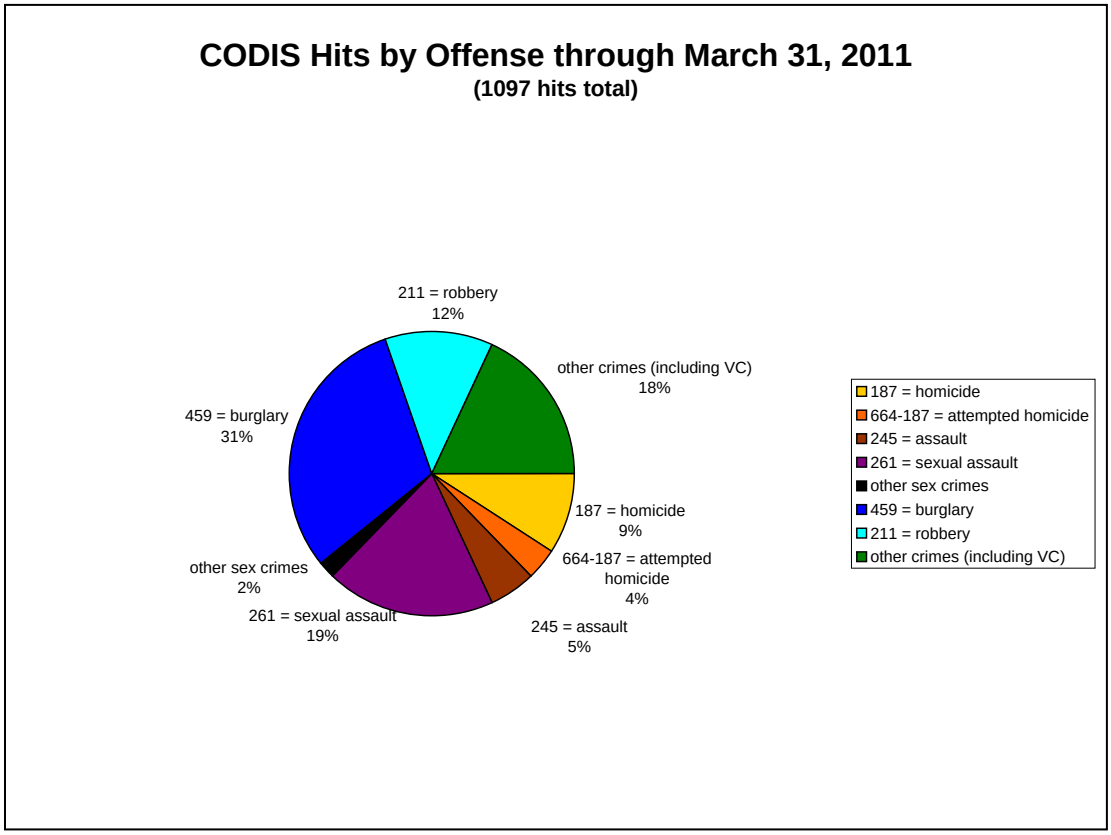
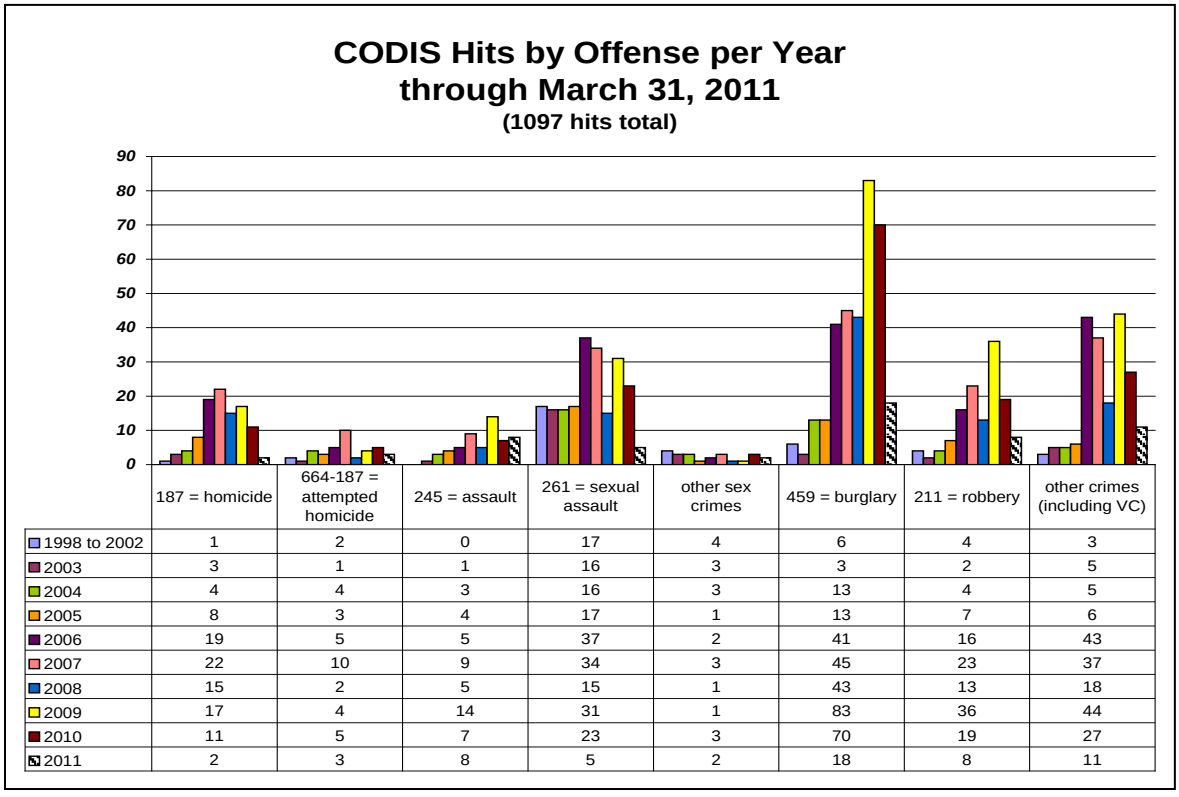




	187 = homicide	664-187 = attempted homicide	245 = assault	261 = sexual assault	other sex crimes	459 = burglary	211 = robbery	other crimes (including VC)
1998 to 2002	1	2	0	17	4	6	4	3
2003	3	1	1	16	3	3	2	5
2004	4	4	3	16	3	13	4	5
2005	8	3	4	17	1	13	7	6
2006	19	5	5	37	2	41	16	43
2007	22	10	9	34	3	45	23	37
2008	15	2	5	15	1	43	13	18
2009	17	4	14	31	1	83	36	44
2010	11	5	7	23	3	70	19	27
2011	2	3	8	5	2	18	8	11

FY09 Recipient Name: County of Ventura
Award Number: 2009-DN-BX-K051
Award Amount: $114,351
Final Report:

Goal 1A) To continue the employment of one forensic scientist that was hired on the 2008 DNA backlog reduction grant to help reduce the backlog. The person that was hired under the 2008 DNA backlog reduction grant (April 20 to September 30, 2009) accepted a full time permanent position as of September 30, 2009. The grant position was re-advertised and a candidate was selected. This person passed background and started in December 2009. This person finished her DNA training in June 2010 and has been doing casework since that time.

Goal 1B) To purchase an Applied Biosystems 3130-4 genetic analyzer for DNA typing. The 3130-4 genetic analyzer was received and a mini validation/performance check was conducted. The instrument is on-line and in use.

Goal 2) To reduce the backlog in the DNA section. The backlog at the beginning of this grant (October 1, 2009) was 262 cases. The backlog at the end of this reporting period (March 31, 2010) was 244 cases. The backlog decreased by 18 cases.

Goal 3) The overall goal is to decrease the turn-around time and increase throughput in the laboratory.

The turn-around time at the beginning of this grant (October 1, 2009) was 244 days. The turn-around time at the end of this reporting period (March 31, 2011 data) was 136 days. A decrease of 108 days.

The average number of samples analyzed per analyst decreased from 53 (beginning of the grant) per analyst to 50 per analyst (January 1 - March 31, 2011 data). The average samples analyzed per analyst over an eighteen-month period runs around 55.

FY09 Recipient Name: Fresno County Sheriff Department
Award Number: 2009-DN-BX-K049
Award Amount: $133,000
Final Report: This grant was awarded on 8/26/2009. The Fresno County Board of Supervisors accepted this award September 22nd, 2009.

In order to reduce the DNA case backlog the Sheriff's Department Forensic Laboratory is using accredited/certified DNA laboratories to analyze the backlogged cases. In November and December of 2009 one GAN was received. This GAN removed Special Conditions 22, which will allow the drawing down of funds from this grant. During the life of this grant Special

condition 23 was also received, this required CCR registration and was completed and removed. The Sheriff's Office was using two private labs for analysis of DNA cases under this grant. One of those labs, HIT, shut down during the working period of this grant, stopped accepting cases and moved to another state. We stopped using this provider as they are still not up and running in their new location.

The goal of this grant was to analyze 25 backlogged cases using the funding provided. To date the Fresno County Sheriff's Office has sent out for analysis and received analysis results back on 38 cases and have met/surpassed the goal set forth by this grant proposal. Over the life of this grant 8 viable profiles were received and sent for uploaded into CODIS. Eight DNA profiles that were uploaded into CODIS under this grant, of these eight uploaded profiles we received 2 hits.

FY09 Recipient Name: Los Angeles County Sheriff's Department
Award Number: 2009-DN-BX-K070
Award Amount: $1,435,858
Final Report:
Final Narrative (Jan – Mar 2011):

1. Progress (Jan - Mar): Goal 1 (1,100 cases) has been completed and exceeded. 1326 cases were outsourced and analyzed by contracts labs. Of those, 957 are complete, which means that they either screened negative, had no sample suitable for CODIS entry, or the CODIS upload was completed. There are 369 cases pending CODIS review; however, analytical reports have been delivered to the requesting agencies. The cumulative total of CODIS uploads was 251. Of those uploads, 242 went to national and 9 went only to the state level. There was a cumulative total of 117 hits. Of the 117 hits, 112 were to felons and 5 were case-to-case hits.

2. Discussion: As was forecast, not all of the CODIS reviews were completed. Despite grant closure, the metrics associated with those cases will still be tracked and attributed to the award.

   The turnaround time for the first quarter increased significantly. The previous quarter was 163 days and this quarter was 200 days. This requires some explanation since the average does not reflect the turnaround time for typical casework. First, the average turnaround time for 90% of the labs casework is 142 days, significantly less than 200 days. The second reason requires looking at what is causing the average to increase. The primary cause is sexual assault kits that were submitted to the lab with no request for analysis. In some cases there were specific requests to not analyze the kits. However, our policy is to work <u>every</u> kit regardless of investigative status. As we have worked to eliminate our historical sexual assault kit backlog, we accumulated a (post) backlog of kits 1-2 years old that were low priority due to the case circumstances. We track our metrics by using the date the kit was submitted to the lab as the date of request for analysis. Therefore, there are numerous kits that were completed this quarter that have turnaround times greater than 700 days. It only

takes a few of these to skew the average much higher. Overall, casework with a request for analysis is completed within 90 – 120 days, including DNA analysis.

This grant has been a great success since it helped eliminate the final sexual assault kits from our historical backlog. Coupled with the 2010 award, which paid for the outsourcing of what we refer to as our post-backlog, we have nearly eliminated our sexual assault kit backlog entirely and are currently attempting to work all sexual assault cases in-house. The word "attempting" is used because there are a few outside police agencies, despite repeated requests, that did not submit their backlog of sexual assault kits. One agency has indicated they are submitting an additional 200 kits. These kits will likely exceed our capacity and will be a focus of the 2011 award for overtime. These results could not have happened without NIJ grant funding.

FY09 Recipient Name: Sacramento County
Award Number: 2009-DN-BX-K065
Award Amount: $533,345
Final Report: Grant Award Period: October 1, 2009 through September 30, 2011.
The following goal was set for this award:

GOAL: the *FY 2009 Forensic DNA Backlog Reduction Program* is to reduce the time necessary to conduct in-house DNA-STR analyses and report the results of the targeted cases while concurrently increasing the crime laboratory's throughput of DNA evidence and eliminating a backlog of violent crime cases.

a. Report Period Jul-Dec 2009: This grant has not been activated by the laboratory. All work is being done under the 2008 Backlog Reduction grant 2008-DN-BX-K031. Goal is pending completion.
b. Report Period Jan-Jun 2010: The in-house DNA-STR analyses has not been activated by the laboratory. Grant funded analysts and all DNA work is being conducted under the 2008 Backlog Reduction grant (2008-DN-BX-K031) through September 30, 2010. Goal is pending completion.
c. Report Period Jul-Dec 2010: The first three months of this reporting period (Jul-Sep 2010) had criminalists and case reviewers working under the 2008 grant award (2008-DN-BX-K031). In-house DNA analyses was begun October 1, 2010, criminalists hired under previously funded DNA Backlog grant began working forensic DNA cases under the 2009 grant.
d. Report Period Jan-Jun 2011: Two (2) DNA analysts are funded under the *FY 2009 Forensic DNA Backlog Reduction Program*. Criminalist A was involved in report writing activities on DNA cases rolling over from previous grant periods/programs. Criminalist B was assigned 25 cases and completed 24 cases with an average case turnaround time of 59 days. Criminalist B also screened 12 cases for DNA evidence that resulted in no substantive evidentiary findings – negative for DNA evidence.

e. Report Period Jul-Sep 2011: Two (2) DNA analysts are funded under the *FY 2009 Forensic DNA Backlog Reduction Program*. Criminalist A completed laboratory reports on DNA cases rolling over from previous grant periods/programs. Criminalist B was assigned 15 cases and completed 14 cases with an average case turnaround time of 49 days. Criminalist B screened 2 of 15 cases for DNA evidence that resulted in no substantive evidentiary findings – negative for DNA evidence.
f. FINAL Cumulative Oct 2010 – Sep 2011: The two (2) DNA analysts began working backlogged and targeted cases under the *FY 2009 Forensic DNA Backlog Reduction Program* October 1, 2010. The cumulative totals for Criminalist A: 31 DNA cases assigned, 27 DNA cases completed, and 25 DNA case reports released during this time period. The cumulative totals for Criminalist B: 43 DNA cases assigned, 42 DNA cases completed, and 39 DNA case reports released during this time period.

OBJECTIVES: There are two objectives set for this award:

a. Improve DNA Analysis Capacity: The crime laboratory will (a) reduce the average number of days between assignment of a DNA request to an analyst and the delivery of the test results to the submitting agency; and (b) the crime laboratory will increase the DNA request throughput
    i. Report Period Jul-Dec 2009: This grant award has not been activated by the laboratory. All work is being done under the 2008 Backlog Reduction grant 2008-DN-BX-K031. Objective is pending completion.
    ii. Report Period Jan-Jun 2010: The in-house DNA-STR analyses have not been activated by the laboratory. Grant funded analysts and all DNA casework is being conducted under the 2008 Backlog Reduction grant (2008-DN-BX-K031) through September 30, 2010. Grant-funded case reviewers – intended to expedite case throughput – are also working under the 2008 Backlog Reduction grant through September 30, 2010. Objective is pending completion.
    iii. Report Period Jul-Dec 2010: NOTE: that information and statistics reported only reflect the 2009 award period Oct-Dec 2010.

        Criminalist A spent Oct-Dec 2010 completing and writing reports on DNA cases carried forward from previous grants. During this time period Criminalist A released seventeen (17) reports to the investigating agencies. It is expected that it will require several more months to complete cases and write reports before new backlogged cases can be assigned to Criminalist A for analysis. (As an aside Criminalist A also underwent surgery during this time period and is recuperating. Criminalist A is somewhat restricted as to her ability to conduct DNA analyses, and therefore is taking this opportunity to clear cases that required a final report.)

        Criminalist B was assigned screening analysis for 12 cases and completed and released reports on all 12 of those cases with an average turnaround time of 35 calendar days. In addition to screening casework, Criminalist B has also been completing DNA analysis training. In late December 2010, Criminalist B was assigned her competency test to be

completed prior to any DNA casework assignments. It is expected that the test will be completed on or before the end of January 2011 and Criminalist B will be assigned DNA casework beginning in early February 2011.

A grant funded case reviewer (consultant) is now funded under the 2009 grant. During the period Oct-Dec 2010 the consultant administratively reviewed and released 59 DNA cases with a total time commitment of 39 hours and an associated cost of $2,193.75. The average time to complete an administrative review of DNA reports was 6 days compared with an average 8 days in the previous report period.

iv. Report Period Jan-Jun 2011: Information and statistics reported reflect the 2009 award period Jan-Jun 2011.

Criminalist A worked January to June 2011 completing and writing reports on DNA cases carried forward from previous grants. These cases included hit confirmation casework. During this time period Criminalist A released 24 analysis reports to the investigating agencies. It is expected that during the next reporting period Criminalist A will have completed and released all pertinent analytical reports and new backlogged cases will be assigned to Criminalist A for analysis.

Criminalist B successfully completed her DNA training and competency test and was assigned backlogged DNA cases beginning in February 2011. During this reporting period Criminalist B was assigned 25 DNA cases and completed and issued laboratory reports on 24 cases with an average case turnaround time of 59 calendar days. In addition, Criminalist B screened 12 potential DNA cases that resulted in negative findings and no probative DNA evidence being recovered. Case breakdown is as follows: 18 sexual assault cases, 3 homicide cases, 2 possession-of-drug cases, 1 kidnap/robbery case, and 1 assault case.

Consultant A: a grant funded case reviewer completed the administrative reviews and release of 174 DNA cases during the period Jan-Jun 2011. Consultant A's total time commitment was 80.5 hours. The average time to complete an administrative review of DNA reports was further reduced to 5 calendar days compared with an average 6 days in the previous report period.

Consultant B: a grant funded case screener began case reviews, screening activities and evidence location searches in March 2011. Consultant B also oversaw the transition to a new Supervising Criminalist for the laboratory's Biology (DNA) Unit assisting in DNA case submission and case assignment reviews. Consultant B screened a 1981 homicide case from Ohio (evidence submitted to this laboratory by the state of Ohio) that is thought to be linked to a 1987 homicide with a similar MO in Sacramento County. The suspect was convicted for the Sacramento County crime and is eligible for parole. It is believed that if evidence linking the suspect to the Ohio case can be found the suspect's California parole will be suspended and the suspect will subsequently stand trial for the

Ohio homicide. Consultant B has worked over 75 hours screening evidence and writing the analytical reports on this conjoined case. Additionally, Consultant B screened evidence from six other homicide cases selected by local law enforcement agencies as significant open cases that had received little to no work by the crime laboratory. Briefly these cases included:

- 2009 double homicide (unknown cause of death)
- 2006 homicide of a Sacramento Sheriff's deputy
- 2009 double homicide (shooting)
- 1980 homicide (unknown cause of death)
- 1981 homicide (stabbing)
- 1991 homicide (stabbing)

Consultant B's total time commitment was 332 hours.

v. Report Period Jul-Sep 2011: Information and statistics reported reflect the 2009 award period Jul-Sep 2011.

It should be noted that during this reporting period Criminalist A experienced critical health issues that, under a medical directive, restricted her ability to conduct DNA analyses in the laboratory. Consequently, no new DNA cases were assigned; rather Criminalist A worked on completing and writing reports on DNA cases carried forward from previous grant reporting periods. These case reports included hit confirmation notifications. During this time period Criminalist A completed 2 analysis reports, both reports are pending administrative reviews prior to release

During this reporting period Criminalist B was assigned 14 DNA cases and completed and issued laboratory reports on 12 cases with an average case turnaround time of 49 calendar days. Included in the 14 assigned cases Criminalist B screened 2 potential DNA cases that resulted in negative findings and no probative DNA evidence being recovered. Case breakdown is as follows: 12 sexual assault cases. Note that 2 cases assigned during this reporting period, were not begun until after October 1, 2011.

Consultant A: a grant funded case reviewer completed the administrative reviews and release of 105 DNA cases during the period Jul-Sep 2011. Consultant A's total time commitment was 53 hours. The average time to complete an administrative review of DNA reports was 7 calendar days compared with an average 6 days in the previous report period.

Consultant B: a grant funded case screener continued working on case reviews, screening activities and evidence location searches during this reporting period. During this reporting period Consultant B worked 206 hours screening evidence and writing the analytical reports related to old and cold cases selected and submitted by police

agencies as significant open cases that had received little to no work by the crime laboratory. Briefly these cases included:

- 1976 Shooting (beer cans from the victim's van)
- 1979 Stabbing homicide (male victim at a homeless shelter)
- 1981 Stabbing homicide (blood found at front entrance)
- 1981 Rape-homicide (continuation of the Ohio case)
- 1986 Shooting rape-homicide (body dump)
- 1987 Stabbing homicide (recovered weapons for DNA)
- 1991 Stabbing homicide (hair evidence)
- 1991 Stabbing homicide (examination of suspects' clothing)
- 1992 Beating death (sexual assault on homeless male)
- 1995 Shooting homicide (examine recovered weapons)
- 2007 Shooting homicide (father and infant son victims)
- 2007 Strangulation homicide (hair/sex assault evidence kit)
- 2008 Beating/Strangulation homicide (examine rape kit)
- 2011 Sexual assault on an animal

Of the 14 assigned cases, reports have been written and issued on 9 of the cases by the consultant. 7 of the 9 completed cases were forwarded on to an analyst for DNA analysis. In 2 of the 9 cases no biological materials were recovered during the examination.

b. Reduce Backlog of DNA Case Requests: The crime laboratory will work to ensure a percent reduction in the number of backlogged forensic DNA case requests; and, will report on the number of CODIS hits attributable to forensic DNA case analyses funded under this grant award.
   i. Report Period Jul-Dec 2009: This grant award has not been activated by the laboratory. All work is being done under the 2008 Backlog Reduction grant 2008-DN-BX-K031. Objective is pending completion.
   ii. Report Period Jan-Jun 2010: The in-house DNA-STR analyses have not been activated by the laboratory. Grant funded analysts and all DNA work is being conducted under the 2008 Backlog Reduction grant 2008-DN-BX-K031 through September 30, 2010. Objective is pending completion.
   iii. Report Period Jul-Dec 2010: NOTE: that information and statistics reported only reflect the 2009 award period Oct-Dec 2010.

   At the beginning of the grant report period (October 1, 2010) there were 25 forensic DNA cases backlogged. Grant-funded Criminalist A (as noted above) is completing the reports on DNA cases carried forward from the previous grant award (2008). No new backlogged DNA casework will be assigned to Criminalist A until all case reports have been completed and released. Likewise Criminalist B is only conducting screening - body fluid identification – analyses pending completion of her final competency test. It is expected that backlogged DNA cases will be assigned to Criminalist B in early February 2011.

iv. Report Period Jan-Jun 2011: NOTE: information and statistics reported reflect the 2009 report period Jan-Jun-Sep 2011. At the end of this grant report period (Jan-Jun 2011) there were 18 forensic DNA cases backlogged; i.e. exceeding 30 days as unreported cases. Grant-funded Criminalist A (as noted above) is completing the reports on DNA cases carried forward from the previous grant awards. No new backlogged DNA casework was assigned to Criminalist A during this reporting period. Criminalist B conducted the DNA analysis on 24 cases and 12 screening - body fluid identification – cases. Additionally, Consultant B was responsible for screening 7 homicide cases during this reporting period.

v. Report Period Jul-Sep 2011: NOTE: information and statistics reported reflect the 2009 report period Jul-Sep-Sep 2011.

At the end of this grant report period (Jul-Sep 2011) there were 18 forensic DNA cases backlogged; i.e. exceeding 30 days as unreported cases. These backlogged cases consisted of three (3) homicides, twelve (12) sexual assault cases and three (3)other violent crime cases. Grant-funded Criminalist A (as noted above) is completing the reports on DNA cases carried forward from the previous grant awards. No new backlogged DNA casework was assigned to Criminalist A during this reporting period. Criminalist B conducted the DNA analysis on 14 cases and 1 screening - body fluid identification – case. Additionally, Consultant B was responsible for screening and reporting results on 9 homicide cases during this reporting period.

c. Other Relevant Grant Activities

i. Report Period Jul-Dec 2009: This grant award has not been activated by the laboratory. All work is being conducted under the 2008 Backlog Reduction grant (2008-DN-BX-K031).

ii. Report Period Jan-Jun 2010: During this reporting period several grant-related activities other than casework analyses were begun by the laboratory:

i. One (1) DNA analyst attended the *BODE Advanced Technology Workshop* in San Diego, California 03/27/10 through 04/01/10. This workshop provided DNA training on the latest techniques and technologies to the scientific community as well as an opportunity for scientists to openly share experiences from their laboratories. Leaders from various law enforcement and federal agencies provided lectures, demonstrations, and mini-workshops on new technologies, new concepts and challenges in the field. Our Criminalist - Deven Johnson - presented a technical paper in the Mixture Interpretation Workshop on this laboratory's effort to address mixture interpretation of casework samples.

ii. One (1) DNA analyst attended the Spring seminar of the *California Association of Criminalists* in Yosemite, California 04/19/10 through 04/232/10. Some of the topics for DNA analysts included: *Effectiveness of Carrier RNA Co-Extraction Methodologies, Use of Canine Mitochondrial DNA in Forensic Casework, Developing a New qPCR Assay, Case Study of a Serial Killer, Evaluation of Applied Biosystems PCR Amplification Kit.*

iii. Equipment purchased during this grant period consisted of two (2) replacement high speed centrifuges and one (1) replacement laptop computer.
iv. Bid requests were developed and sent to various vendors for the laboratory's DNA lab renovation project intended to provide more working space for DNA analysts. A vendor/contractor was selected and Sacramento County is finalizing the award. Renovation is expected to begin in August 2010.

iii. Report Period Jul-Dec 2010: : During this reporting period several grant-related activities other than casework analyses occurred:
i. The DNA laboratory's remodel project which included the installation of bench work and cabinetry was successfully completed and signed off by the County General Services Department. In addition, there was sufficient funding under the project to remodel a storage room in the laboratory and expand the existing security system to house DNA laboratory reports. The report binders tend to use considerable shelf space and the laboratory's existing secure storage facility had exceeded capacity to hold the requisite five years of laboratory records.
ii. The establishment of a contract with an outside vendor to conduct the validation work on new DNA test kits has been subject to extensive review by Sacramento County. The laboratory did complete the multi-vendor bid process as required by NIJ. Unfortunately because the laboratory had experienced lay-off of personnel it was believed by County Purchasing and County Counsel that the laboratory would be in violation of county guidelines if the contract was to be let to the outside vendor. This process has been on-going since August of 2010 and included involvement by County Purchasing, County Counsel, the District Attorney's office and the employee's representative union. It appears that all hurdles have been met and the contract will be presented to the County Board of Supervisors in early February 2011.
iii. No training was funded under the 2009 grant award during this time period.

iv. Report Period Jan-Jun 2011: During this reporting period several grant-related activities other than casework analyses occurred:
i. Two (2) DNA analysts attended the *BODE Advanced Technology Workshop* in San Diego, California 04/10/11 through 04/14/11. This workshop typically provides DNA training on the latest techniques and technologies to the scientific community as well as an opportunity for scientists to openly share experiences from their laboratories. Leaders from various law enforcement and federal agencies provided lectures, demonstrations, and mini-workshops on new technologies, new concepts and challenges in the forensic DNA field.
ii. One (1) analyst attended the 117th semi-seminar of the *California Association of Criminalists* in Long Beach, California 05/17/11 through 05/20/11. In addition to general forensic technical sessions a DNA workshop covered current technologies in forensic biology, a presentation on Prep-filer validation studies, and a review and discussion of unusual and interesting DNA cases.
iii. As the 2009 grant draws to a close, savings across several funding categories has allowed the crime laboratory to redirect these savings to the purchase of minor equipment to expand our analytical capabilities. Funds were used to purchase 4

under-the-counter refrigerators for reagent storage and 2 height-adjustable examination tables for examination rooms. Both purchases will help in alleviating over-crowding and improve casework flow through the lab.

iv. The contract with an outside vendor to conduct the validation work on new DNA test kits was approved April 12, 2011, by the Sacramento County Board of Supervisors. Technical representatives from Applied Biosystems were in the crime laboratory the last week of June conducting the on-site validation studies as part of the contracted work. Applied Biosystems estimates a delivery date of mid-late September 2011 for the data report.

v. Grant funded DNA analysts testified in three high-profile DNA cases that were worked under this or previous Backlog Reduction grants.

1. One homicide case was a jury trial where the suspect was found guilty of a 2004 murder and burglary during a home invasion robbery of a real estate speculator. The suspect had been arrested in January 2009, as a result of a DNA cold hit.
2. One homicide case went to preliminary hearing. The case consisted of multiple laboratory requests over the past couple of grant award periods. Additional lab work was conducted during this grant period for the upcoming jury trial.
3. One case involved the conviction of a suspect on six felony charges including kidnapping for extortion with bodily injury, burglary, robbery, and carjacking. The suspect had been wearing a ski-mask during the commission of the crime. DNA analysis completed by the grant-funded DNA analyst linked the suspect to the crime scene and to the ski mask recovered by police and thought to have been used in the crime. The suspect faces life in prison at a September sentencing hearing.

v. Report Period Jul-Sep 2011: During this reporting period several grant-related activities other than casework analyses occurred:

i. During this reporting period two (2) on-site DNA-related workshops were offered to DNA analysts:

1. Bode Paternity Statistics Workshop. Under the most recent DNA external audit (June 2010) ASCLD/LAB assessors noted that the laboratory was issuing reports on criminal paternity cases that did not include the appropriate paternity statistical data/interpretation. In order to successfully complete the Corrective Action Request (CAR) the laboratory provided training to DNA analysts conducting criminal paternity testing analyses as to the calculation and reporting of paternity statistics. This training program was funded with residual training funds not expended in the course of the grant operations.
2. Forensic Report Writing Seminar. A crucial aspect of completing the analysis of DNA cases includes the writing and release of readable and understandable laboratory reports. This program consisted of three 4-hour sessions. Topics covered during the sessions included report formatting, content, scope, style and organization; analysis of the recipient's needs, inclusion of appropriate and relevant information, distillation of key points/results; writing in the active voice, using clear plain English using a dynamic concise style, guides on report revision and constructive critiquing. A Laboratory Style Guide was one of the after-the-

training deliverables of the instructor. This training program was funded with residual training funds not expended in the course of the grant operations.

ii. Several computer-related upgrades/replacements units were purchased for DNA analysts with residual equipment funds. One inoperable Crime-Lite® used in screening evidence was replaced.

iii. The validation study on the new DNA test kits was completed by Applied Biosystems and delivered to the laboratory in mid-September 2011. The data is currently being reviewed, prior to acceptance, by the laboratory's DNA Technical Lead. It is anticipated that the new DNA test kits will be approved for use in DNA casework in January 2012.

iv. The final stages of the DNA laboratory remodel project were completed and signed off by Sacramento County during this reporting period.

FY09 Recipient Name: San Diego County
Award Number: 2009-DN-BX-K048
Award Amount: $380,960
Final Report:

Goal: Purchase four upgraded Qiagen EZ1 robotic extraction instruments, an eight-channel Tecan arm, and an upgraded Applied Biosystems 3130 Genetic Analyzer to reduce casework backlogs and turnaround time.

Progress: We have completed all the equipment purchases planned for this award.

Goal: Purchase the extraction and amplification kits necessary to accompany the upgraded instrumentation in an effort to reduce casework backlogs and turnaround time.

Progress: The planned extraction and amplification kits have been purchased.

Goal: Use award funds to provide continuing education opportunities to 9 DNA analysts via a variety of seminars that will satisfy the federal continuing education requirements for DNA analysts. Travel and training expenses will not exceed 5% of total award funds.

Progress: Eight of nine analysts have attended the planned continuing education activities. Unfortunately, the ninth analyst was unable to attend the planned activity. The funds budgeted for this activity has been used to make up differences in other budget categories, and for additional overtime funding.

Goal: Allocate award funds to analyst's overtime expenses in an effort to reduce DNA case backlog.

Progress: The remaining balance of the award funds has been used to pay overtime expenses for analysts working on backlog case evidence. We have completed the analysis of 103 cases, exceeding our goal of 90.

FY09 Recipient Name: City and County of Denver
Award Number: 2009-DN-BX-K147
Award Amount: $259,898
Final Report:

This project is still in progress

FY09 Recipient Name: Colorado Department of Public Safety
Award Number: 2009-DN-BX-K148
Award Amount: $512,461
Final Report: 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 that 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.

Goal 1: The primary stated goal for this grant request was to increase the case output per DNA analyst at the CBI. This goal has been completed as indicated by the final performance metrics.

Objective 1: To increase the number of DNA items processed per analyst via implementation of an expert system.

10/01/2009-12/31/2009: There has been no use of funds from this specific grant at this time. Work is being done at this time in preparation of an RFP.
1/01/2010 – 06/30/2010: There has been no use of funds from this specific grant at this time. Work is being done at this time in preparation of an RFP.

07/01/2010 – 12/31/2010: The Applied BioSystem GeneMapper IDX has been purchase and received. Implementation includes three separate training. Training number 1 was conducted at the CBI Denver laboratory by Applied BioSystem on 11/16 to 11/18, 2010. Six DNA analysts participated in and successfully completed the training.

01/01/2011 – 06/30/2011: Two additional GeneMapper IDX trainings were provided by the vendor during this reporting period. Therefore, all current CBI-FSD DNA analysts have now completed the GeneMapper IDX training. The system wide validation study on the GM-IDX has been developed and approved by the CBI-FSD technical leader. The technical leader has started using overtime funds from this award work on this validation study.

06/30/2011 – 12/31/2011: A final GeneMapper IDX training was completed for the DNA database analysts. After the completion of this training, the technical leader developed a validation plan, and the DNA database section completed the validation study. The results of our work have been released to NDIS and NDIS has approved our settings in GeneMapper IDX for CODIS database uploading. This approval has paved the way for our database section to begin using GeneMapper IDX.

The GeneMapper IDX final validation write up is continuing for the DNA casework section. CBIFS casework ran into some difficulties completing this goal. These challenges are outlined here. For several years, due to the inability of the GeneMapper product to work in a Windows 7 environment, the CBIFS has used the GeneMapper product in a virtual XP setting. However, during our validation studies it was determined that GeneMapper IDX could not work in this virtual setting. Therefore, CBIFS could only install the server copy of the software product onto one computer in each of our three laboratories. This meant that all of our analysts needed to share one computer in order to conduct their portion of the validation studies and competency tests. In the middle of December 2011, LifeTechnologies released a version of GeneMapper IDX that could work using a Windows 7 platform. The week of its release, CBIFS secured funding from a non-grant source and purchased this new version of the software. CBIFS was able to install this version of the software and began working with GeneMapper IDX using more than one computer per laboratory. This has sped up our ability to continue this validation study. However, due to the release of a new version of GeneMapper IDX, additional validation studies needed to be performed. CBIFS is in the final stages of these additional studies and a draft

validation study and standard operating procedure have been completed. It is anticipated that this process will be completed in the next month and GeneMapper IDX will be operating within all three of our casework laboratories by March 2012.

Objective 2: Prevent a delay in case output in Pueblo with the addition of another Genetic Analyzer 3130.

10/01/2009-12/31/2009: There has been no use of funds from this specific grant at this time.
1/01/2010 – 06/30/2010: There has been no use of funds from this specific grant at this time.

07/01/2010 – 12/31/2010: A GAN was issued to allow for the purchase of a 3500xL Genetic Analyzer, and the sole source has been completed. We are currently waiting for an update price quote from the selected vendor, Applied BioSystems. The purchasing process should be completed by March 31, 2011.

01/01/2011 – 06/30/2011: The sole source GAN allowing for the purchase of a 3500xL Genetic Analyzer was approved on 2/28/2011. One 3500xL Genetic Analyzer was purchased and delivered to the CBI Pueblo laboratory in March 2011. Currently, system wide validation studies are being conducted in the CBI Denver laboratory. Once this system wide validation study is complete, installation of the 3500xL Genetic Analyzer in the Pueblo laboratory will be scheduled. Once the 3500xL Genetic Analyzer has been installed in the Pueblo laboratory, a performance check will be performed.

07/01/2011 – 12/31/2011: The 3500xL Genetic Analyzer was installed in the CBI Pueblo laboratory. The validation plan/performance check was developed by the technical leader and all of the validation studies/performance checks on this instrument have been completed. The results of these studies are being combined with the validation results from the other three 3500xL within the system. It is anticipated that the validation studies and the standard operating procedure will be finalized in the next few months and that all four 3500xL Genetic Analyzers will be online in all three of our laboratories by March 2012.

Objective 2 is complete.

Goal 1 / Objective 3: Reduce the DNA backlog by assigning 102 cases to be worked using overtime dollars.

10/01/2009-12/31/2009: There has been no use of funds from this specific grant at this time.
1/01/2010 – 06/30/2010: There has been no use of funds from this specific grant at this time. The CBI continues to spend down funds from the 2008 DNA backlog/Capacity grant.

07/01/2010 – 12/31/2010: As of November 19, 2010, the CBI has completed the analysis of 135 cases. All profiles suitable for CODIS entry have been uploaded. There have been 11 hits on these CODIS suitable profiles.

Though we have exceeded the number of cases we had planned to analyze, overtime funds still remain. We will continue to work additional cases on overtime, and will continue to report those statistics.

01/01/2011 – 06/30/2011: Between January 1, 2011 and June 30, 2011, the CBI-FSD has completed analysis of 116 cases using overtime and contractual funds from this grant. All profiles suitable for CODIS entry have been uploaded. There have been 18 hits on these CODIS suitable profiles.

07/01/2011 – 12/31/2011: Between July 1, 2011 and December 31, 2011, the CBI-FSD has completed analysis of 62 cases using overtime and contractual funds from this grant. All profiles suitable for CODIS entry have been uploaded. There have been 2 hits on these CODIS suitable profiles.

Cumulative Information: For the entire life of this grant, October 1, 2009 to December 31, 2011, the CBI-FSD has completed analysis of 308 cases using overtime and contractual funds from this grant. There have been 96 profiles entered into CODIS. Of these profiles, there have been 42 CODIS hits.

Objective 3 is complete, and has far exceeded the original stated objective of 102 cases to be worked using funding from this grant.

Goal 1/ Objective 4: Have all Biological Casework analyst trained in a forensic biology specific crime scene reconstruction class.
10/01/2009-12/31/2009: The class is scheduled for March 8 and 9, 2010.

1/01/2010 – 06/30/2010: The class is scheduled for March 8 and 9, 2010. This class was held during this time period and all members of the CBI's DNA staff were able to attend the class. The course was taught by Iris Dalley and it covered aspects of forensic DNA analysis relative to cold case analysis of potential DNA evidence. This would be cases previously submitted and the re-examination of items of evidence for trace DNA and biological stains not previously examined as well as the submission of cases not previously submitted for analysis. In addition it covered the process of case review including reports, interviews, crime scene photos and other related information in order to better examine and process a case (cold or fresh) for probative DNA stains.

Objective 4 is complete.

<u>Grant Adjustments:</u>

10/01/2009 – 12/31/2009

- GAN # 1 changed the financial point of contact and it was approved on 11/05/2009. The GAN number is 254992.

01/01/2010 – 06/30/2010 No GANS were submitted or approved during this reporting period.

07/01/2010 – 12/31/2010

- GAN # 2 is a change of scope GAN and was submitted and approved on 10/22/2010. This GAN authorized the allocation of unexpended fund from the other category, and moved the funds to the travel and equipment categories. The GAN number is 211885.
- GAN # 3 a changing the programmatic point of contact was submitted and approved. The same individual now is the Principal Investigator and Project Director. The approval date was 11/2/2010. The GAN number is 214666.
- GAN # 4 is a budget modification GAN and was submitted and approved on 11/04/2010. This GAN moved funds from the other category, to the travel and equipment categories. This GAN allowed for the purchase of an ABI 3500 for the Pueblo laboratory. The GAN number is 211888.
- GAN # 5 a Sole Source GAN was submitted and approved on 12/02/2010. The GAN number is 211890.

01/01/2011 – 06/30/2011

- GAN # 6 is a change in the project period. This GAN provided for an extension in the project period to 12/31/2011. This GAN was approved on 3/17/2011. The GAN number is 241968.
- GAN #7 is a change of scope GAN. This GAN allowed for the purchase of GeneMapper IDX for the database section as well as allowing for overtime funds to be used for both casework and database validation of the GeneMapper IDX. Additionally, this GAN allowed for overtime funds to be used to process an additional 100 backlogged cases. The GAN number is 242443.
- GAN #8 is a budget modification GAN. This GAN allowed for the budget modifications needed to pay for the change of scope GAN #7. This GAN was approved on 5/11/2011. The GAN number is 242436.

07/01/2011 – 12/31/2011

- None

Proposed Grant Adjustments:

10/01/2009 – 12/31/2009: There were no proposed grant adjustments during this reporting period.
01/01/2010 – 06/30/2010: There were no proposed grant adjustments during this reporting period.
07/01/2010 – 12/31/2010**:** There were no proposed grant adjustments during this reporting period.
01/01/2011 – 06/30/2011: There were no proposed grant adjustments during this reporting period.
07/01/2011 – 12/31/2011: There were no proposed grant adjustments during this reporting period.

Total Funds Expended:

10/01/2009 – 12/31/2009 $0
01/01/2010 – 06/30/2010 $7,132
07/01/2010 – 12/31/2010 $240,719
01/01/2011 – 06/30/2011 $197,960
07/01/2011 – 12/31/2011 $66,650
Cumulative funds expended: $512,461.00

FY09 Recipient Name: Connecticut Department of Public Safety
Award Number: 2009-DN-BX-K153
Award Amount: $409,571
Final Report:

This project is still in progress

FY09 Recipient Name: Metropolitan Police Department, Washington DC
Award Number: 2009-DN-BX-K113
Award Amount: $380,100
Final Report: 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. MPD will 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.
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 early 2009. The cases submitted to the laboratory are considered current cases and do not include the District's existing backlog cases. At the time of this grant application, there was an estimated 1500 backlog violent crime cases with biological evidence suitable for DNA testing. MPD established a DNA cold case working group tasked with researching and identifying backlog violent crime cases. To date, the working group has identified 458 violent crime cases with biological evidence suitable for DNA testing. It is critical for the Metropolitan Police Department Crime Lab (MPDCL) to continue its participation in future NIJ DNA Backlog Reduction Programs in an effort to address the backlog of violent crime cases. The MPDCL accepts approximately 300 violent crime cases a year and is able to process approximately 200 cases a year and 80 of the 200 violent crime cases were outsourced to a contract laboratory for analysis. This leaves approximately 100 untested violent crime cases at the end of the calendar year (120 violent crime cases if no outsourcing). Every year the number of violent crime cases submitted to the laboratory increases. For these reasons, MPDCL has a critical need to continue its participation in future NIJ DNA Backlog Reduction

Programs in an effort to address the backlog of violent crime cases and to continuously provide timely and quality forensic services to the District of Columbia criminal justice system.
A budget modification request was approved May 17, 2010. Following is the status of the approved grant budget items:

EQUIPMENT

1) The HID EVOlution Extraction Combined System upgrade will expand the robotic applications to include DNA quantitation set-up, DNA normalization and PCR reaction set-up.
   Progress Jan-Jun 2010: *The Combined System Upgrade and Three Day Training Course are on order with TECAN U.S., INC.*

   Progress Jul-Dec 2010: *During this reporting period, the Combined System Upgrade was received and installed by Tecan. The three day training course was provided on-site for three analysts. Validation studies are in progress.*

   Progress Jan-Jun 2011: *During this reporting period, the validation studies have been completed and are in review pending approval.*

   Progress July-Sept 2011: *The validation studies are in review pending approval. Please note the DNA Technical Leader/Lab Manager and Quality Assurance Manager resigned during this reporting period.*

2) The AB 3130*xl* Genetic Analyzer will directly increase the capacity of the MPD Crime Laboratory to conduct genetic analysis on evidentiary samples.
   Progress Jan-Jun 2010: *This instrument is being purchased in accordance with the District of Columbia's sole source procurement procedure. The procurement request has been entered into the District procurement system and is pending purchase order award to Applied Biosystems.*

   Progress Jul-Dec 2010: *During this reporting period, the instrument was received and installed by Applied Biosystems. A performance verification is in progress.*

3) The AB 3130*xl* Genetic Analyzer will directly increase the capacity of the MPD Crime Laboratory to conduct genetic analysis on evidentiary samples. (Continued)
   Progress Jan-June 2011: *The performance verification has been completed and is in review pending approval.*

   Progress July-Sept 2011: *The validation studies are in review pending approval. Please note the DNA Technical Leader/Lab Manager and Quality Assurance Manager resigned during this reporting period*

4) The AB 7500 Real-Time PCR System will directly increase the capacity of the MPD Crime Laboratory to conduct DNA quantitation on evidentiary samples.

Progress Jan-Jun 2010: *This instrument is being purchased in accordance with the District of Columbia's sole source procurement procedure. The procurement request has been entered into the Districts procurement system and is pending purchase order award to Applied Biosystems.*

Progress Jul-Dec 2010: *During this reporting period, the instrument was received and installed by Applied Biosystems. A performance verification is in progress.*

Progress Jan-June 2011: *A performance verification is in progress.*

Progress July-Sept 2011: *A performance verification is pending. Please note the DNA Technical Leader/Lab Manager and Quality Assurance Manager resigned during this reporting period.*

CONTRACTS

1) On-site DNA training offered by NFSTC will enhance the knowledge base of DNA analyst in accordance with national quality assurance and accreditation standards.
Progress Jan-Jun 2010: *We are currently working with NFSTC to schedule on-site training for 8 DNA analysts in STR Mixture Interpretation and Population Statistics. The cost for this training has increased since the original grant application.*
Progress Jul-Dec 2010: *NFSTC provided on-site training on STR Mixture Interpretation and Population Statistics for 7 DNA analysts. One analyst was unable to attend due to illness.*
Goal Completed

2) Outsourcing to an accredited fee-for-service DNA testing laboratory will reduce the number of backlogged violent crime cases in the District of Columbia.
Progress Jan-Jun 2010: *During this period, backlogged DNA cases have been identified and many pre-screened for submission to an accredited fee-for-service DNA testing laboratory. The contract for this service has recently been awarded to Bode Technology in accordance with the District of Columbia's competitive bid process. The identified backlogged DNA cases will be submitted to Bode Technology for DNA testing.*

Progress Jul-Dec 2010: *During this period, 55 backlogged DNA cases were submitted to Bode Technology for DNA testing. The testing of all 55 backlogged DNA cases has been completed. The MPD Laboratory is currently conducting technical review of these cases. To date, 35 cases have been technically reviewed. 22 cases did not have results suitable for CODIS entry. 13 cases did have results suitable for CODIS entry and have been entered into CODIS. Of the 13 cases entered into CODIS, there have been 5 convicted offender CODIS hits at the NDIS level.*

Progress Jan-June 2011: *During this period, an additional 15 backlogged DNA cases have been identified. The contract for this service was awarded to Bode Technology in accordance with the District of Columbia's competitive bid process. The identified backlogged DNA cases were submitted to Bode Technology for DNA testing.*

Progress July-Sept 2011: *During this period, an additional 10 backlogged DNA cases have been identified. The contract for this service was awarded to Bode Technology in accordance with the District of Columbia's competitive bid process. The identified backlogged DNA cases were submitted to Bode Technology for DNA testing.*

3) The HID EVOlution System training consists of theory and hands-on experience using the HID EVOlution Extraction Combined System upgrade. Topics include operation, running validated scripts for extraction, quantification, normalization and STR amplification, and troubleshooting.
Progress Jan-Jun 2010: *The Combined System Upgrade and Three Day Training Course are on order with TECAN U.S., INC. Training will be scheduled after the system upgrade is installed.*

Progress Jul-Dec 2010: *The Combined System Upgrade was received and installed. The three day training course was provided on site for three analysts.*
Goal Completed

TRAVEL

1) Marshall University – practical DNA training for one individual consisting of three separate two week sessions. The MPD Forensic Biology Unit is a start-up laboratory housed at a temporary location. Training of new DNA staff has been severely impacted due to limited space, equipment and availability of qualified DNA trainers. Partnering with Marshall University will allow the trainee to obtain the needed hands-on DNA testing experience to fulfill training and minimum experience requirements detailed in the national quality assurance standards.

Progress Jan-Jun 2010: *Training is scheduled for one individual at Marshall University during the months of July, August and September.*

Progress Jul-Dec 2010*: During this reporting period, one DNA trainee attended three separate training sessions at Marshall University which allowed the trainee to obtain hands-on DNA testing experience. The trainee successfully completed the DNA training program and qualified to perform casework in December. Marshall issued a press release regarding this training partnership: http://www.marshall.edu/ucomm/RELEASE/2010/pr121210.htm*

Goal Completed.

2) Green Mountain DNA Conference – continuing education for two individuals. This training will enhance the knowledge base of the attendees and will conform with national quality assurance and accreditation standards.
Progress Jan-Jun 2010: *Training has not been scheduled. Funds allocated for the Green Mountain DNA Conference will be used to cover the increased cost of the on-site DNA training provided by NFSTC.*

OTHER COSTS

1) Qualtrax Compliance Software – is a quality information management system that manages the quality management system processes and documents. This is a tool that will aid the MPD Forensic Biology Unit in meeting national quality assurance and accreditation standards.
Progress Jan-Jun 2010: *This software is being purchased in accordance with the District of Columbia's sole source procurement procedure. The procurement request is pending submission into the Districts' procurement system.*

Progress Jul-Dec 2010: *During this reporting period, the Qualtrax software was received and installed. The software provider conducted on-site training with laboratory staff. Currently, the laboratory staff are reviewing and updating manuals for import into the quality information management system. Other quality documents (e.g., QC records, audits, etc) are being scanned into the system.*
Goal completed.
2) Training registration costs associated with the Green Mountain DNA conference (see descriptions in Travel section).
Progress Jan-Jul 2010

Training has not been scheduled. Funds allocated for the Green Mountain DNA Conference will be used to cover the increased cost of the on-site DNA training provided by NFSTC.

FY09 Recipient Name: Delaware Health and Social Services
Award Number: 2009-DN-BX-K093
Award Amount: $272,286
Final Report: NOTE: As a result of the NIJ Site Visit in January 2011, it was determined that the data for TAT and SAM were neither accurate nor auditable. The beginning TAT and SAM at the beginning of the award have changed because the data captured in this report are accurate and auditable

NOTE: No cases were analyzed and delivered to the requesting agency using funding provided under this award.

Goal 1: Basic infrastructure support.

Progress:

Qiagen Instruments and kits received: December 2009
QIAsymphony installed: December 2009
QIAgility installed: 01/25/10
Validation of QIAsymphony and QIAgility started: 01/25/10
Qiagen EZ1 Advanced XL (refurbished): CODIS – received 12/22/09

Qiagen EZ1 Advanced XL (2) have been installed and are being validated.
QIAsymphony has been installed and is being validated.
QIAgility has been installed and is being validated.
Qiagen EZ1 Advanced XL (refurbished) - CODIS has not been installed.

Extended warranties (3 years) were purchased for the Qiagen EZ1 Advanced XL (2) and QiaSymphony.

Validation Service Support was purchased for the Qiagen EZ1 Advanced XL (2) QIAsymphony., and QIAgility. Qiagen was onsite to provide the Validation Service Report in January 2010. The validation was not completed due to the loss of personnel in the DNA Unit. The OCME is working with Qiagen to complete the validations. Several meetings between Qiagen and the OCME have been held since July 2011. It is anticipated that the validations will be completed and submitted for review and sign-off by January 2012. The productivity of the CODIS Section will increase once these instruments are online. Currently, one CODIS Batch (90 Convicted Offender samples) is processed per week. Utilizing robotics, the number of batches processed per month will increase 50% at a minimum (6 CODIS Batches/month vs. 4 CODIS Batches/month). The goal of the OCME is to eliminate the Convicted Offender backlog and process the Convicted Offender samples as they are received (monthly inventory).

The following were also purchased and are online:

Fisher Scientific Isotemp Refrigerator (Post-PCR - CW)
Fisher Scientific Isotemp Refrigerator (Pre-PCR Amp - CW)
Fisher Scientific Isotemp Refrigerator/Freezer (Pre-PCR - CW)
Eppendorff ThermoMixer R
Thermoblock (and plates)
Vortex Mixer
Rainin LTS Pipette (2 - 20µL)
Rainin LTS Pipette (20 - 200µL)
Rainin LTS Pipette (100 - 1000 µL)
Rainin EDP3 Power Supply
University of Florida Graduate Coursework (1) – 1 DNA Analyst

University of Florida Textbooks (3) - 1 DNA Analyst

The refrigerators and refrigerator/freezer replaced outdated equipment (~10 years old) that were in use in the Casework Section.

The ThermoMixer, Thermoblock, and vortex mixer were purchased for use with the Qiagen instrumentation in the CODIS Section.

The Rainin pipettes were purchased to replace aging pipettes (~10 years old) in the Casework Section.

FY09 Recipient Name: Broward Sheriff's Office
Award Number: 2009-DN-BX-K089
Award Amount: $500,075
Final Report:
Goal 1: To decrease the turnaround time on casework through the use of outsourcing.
Progress Jan – June 2010: No funds at this time have been used for outsourcing as we have not utilized the money from the 2008 DNA grant yet and thus cannot make use of this money at this time.
Progress July - Dec 2010: The laboratory has decided not to outsource casework at this time. Due to a decrease in analysts, we do not have the time to adequately devote to a successful outsourcing program. The money allocated for this will be reallocated.

Goal 2: To strengthen our infrastructure by adding additional instrumentation to enhance our capabilities.
Progress Jan – June 2010: The unit has just validated the use of both Plexor and Human Duo which requires the use of the AB7500. This will allow us to quantitate the amount of male DNA in a mixed sample. We have not yet purchased the EZ1xl or the AB3500.
Progress July - Dec 2010: Much of the equipment on this grant has been moved to be purchased through the 2008 DNA grant. A revision of this grant to reallocate the money is being worked on.
Progress Jan – June 2011: The additional Thermomixers and Heat Adapters utilized in the EZ1 extraction process have been ordered. Upon arrival they will be put to work immediately. The UV Crosslinker has also been ordered. This will be used also upon arrival for UV radiation of plastics. The AB 7500 has also been purchased and is now in service.
Progress July – Dec 2011: The AB3500 and the two (2) QIACubes have been ordered and received. We are waiting for the validation results for the 3500 to come back so we can bring it on line. The portable Crime Scope has also been ordered and received. This will allow us to manipulate the light source to assist in the analysis of evidence.
In addition, the unit had the pipettes and the scales calibrated; this is done on a yearly basis.
To effectively improve the work flow of the unit, which will only increase productivity, a design consultant from the county has been brought in to draw up the necessary plans to renovate existing space. Renovations will be completed under a separate grant.

Progress Jan – March 2012: The validation for the QIACube is ready to go out for bid, as is the validation for the 3500. These validations will be started in the near future using a different funding source; therefore these pieces of equipment are not yet functional. We are having an issue with the GenemapperIDX software as it will not load on our current computers. We have our IT team looking into it; without IDX the 3500 is functionless. The Power protection systems were ordered and received. They have been installed on the appropriate instruments.
All goals completed.

Goal 3: To send DNA analysts to relevant workshops/meetings so that they comply with the DAB standards for yearly education.
Progress Jan – June 2010: Three of the analysts attended the American Academy of Forensic Sciences meeting in February in Seattle, Washington. In addition, our Technical Leader attended the Bode Technology DNA Workshop in May in Amelia Island.
Progress July - Dec 2010: No training has taken place from this grant during this time frame.
Progress Jan – June 2011: No training has taken place from this grant during this time frame.
Progress July – Dec 2011: One analyst attended the Mid-Western Association of Forensic Scientists meeting in September.
The individuals that were supposed to use the money from this grant to go to Promega inadvertently put the wrong budget code on the paperwork and the money was not utilized from this grant.
Progress Jan – March 2012: No training has taken place from this grant during this time frame.

Goal 4: To purchase supplies/kits to process DNA samples in-house to assist in decreasing the backlog.
Progress Jan – June 2010: We have not utilized the money from the 2008 DNA grant yet and thus cannot make use of this money at this time.
Progress July - Dec 2010: No money has been utilized from this grant yet for supplies/kits.
Progress Jan – June 2011: Most of the supplies/kits have been purchased. Once received, the kits are marked so that tracking of case work can be done.
Progress July – Dec 2011: The remaining supplies/kits have been purchased and are being used to complete DNA casework. This goal has been satisfied.
Progress Jan – March 2012: A total of 845 cases were analyzed using funds from this grant, 682 samples have been uploaded to CODIS and we have had 560 CODIS hits.

Goal 5: To enhance our ability to convolute mixtures.
Progress Jan – June 2011: The Armed Xpert software has been ordered. This is a DNA casework management tool used for recording alleles, matching, QA checks, mixture de-convolution and can confidently be used to de-convolute up to three-person mixtures. Upon a conformity check, it will be used routinely on casework.
Progress July – December 2011: Armed Xpert has been installed on the analyst's workstations for use. This goal has been satisfied.

FY09 Recipient Name: Florida Department of Law Enforcement
Award Number: 2009-DN-BX-K069
Award Amount: $3,880,104
Final Report:

Goal #1: Use of overtime funds for reducing the backlog and turnaround times.

Progress: In an effort to reduce the backlog and turnaround times, overtime funds have been utilized by all regions during this reporting period. The Pensacola, Jacksonville, and Orlando regional laboratories have continued to expend funds for their OPS personnel. Funds will continue to be drawn during the liquidation period for work done during the approved grant period. This goal has been met.

Goal #2: Use of travel funds for continuing education of its laboratory members so that they will stay abreast of the current literature, advances and trends within their discipline.

Progress: Funding for travel has been utilized in this reporting period for the Bode and AAFS conferences. Due to state travel restrictions, the travel category was not fully expended, but the intent as referenced by Goal #2 has been met.

Goal #3 (1) 7500 Real Time PCR system which will allow for real time PCR quantitation of DNA on forensic DNA analysis.

Progress: Additional equipment had been added to the grant's budget and FDLE has been able to successfully procure all items. During this reporting period, the FDLE has expended and drawn funds for six centrifuges, 7500 Real Time PCR, Pipette Calibration System, Electronic Pipettor, and 50i Microscope. This goal has been met.

Goal #4: Use of funds for expendables, reagents, chemicals, disposables and supplies will be used to support Biology/DNA service casework in FDLE regional crime laboratories statewide, allowing for the reduction of the backlog and turnaround times.

Progress: Supplies used in support of Biology/DNA have continued to be purchased during this reporting period. All supplies were procured by the grant's end date, but funding will be drawn for the remaining invoices during the liquidation period.
As part of its casework tracking process, the FDLE uses its grant funded kit purchases when calculating the number of cases analyzed and delivered during the specified reporting period because kits are used on all cases worked as opposed to tracking cases by smaller expendable supplies. During the last two months of the award, more than $300,000 in supplies were ordered, which include more than $70,000 in Kits. As these kits were purchased at such a late date, and were not used before the grant's end date, they were not factored into the performance metrics.
This goal has been met.

Goal #5: Use of contractual funds for outsourcing casework to approved private laboratories which will allow FDLE to continue to reduce DNA backlogs and provide more efficient DNA services. Funds will also be used to complete annual maintenance of Biology/DNA equipment.

Progress: Funds have been used for the outsourcing of casework. Outsourcing has been essential in the reduction of the backlog of cases, and as such, a budget GAN was submitted in order to increase the allotment of funding in this category and the funds were expended. The cumulative total number of cases outsourced with 2009 DNA grant funds is 1471 cases, while the cumulative number of cases worked in-house is 16838. The total number of cases worked with 2009 DNA grant funds is 18309. During this reporting period, all FDLE regional laboratories were using kits purchased solely under this award, which resulted in a much higher reported metric than in previous performance reports. The FDLE has expended funds for the maintenance of equipment and has completed its Crime Fighter BEAST project. Funding for the LIMS maintenance and upgrades has also been utilized. This goal has been met.

Goal #6: Use of renovation funds which will allow FDLE to upgrade the previous DNA Database and the Fort Myers Regional Operations Center (Biology section). These renovations will improve work flow and evidence handling. The funds will also allow for the needed HVAC upgrade which will allow for adequate cooling of the genetic analyzer, robotics, and the CODIS server area.

Progress: Renovation funding was not utilized in this reporting period. The HVAC upgrade to the Fort Myers Regional Operations Center will no longer occur under the 2009 DNA Backlog award, and a GAN was submitted to have it removed.

Goal #7: FDLE will use funds to purchase the CODNA Prelog Application software, which will allow contributors to submit sample information in an electronic format, thus, increasing the efficiency at sample intake. With a desire for our members to stay abreast of current advances, FDLE will use funds for registration fees, training workshops, and other professional meetings. FDLE also plans to use funds for analyst proficiency testing as well as purchase a subscription to the Journal of Forensic Science.
The FDLE's Ft. Myers regional office will use funds to purchase Genemapper software.

Progress: Funding for the purchase of CODNA software will not be utilized during 2009 DNA grant funding. A GAN was submitted to have it removed. FDLE began has used funds for registration fees for the Bode and AAFS conferences during this reporting period. The FDLE has used funding to purchase Genemapper Software for its Ft. Myers regional laboratory, which was reported on the previous progress report. Funding for additional Genemapper software for the Jacksonville regional laboratory was requested and approved on a budget amendment, and the funding has been expended during this reporting period. This goal has been met.

Additional notes:

At the beginning of the award period, the average number of samples analyzed per analyst per month was 21 samples. By the end of the award, that number had dropped to 10 samples analyzed per analyst per month. At the beginning of the award, the FDLE had a number of analyst trainees. Each trainee is assigned to an analyst, which reduces the number of analysts working cases. This in turn will increase the average number of cases analyzed by the remaining analysts, as the workload had not diminished. By the end of this reporting period, both the trainee, and the supervising analyst had completed their training and were able to work cases. This increased number of working analysts allowed for the reduction of the average number of cases analyzed per month.

FY09 Recipient Name: Miami Dade County

Award Number: 2009-DN-BX-K062

Award Amount: $1,084,501

Final Report: The following goals and objectives were set for this award:

Goal 1 – To reduce the backlog of cases awaiting DNA analysis by outsourcing selected evidence items to a commercial DNA laboratory.

Progress January – March 2012: This reporting period the Forensic Services Bureau (FSB) recorded an increase in the number of backlogged forensic DNA cases. A number of circumstances contributed to the increase, most notably the loss of three Forensic Biology staff members. In addition to the Laboratory Manager retiring, a DNA case working Criminalist resigned. Although it was the loss of a Police Property and Evidence Specialist (PPES), serving as the outsource coordinator, that factored most in the increased backlog. During the transition period the outsource shipment schedule was interrupted resulting in approximately 200 cases not being shipped to the vendor laboratory that otherwise would have been outsourced during this reporting period. Cases to be outsourced were still screened and prepared by Criminalists with no interruption. However, the FSB does not subtract a case (that will be outsourced) from its backlog when it is screened by a Criminalist but rather when it is actually shipped to the vendor laboratory.

It is to be noted that the outsource shipment schedule has not only been restored but a rate double that of the previous schedule. The FSB plans to remain with this schedule and rate for the foreseeable future. This should result in both short and long term DNA backlog reduction.

Goal 2 – To increase the capacity of the laboratory for in-house DNA analysis.

Progress January – March 2012: The grant-funded Criminalist completed her training and was qualified as a case working DNA analyst. Her duties include, but are not limited to, serological analysis, DNA analysis and technical support.

The AmpFℓSTR® Identifiler® Plus PCR Amplification Kit validation continued and should be completed by July 2012. This kit, with its improvements and benefits, will replace the AmpFℓSTR® Identifiler® kit as the main PCR amplification tool utilized by the FSB Crime Laboratory.

Two Qiagen EZ1 Advanced XL instruments were purchased, along with associated Qiagen EZ1 DNA Investigator reagent kits. The validation projects began and when completed, the FSB's DNA workflow will benefit with an automated DNA extraction method to replace its current time-consuming manual method. This will provide a significant increase in the FSB Crime Laboratory's capacity for in-house DNA analysis.

Final Report Comments: The Miami-Dade Police Department (MDPD) Forensic Services Bureau (FSB) provides forensic services to all local municipal law enforcement agencies as well as the unincorporated areas of Miami-Dade County. The FSB continually strives to improve upon these services and the funds awarded by the National Institute of Justice (NIJ) with this FY 2009 Forensic DNA Backlog Reduction Program award have been utilized with two main goals as the focus in directing these efforts.

The dual goals of this Forensic DNA Backlog Reduction Program award were to reduce the FSB's backlog of DNA cases awaiting analysis and increase its in-house capacity for DNA analysis.

The FSB identified the reduction of its backlog of cases awaiting DNA analysis as its first goal with this award. To accomplish this goal, current property crimes cases as well as cold sexual battery and homicide cases were outsourced to a commercial laboratory utilizing funds from this award. Criminalists were paid overtime in order to screen and prepare selected cases that were then outsourced to the vendor laboratory. The commercial laboratory conducted the STR analysis on these cases, and then returned all casework documentation and DNA profile data in an electronic format suitable for technical review. FSB Criminalists reviewed this data, utilizing overtime funds, and qualifying DNA profiles were entered into CODIS.

The FSB has contracted with the commercial laboratory a price of $190 per item analyzed. This relatively low cost was made possible by providing the commercial laboratory with samples that were ready for STR analysis and did not require serological screening. In addition to the actual analysis of the evidence items, the outsource laboratory also provides a court-ready report and any required court testimony. The contract with the commercial laboratory was renewed and the new one year contract (with an option to renew) became effective on June 1, 2012.

When this award period began on October 1, 2009, the FSB reported 1,534 backlogged DNA cases. Funding from this and previous awards enabled FSB Criminalists to screen casework evidence and send selected items to a commercial laboratory for DNA analysis. This work lead to a 20% reduction in the laboratory's in-house DNA case backlog during the first year of this award.

However, during the final 18 months of this award the FSB faced two main situations that ultimately resulted in a DNA case backlog that increased from 1,534 to 1,889 during the full award period that ended on March 31, 2012. First, the outsourcing of cases was unavoidably halted while the renewal of the contract with the commercial vendor laboratory was being reviewed by Miami-Dade County officials. The process of renewing the contract required more time than anticipated and as a result the laboratory was unable to outsource cases for 12 months. Compounding this, the DNA cases the FSB would eventually outsource not only continued to be submitted to the laboratory but increased in volume.

Even though samples weren't being shipped to the commercial laboratory, FSB Criminalists continued to utilize overtime funded via this award to screen and prepare cases to be outsourced. When the new contract was in place, and outsource shipments resumed, the laboratory had more than 1,000 cases screened and prepared for shipment to the commercial laboratory. These cases could not be shipped all at once but gradually. The FSB does not subtract a case (that will be outsourced) from its DNA case backlog when a Criminalist screens it but rather when it is actually shipped to the commercial laboratory. The DNA case backlog of 1,889 cases that the FSB is reporting as of the closeout date of this award was comprised of approximately 1,300 cases that had already been screened and prepared for outsourcing. The FSB has recently doubled the rate at which it ships cases to the commercial laboratory.

The second situation the FSB faced that factored into an overall increase of the DNA backlog during this award was the loss of personnel. During the final 18 months of this award a total of six Forensic Biology staff members left the FSB for various reasons. This included the Laboratory Manager, the Police Property and Evidence Specialist (PPES) who served as the outsource coordinator and four fully trained DNA analysts. The loss of these key personnel both directly and indirectly affected the DNA case backlog in an adverse manner.

However, it is not to be overlooked, or diminished, the great benefits realized by the FSB (and Miami-Dade County) due directly to the funding provided by this FY 2009 Forensic DNA Backlog Reduction Program award. A total of 1,037 DNA cases were analyzed and the results delivered to the requesting agency via funding from this award. These 1,037 cases generated 635 profiles that were entered into CODIS and, to date, have produced 328 CODIS hits. The number of cases analyzed, DNA profiles generated and CODIS hits obtained are all the highest totals for the FSB for any Forensic DNA Backlog Reduction Program award thus far.

The second goal for the FSB with this award was to increase its capacity for in-house DNA analysis. Instrumentation additions included an Applied Biosystems 3130xL genetic analyzer and two Qiagen EZ1 Advanced XL automated DNA extraction instruments. Equipment additions included mini centrifuges, electronic pipettes, a scanner and an uninterruptible power supply for the 3130xL genetic analyzer. Supplies for both on-going and completed validation projects were purchased. These additions directly and/or indirectly are helping to create a more efficient and automated DNA workflow.

The FSB has benefited from personnel additions as well that were funded via this award. The Criminalist has completed her training in a relatively short amount of time and is now a fully trained case working DNA analyst. The Forensic Photographer continued to aid in documentation by photographing each evidence package upon submission and when requested, individual evidence items during analysis. The Police Property and Evidence Specialist (PPES) has had a benefit to the FSB that must not be understated. The flow of evidence into and out of the Forensic Biology Section is now a much more organized and efficient process and no longer the responsibility of the Criminalists.

Funds from this award have also been directed toward continuing education and training of the laboratory's analysts in order to meet accreditation requirements. Some funds from this award were utilized to cover graduate level coursework tuition costs for Criminalists seeking a Master's

Degree in Forensic Science. Monies were also applied toward conference registration and travel expenses in order to satisfy the mandatory DNA training criteria set forth in the Federal Bureau of Investigation (FBI) Quality Assurance Standards for Forensic DNA Testing Laboratories.
One way in which the FSB reports its DNA analysis capacity to NIJ over the course of the award is the number of DNA items analyzed per DNA analyst per month. When this FY 2009 award began on October 1, 2009, the number of DNA items analyzed per DNA analyst per month was 30 items. This number had increased to 32 items as of December 31, 2011. However, during the final quarter of this award period the number dropped to 27 items. Several DNA analysts were serving as mentors and/or training coordinators for DNA trainees who were finalizing their training. One Criminalist was on paternity leave for a month. Also, some time was dedicated to reviewing all casework for a Criminalist that was leaving the FSB.

In October, 2009, the FSB re-organized its Criminalists into teams dedicated to the analysis of evidence submitted from particular offenses. While some Criminalists were assigned property crime cases for in-house DNA analysis or for outsourcing to a commercial DNA laboratory, other Criminalists were assigned only current violent crimes for in-house analysis. Handling only cases of a particular type has seemingly made more efficient the communication between Criminalists and detectives, while possibly streamlining the DNA testing to a more manageable quantity of samples. Although the average number of DNA items tested in-house per Criminalist has not increased, the average time between submission of DNA evidence and the completion of DNA testing with a report has decreased from 190 days to 152 days during the award period.
The Miami-Dade Police Department (MDPD) Forensic Services Bureau (FSB) has paid invoices for all obligated funds from this FY 2009 Forensic DNA Backlog Reduction Program award. Remaining funds primarily represent UAP fees that are automatically applied to all purchase orders issued under Miami-Dade County contracts. The UAP fees applied to federally funded purchases are reimbursed, but some of these funds that were reimbursed could not be obligated before the end of the award period. The laboratory has received all instrumentation, equipment and training. All invoices have been paid in full and the final financial reports have been completed.

The MDPD FSB wishes to thank NIJ for these award funds that have enabled the FSB to better serve, and greatly aid in the safety of, the citizens of Miami-Dade County.

FY09 Recipient Name: Palm Beach County Sheriff's Office
Award Number: 2009-DN-BX-K052
Award Amount: $427,775
Final Report:
A. Personnel
GOAL: Continue supporting two Forensic Scientists hired for the 2008 Backlog Reduction Grant. The analysts are directly engaged in handling, screening, and/or analyzing forensic evidence that may contain DNA, or in validating new DNA analysis technologies.

PROGRESS: The 2009 Backlog Grant included salaries for two analysts which extended the grant to April of 2011. Funding for the two analysts from the 2009 grant has now been depleted and the 2010 Backlog Reduction grant is providing funding for these two analysts. As result, the Forensic Biology Unit has accomplished all of the goals set-forth in the grant proposal and the 2009 Backlog Grant has now been closed out.

The 2009 Backlog Grant accomplishments include validation of Promega qPCR kit Plexor, a performance check on a new 3130xl instrument, validation and implementation of the BioMatrica DNA room temperature storage system, implementation of the EZ1mini-robot, training of two grant-funded analysts and two PBSO –funded analysts.
The laboratory has also used grant funding to continue the scanning of unit documents for the purpose of eliminating hardcopy information and in preparation for ISO accreditation. Since the DNA training of the four Forensic Biology Unit (FBU) analysts has been completed, the DNA competent analyst staff has increased from 7 to 11.

The grant-funded analysts were trained using the following modules:

- Two week basic-DNA training course at Marshall University designed especially for the four analysts at PBSO. The purpose was to introduce the analyst to the history of DNA, the theory of DNA extraction, real-time PCR, conventional STR PCR, capillary electrophoresis and judicial issues. This was a tremendous introduction to the analysts and the PBSO Technical leader.
    - o Approximately four weeks following the Marshall University training, a basic comprehensive examination was administered and all four analysts passed.
- Forensic Biology Unit DNA Training:
    - o The PBSO DNA training modules began in January 2010. In October of 2010, the two Forensic Scientists successfully passed the PBSO FBU DNA Laboratory Bench Practicum, the written Comprehensive DNA Examination and the court mock trial. Both of the analysts have been assigned and have completed their first external proficiency examination as per FBI Quality Assurance Standards.
    - o The analysts were partnered with a Senior Scientist for three months to act as mentors for the analyst's first DNA cases.
    - o All analysts are now completely independently working DNA cases.
- The two FS accomplished the following metrics for serological and DNA analysis for this past quarter:

# Submissions	ITEMS Worked	# Stains	Stains w/DNA	Reports OUT	Sero Only report	DNA Report	PP16	Turn Around Time Average
109	209	233	136	29	4	25	25	89.5

B. (Included in "A" above)
C. Travel: $ 0 N/A
D. Equipment

GOAL: Purchase two Qiagen EZ-1 XL's for benchtop DNA extraction mini-automation. The EZ1 XL will allow for automated sample preparation of 14 samples simultaneously which

enables efficient and standardized purification of DNA. This instrument must be purchased, validated and all DNA analysts trained.

- PROGRESS: GOAL COMPLETE
- The instruments have been purchased and received
- The two grant funded analysts were assigned the task of validating these instruments.
- Validation studies have been completed and the instruments are in use
- These instruments have been such a benefit to the laboratory that two more were ordered from the 2010 Backlog Grant and are awaiting validation

GOAL: Additional ThermoMixer's (3) for the new DNA extraction technique using PrepFiler

- PROGRESS: GOAL COMPLETE
    - o Ordered, received, in-use for validation

GOAL: BioMek Peltier ALP to provide various extraction temperature ranges to accommodate the BioMek NX

- PROGRESS: Applied Biosystems has indicated the current Peltier ALP will be sufficient to accommodate the PrepFiler protocol. Additional equipment will be necessary to allow the increase in staff …

GOAL: Rofin PL400 Alternative Light System for the two new screening rooms

- PROGRESS: GOAL COMPLETE
    - o The ALS was ordered and validation completed
    - o The ALS is now being used on casework evidence

GOAL: Dayton 2HNR5 Dehumidifier for Biomatrica plate storage

- o PROGRESS: GOAL COMPLETE
- The dehumidifier was Ordered, received, and is currently inuse.
- The BioMatrica validation studies are complete

GOAL: BioMatrica DNA extract storage system to accommodate the stored extract 96-well plates

- PROGRESS: GOAL COMPLETE
- The BioMatrica validation studies are complete
- Training and implementation of the BioMatrica procedure for the laboratory was initiated on March 23rd, 2011.
- The BioMatrica studies were presented at the following venues:
    - 2010 AAFS Technology Workshop: Novel Methods for DNA Storage/Preservation
    - 2011 AAFS BioMatrica Workshop: Long-Term DNA Extract Storage: Biomatrica meets the PBSO Forensic Biology Unit,
    - Promega Miami-Dade Technology Workshop
- The following manuscripts were approved for publication if peer-reviewed journals which included PBSO BioMatrica validation data:
    - Steven B. Lee, Cecelia A. Crouse and Margaret Kline. "Assessing a novel room temperature DNA storage medium for forensic biological samples" Forensic Science Review, Vol22:No2; pp131-144, July 2010
    - Steven B Lee, Ph.D. et al "Assessing a novel room temperature DNA storage medium for forensic biological samples" Forensic Science International, Feb 2011

GOAL: Purchase UPS back-up system for the BioMek NX

- PROGRESS: GOAL COMPLETE

- The UPS Unit was purchased, has arrived
- A 220 line was installed in the DNA extraction room.
- The BioMekNX cannot be used for DNA extractions due to a consumable issue. However, the NX has been validated and is in use for the transfer of DNA extracts from original 96-well plates and/or1.5ml test tubes to BioMatrica 96-well plates.

GOAL: DNA work stations.

- PROGRESS: GOAL COMPLETED
  - o All of the stations have been received and installed
  - o All ten staff members were transferred into the stations and they are currently is use.

GOAL: Purchase 5 computers including 2 for staff members and 3 for laboratory LIMS and/or CODIS access. GOAL COMPLETE

- PROGRESS: All computers have been received and are in use. There was an issue with compatibility when the agency installed Window OS 7. The GeneMapper ID is not compatible. This is being rectified through PBSO budget.

E. Supply Items

GOAL:

PROGRESS: GOAL COMPLETED

Validation samples prepared by the North East Forensic Institute (NERFI) to aid in the validation of PrepFiler

- The validation samples were used for the validation of the EZ1 instruments.

GOAL: BioMatrica plates

PROGRESS: GOAL COMPLETED

Plates have been ordered, received and stored.

F. Contracts

GOAL: Archival electronic documentation of 2003-2009 case files and all validation notebooks.

- PROGRESS: GOAL COMPLETE
  - o Clerical support was used to scan over 60 three-ring binder notebooks including validation and internal archived manuals.
  - o The clerical support also scanned hundreds of FBU casefiles
  - o This project will continue with the 2010 Backlog Grant

G. Other Cost

GOAL: To provide LIMS and GeneMapper ID software to all appropriate analysts.

- PROGRESS: GOAL COMPLETE
  - o GeneMapper ID was ordered and installed on the appropriate designated computers.
  - o A 2011 summer intern will be validating this software and comparing the Mixture deconvolution module to the ArmdExpert deconvolution software.
  - o The LIMS-plus JusticeTrax software was ordered and installed on the appropriate designated computers.

FY09 Recipient Name: St. Lucie County Sheriff's Office
Award Number: 2009-DN-BX-K084
Award Amount: $132,550

Final Report: The goal of the Indian River Crime Laboratory (IRCL) is to increase the capacity of its new expanded facility by purchasing and upgrading equipment and software that will create multiple workstations allowing multiple analysts to process samples concurrently. Additionally, the IRCL will maintain the required continuing education requirements for its 4 DNA analysts by utilizing funds to attend professional meetings within their discipline.

October – December 2009 Progress: No funds have been expended at this time. In late August through early September 2009 IRCL moved its laboratory into a new facility. Performance checks and Quality control procedures of the existing equipment and supplies have been completed allowing the commencement of casework analysis. When funds were released it was noticed that IRCL had a conflict in its CCR/DUNS registration within GMS. In coordination with the NIJ Program Office this was rectified and a GAN approved in early December. IRCL is currently assessing priority expenditures based on the new facility's needs and future streamlined processes for forensic biology screening and DNA analysis. In this coming reporting period IRCL plans to submit a GAN that will modify the capacity needs now that the lab has actually moved into the space. Additionally, the analysts are researching appropriate training opportunities for continuing education in 2010. It is noted that an increase of 15 days was observed in average workday turnaround time of results. It is believed this result is indicative of the labs period of relocation to its new facility, therefore this is expected to be a short term decrease.

January – June 2010 Progress: Although IRCLs two main goals of (1) increased capacity and (2) continuing education have not changed, a significant GAN was approved in April 2010. The IRCL was granted approval to move funds originally allocated to the equipment and other categories and use those funds to outsource validation services to integrate existing equipment as well as implement a more streamlined process to increase capacity in its new facility. Goal 1: Currently the bench work for the validations have been completed and the contractors are in the process of analyzing and preparing the data for technical review. A tentative schedule for knowledge transfer and competency assessments for Forensic Biology staff has been set for late July 2010. Goal 2: In this reporting period one analyst has attended the Bode meeting to satisfy the required annual technical training for DNA analysts. Another analyst has registered and made the appropriate travel arrangements to attend the International Symposium on Human Identification in October 2010. Notable: Although no backlogged cases or CODIS profiles/hits have been directly related to the funding for this reporting period, by outsourcing the validation process it allowed the analysts the ability to focus on casework. During this period, DNA analysts completed 180 requests, uploaded 75 searchable profiles into CODIS and received 26 matches. Therefore, indirectly this funding has aided the IRCL to continue to address its backlog and focus on providing reliable results in a timely manner.

July – December 2010 Progress: Goal 1: IRCL is in the process of completing the final technical review of validation data and documentation performed by a contracted service. This has taken considerable more time than originally expected due to the extensive review and subsequent corrections that were needed. However, the four DNA analysts have successfully completed the training, practical assessment and competency

evaluation for the new processing workflow. Additionally, supplies have been ordered for the internal validation of the Maxwell 16 instrument. IRCL is currently working with an intern to develop a plan for execution.

Goal 2: One analyst has satisfied their required annual technical training and gained valuable information regarding innovative products geared toward DNA collection and analysis by attending the *21st International Symposium on Human Identification*. The remaining two DNA analysts were able to satisfy their annual requirement for technical training with the information transfer and competency evaluation gained through the contracted validation services. This accounts for training for all four DNA analysts, Goal Completed.

Goal 3 (added in Dec 2010): With combining training with the validation services, IRCL was able to utilize travel costs for casework reagents and supplies. This reallocation of funds was approved through a GAN in mid December 2010. The procurement process has been initiated but no reagents or supplies have been received as of the end of the reporting period. Therefore, the report metrics will not yet reflect any progress in regards to casework measures.

January – March 2011 (FINAL REPORT): IRCL has completed the outlined programs to continue to meet its goals of increased capacity (1), satisfy training requirements (2) and reduce current backlogged cases (3). Goal 1: The outsourced validations are technically reviewed and were accepted in February 2011. Studies required for internal validation for equipment that will be used in this streamlined process (Maxwell 16 and epMotion liquid handler) have been completed. The laboratory is in the process of developing protocols for the implementation of the recently validated system. Goal Completed.

Goal 2: Completed in July – December 2010 reporting period (see above).

Goal 3: In December 2010 IRCL reallocated remaining funds to purchase reagents and supplies for casework. The purchased reagents were in use as of March 1, 2011. Since that time, analysts have processed 257 samples corresponding to 26 different cases. Of these samples 5 were entered into CODIS (3 for upload and 2 for internal quality control purposes) resulting in 1 hit between a forensic unknown and a convicted offender. The confirmation process is ongoing on this sample. Goal Completed.

Final comments: Over the life of this grant, IRCL has decreased its backlog by 9.5%, decreased its turnaround time for a typical case by 42% and doubled the number of samples / analyst / month. It is believed this improvement will increase another once the newly validated system is fully put on line. The streamlined process is expected to increase capacity another 35 -50% once implemented. Finally, through NIJ funding all qualified DNA analysts were able to meet their required training for the year. This is significant for the laboratory in terms of costs with the current economic conditions of our funding agencies.

FY09 Recipient Name: Georgia Bureau of Investigation
Award Number: 2009-DN-BX-K083
Award Amount: $2,150,646
Final Report:
Goals and Objectives
Goal 1: Hire ten additional scientists

Progress Oct – Dec 2009: Interviews have been conducted and background screening is in progress. Expected start date for new scientists is Feb 1, 2010. A decision was made by senior GBI Forensic Biology staff to delay this goal by approximately 4 months so that training and integration of other recently hired staff could be completed. Most backgrounds were completed and 8 of the 10 new positions to be funded by this award were offered to applicants and the offers accepted. A budget revision to the FY08 award is in progress to hire these 10 positions on that award initially so that those funds can be expended faster, followed by transition onto this award.

Progress Jan – Jun 2010: A total of 12 new scientists were hired using the FY2008 award initially. Eleven started employment Feb 1, 2010 and one on Feb 16, 2010. The award budget was adjusted to accommodate the additional 2 positions. All 24 positions previously funded by the FY2008 award were transitioned over to this FY2009 award on May 16, 2010.

GOAL COMPLETED

Goal 2: Train scientists using a combination of the GBI-DOFS training program and external training opportunities such as NFSTC.

Progress Oct – Dec 2009: No activity on this goal during this period because the new scientists have not been hired.

Progress Jan – Jun 2010: The training is progressing as scheduled, with only one minor change. GBI management and technical leaders decided to forego the external component and provide all training from internal sources. The training for six of these twelve individuals started out in serology and that training was completed during the first half of May. The DNA training

Jan – Jun 2011 – FINAL REPORT: for the remaining six of the new employees plus four additional staff who needed DNA training will be completed in the third quarter of 2010.

Progress Jul – Dec 2010: The training of all newly hired scientific personnel was completed within this reporting period. One scientist trainee was transitioned into a laboratory technician position during July 2010 to assist with screening of evidence prior to DNA analysis. All other scientists successfully completed DNA or serology training and have begun to process routine casework. This increased the overall staffing of the forensic biology section by 11 scientists.

GOAL COMPLETED

Goal 3: Outsource selected cases to private laboratories to provide extra capacity in times of staff shortages or unexpected surges in case submission. Outsourcing will also be utilized as needed to reduce the backlog of cases

Progress Oct – Dec 2009: No activity. FY08 DNA Casework funds are still being utilized.

Progress Jan – Jun 2010: Starting June 8, 2010 forensic case evidence outsourced to private vendor labs will be funded by this award. 176 cases were outsourced from the

Headquarters laboratory to Bode Technology and 32 cases from the Eastern Regional Lab to Sorenson Forensics.

Progress Jul – Dec 2010: Of the 208 cases outsourced in the Jan-Jun report, 62 were reclassified for payment under remaining FY2008 DNA Backlog Reduction award funds so that that award could be completed and closed at the scheduled end of the project. This left 146 cases outsourced during the prior reporting period for which the analysis will be funded by this FY2009 award.

Description	July – Dec 31, 2010
Cases Outsourced to Vendor Lab	254
Cases Outstanding at Vendor Lab	80
Cases Released to Customer	109
Cases in Peer Review Process	83

Progress Jan – Jun 2011: 48 additional cases were outsourced during this reporting period. All outsourced cases have been returned from the vendors (Bode or Sorenson), peer reviewed and where appropriate, DNA profiles uploaded into CODIS. See metric discussion for more details. All outsourcing efforts from the GBI laboratory have been completed and there no additional outsourcing is anticipated.

GOAL COMPLETED

Goal 4: Pay overtime to scientists to analyze cases in-house and review outsourced cases.

Progress Oct – Dec 2009: No activity. FY08 DNA Casework funds are still being utilized.

Jan – Jun 2011 – FINAL REPORT

Progress Jan – Jun 2010: Minimal activity on this goal. Overtime funding was still available and utilized from the FY08 Forensic Casework award until June 1st.

Progress Jul – Dec 2010: Overtime was paid from the grant funds from July to mid October 2010. After that point, state funds were used to support any overtime efforts.

Description	July – Dec, 2010
Overtime Hours Claimed	255.25
Cases Impacted	316

Progress Jan – Jun 2011: No overtime from award funds was paid during this reporting period. Available state funding was utilized.

GOAL COMPLETED

Goal 5: Utilize supplies/equipment purchased with award funds to analyze cases in-house with existing trained staff

Progress Oct – Dec 2009: No supplies have been purchased with FY09 award funding.

Twelve (12) microcentrifuges were purchased for the Headquarters laboratory and have been placed into service.

Progress Jan – Jun 2010: A sole source GAN was submitted and approved for Qiagen to be used for the purchase of four (4) QIAgility liquid handling workstations. The validation of one workstation purchased on the FY2008 Forensic Casework award was completed during this performance period and after it was placed into operation the benefits were so

immediately obvious that it was decided that additional units would be placed into all other GBI laboratory facilities performing DNA testing and a second unit purchased for post PCR operations at the Headquarters lab. The benefits were improved consistency and reproducibility during preparation of standards for the DNA quantitation process, reducing the number of failed standard curves significantly. The four (4) QIAgility workstations were ordered in June 2010.

Progress Jul – Dec 2010: The four QIAgility instruments were delivered and installed, one (1) each in the Headquarters, Augusta, Cleveland, and Savannah laboratories. The instruments in the Headquarters, Augusta, and Cleveland lab have been validated and implemented into casework activities. The instrument in Savannah will be implemented into casework by mid-February 2011.

Progress Jan – Jun 2011: Four HD capable videoconference endpoints were purchased to facilitate training and group discussions between the different lab sites conducting forensic biology casework and offender analysis within the GBI Crime Lab. These units were positioned in the Headquarters, Cleveland, Augusta, and Savannah labs. Two ABI Model 3500 genetic analyzers were purchased and validation studies initiated by the vendor for the purposes of offender sample analysis. Nine (9) additional licenses for Genemapper ID were purchased (SN#s: 54778, 54775, 54776, 54779, 54777, 54729, 54728, 54734, 54746). Some small equipment items with a per item cost of under $5000 were also purchased during this reporting period, including microcentrifuges, pipettors, and vortexers. The table below summarizes the major equipment purchases made with this award.

Description	**Quantity**	**Serial #**	**Inventory #**	**Casework Implement Date**	**Lab**
QIAcube	1	8056	BI0073671	Feb-10	Headquarters
QIAcube	1	8034	BI-0073669	N/A	Augusta
QIAcube	1	8033	BI0073670		Savannah
Ultracold freezer (2)	2	128907401100212, 0128840301100112	BI0073673, BI0073674	Mar-10	Headquarters
QIAgility	2	Q120913	BI0074047	Jun-10	Headquarters
QIAgility	1	Q120914		Feb-11	Cleveland
QIAgility	1	Q000263	BI-0074048	Dec-10	Augusta
QIAgility	1	Q120915	BI0074050	Apr-11	Savannah
TUTTNAUER AUTOCLAVE 2540E	1	1008246	N/A		Savannah
HDX 7000 720p	1	88104510B4DACN	BI-0074321	Apr-11	Augusta
HDX 7000 720p	1	604MXMT08699	BI0071489	Apr-11	Headquarters
HDX 7000 720p	1	88104510B4C6CN	BI0074323	Apr-11	Cleveland
HDX 7000 720p	1			Apr-11	Savannah
AB 3500 XL GENETIC ANALYZER	2	23319-010, 23319-060	BI-74379, BI-74380	N/A	Cleveland

GOAL COMPLETED

Goal 6: Have a vendor perform validation studies to prevent diversion of casework staff

Progress Oct – Dec 2009: No activity.

Progress Jan – Jun 2010: Specifications were submitted to vendors in June 2010 so that bids for the validation of Y-STRs could be obtained. The award budget will be re-evaluated to determine if it is possible to procure this validation from this award within the next 3 months while still progressing on all other project goals.

Progress Jul – Dec 2010: A requests for quotations was issued for validation of a Y-STR kit, specifically the Applied Biosystems Y-filer kit. After reviewing the bid responses, Applied Biosystems was awarded the contract. The validation process will begin in January 2011 and be completed by March 2011.

Progress Jan – Jun 2011: The validation process for the Y-STR kit was completed by Applied Biosystems in March 2011. The data has been analyzed, and the training/instruction session included in the contract is scheduled for July 2011.

GOAL COMPLETED

Performance Metrics Discussion: January 1 – June 30, 2011

At the beginning of Oct 2009 the average number of days between evidence entry of a DNA sample into the GBI-DOFS computer system and the release of reports was 199 days. This data is determined by using Crystal Report 'Capacity Award Metrics – DNA report turnaround. For this metric, the starting average was determined by looking at reports released between Jul 1, 2009 and Sept 30, 2009.

For the period Apr 1, 2011 to Jun 30, 2011 the average number of days between evidence entry of a DNA sample into the GBI-DOFS computer system and the release of reports was 98 days. This data is determined by using Crystal Report 'Capacity Award Metrics – DNA report turnaround.

For the period Jul 1, 2009 to Sep 30, 2009 the average number of items analyzed per analyst per month was 21.4. This data is determined by using Crystal Report 'Item Analyzed per Scientist.rpt'. For this metric, the average was determined by looking at DNA services for which the report was draft completed during this time period and counting the number of evidence items related to each report for each scientist. A three month average of 64.2 was obtained and then divided by 3 to obtain the metric final value of 21.4. If all casework related services performed by the forensic biology discipline (serology + DNA) are examined, the average number of items analyzed per scientist per month was 33.5.

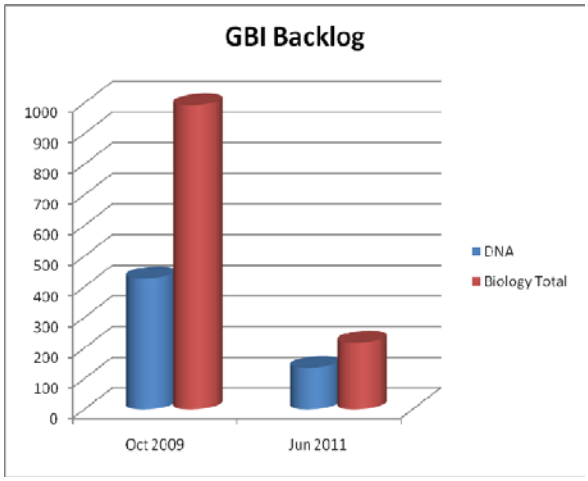
For the period Apr 1, 2011 to Jun 30, 2011 the average number of items analyzed per analyst per month was 21.7. This data is determined by using Crystal Report 'Item Analyzed per Scientist.rpt'. For this metric, the average was determined by looking at DNA services for which the report was draft completed Oct 1, 2010 to Dec 31, 2010 and counting the number of evidence items related to each report for each scientist. A three month average of 65 was obtained and then divided by 3 to obtain the metric final value of 20.0. If all casework related services performed by the forensic biology discipline (serology + DNA) are examined, the average number of items analyzed per scientist per month was 26.7. The backlog at the beginning of the award period was arrived at by determining the total number of cases with DNA Typing, DNA Typing – No Suspect, and DNA Typing – Parentage services were incomplete by the due date (usually 30 days of the request date) at the end of Sept 2009. This data was obtained from the Sept 2009 statistical report

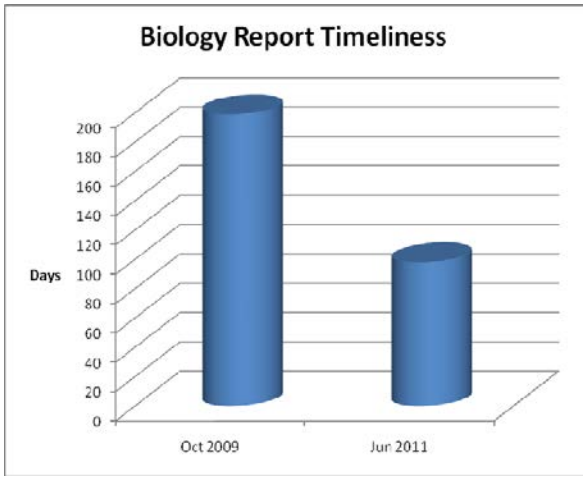
generated by GBI-DOFS. There were 427 cases that met this criterion as of Sept 30, 2009. The total backlog of forensic biology cases, excluding convicted offenders, was 992 at this time point. The cases in backlog at the end of June 2011 was arrived at by determining the total number of cases with DNA Typing, DNA Typing – No Suspect, and DNA Typing – Parentage services that were incomplete by the due date (usually 30 days of the request date). This data was obtained from the June 2011 statistical report generated by GBI-DOFS. There were 135 cases that met this criterion. The total backlog of forensic biology cases, excluding convicted offenders, was 217 at this time point. This represents a 78% decrease in the backlog over the course of this award. All outsourced cases have been returned and reviewed, with appropriate profiles uploaded to CODIS.
All performance metrics related to CODIS profile entry and CODIS hits for this reporting period were generated by queries of LIMS data fields. During the period Apr 1, 2011 to Jun 30, 2011 a total of 237 profiles were entered into CODIS based upon outsourced analysis funded by this award. During this same time frame 68 CODIS matches were identified that could be attributed to outsourced analyses funded by this award. Crystal Reports 'Grant Assisted CODIS Profiles.rpt' and the SQL query 'paired services on a case.sql' were used to summarize this data. The total number of CODIS profiles uploaded as a result of this award funding over the course of the award a total of 416 profiles were added to CODIS and 194 CODIS matches were reported as a direct result of award funding.
The number of cases analyzed using grant funds includes those where grant funded overtime was used to assist in the analysis or review of the case, as well as those cases that were directly outsourced. This data was generated using the SQL query 'Grant funded analyses. After sorting the results to identify duplicates of outsourced cases and those where overtime was employed to complete the review or where multiple reports involved overtime assistance, the total number of cases where reports were released to the customer during the period July 1 to December 31, 2010 as a result of grant funds was 514.
Grant funded personnel also completed analyses and reported results on 2282 cases during this award period, October 1, 2009 – June 30, 2011. This data point was generated by the SQL query 'grant personnel analyses.sql'. The fact that some of the grant personnel were transitioned to state funded positions during the reporting period was compensated for by executing the query multiple times to reflect the varying levels of grant personnel during the reporting period. From these cases where grant personnel conducted analyses, 176 profiles were uploaded to CODIS. This data point was generated by the Crystal Report 'grant personnel CODIS profiles.rpt.' Finally, there were 30 CODIS matches that have been reported during the award period as a result of the increased capacity in the lab from the grant funded personnel. This data point was generated by the SQL query 'paired services on case (grant personnel).

Award Summary

This funding supported the salaries and benefits for 16-24 people, the number varying over the course of the award as positions were transitioned onto state funds when possible. The instrumentation purchased with this funding will be utilized to handle incoming evidence

workloads for the next several years. Utilization of outsourcing, although not a popular alternative, allowed GBI personnel to focus on training of new staff, and in-house analysis of casework so that the backlog could be reduced. More than 2500 cases were assisted and completed as a result of these funds. The vast majority of these were completed in-house through the additional personnel capacity available as a result of the award. Outsourcing did play a valuable role, but feedback from prosecutors when faced with the costs of paying for the vendor expert made this option less viable as time passed. The backlog of cases decreased by 78% over the course of the award and the average turnaround time was cut in half. The funding provided to the GBI under this 2009 DNA Casework Backlog Reduction Program has been instrumental in allowing the GBI to make substantial and measurable progress toward backlog reduction in casework analysis. Without this funding the GBI Crime Lab would not have been able to dramatically lower analysis times or reduce the backlog.





FY09 Recipient Name: City and County of Honolulu
Award Number: 2009-DN-BX-K082
Award Amount: $159,945
Final Report:

This project is still in progress

FY09 Recipient Name: Idaho State Police
Award Number: 2009-DN-BX-K104
Award Amount: $163,922
Final Report:
09 DNA Backlog Reduction (Capacity) October 1, 2009 – December 31, 2009
Goal: provide equipment and technology to our forensic scientists to increase efficiency of current technologies which will in turn provide quality and timely scientific analysis of evidence and testimony.

During this reporting period, a quote for the upgrade of the 3130 to 3130xl was received. Supply items have been purchased. The turnaround time for the DNA section has been more than the expected 60 days and that is due to the scientists being involved in training, validation and on a personal note, a wedding. It is the goal of this section to decrease the turnaround to the expected 60 days or less during this next reporting period.

January 1, 2010 – June 30, 2010
In February 2010 the order for the 3130 upgrade was placed. The order was received for the upgrade/install and arrangements were made for the service engineer to do the upgrade the week of March 22, 2010.
The instrument was upgraded to a 16 cap from a 4 cap on March 25, 2010. After the initial upgrade, it was noted that there was carryover and loss of resolution. After additional work by the service engineer, the correct modules were used and the loss or resolution was eliminated on April 21, 2010. However it was noted that carry over was still observed with highly concentrated samples.

A Forensic Applications Specialist, Human Identity Technical Support, Service Engineer and Sales from the vendor worked with our ISPFS analysts in reference to the continuing issue of carryover occurring after the 3130xl upgrade. Product managers and engineers were asked to look at the data generated by both ISPFS and the vendor for their input. On May 11, 2010 a conference call was conducted with ISPFS and these four representatives. The vendor's conclusion was that based upon all of the experiments and data thus far, this is not an instrument issue. The instrument is operating as it should. Their theory is that this is a sensitivity issue and ISPFS needs to re-optimize based on the increased sensitivity and live with the carryover that will occur with high level/overblown samples. They suggested ISPFS run samples and run an experiment that the Human Identity Technical Support person designed. The vendor stated they are willing to help ISPFS look at the data but at this point there is nothing more they can do for us.

During the week of June 14 – 18, 2010, ISPFS ran one more plate of samples to test the changes the vendor had made on the instrument. Upon attempting to send data to the vendor, it was discovered that they had infected our instrument computer with a virus. Fortunately, ISPFS was able to get rid of the virus but we now have two dead flash drives. The problem still remained and ISPFS is done troubleshooting. It is time for the vendor to step up and make it right. As of the end of this reporting period, we are still working with the vendor to resolve this issue.
During this reporting period:

- The Database analyst was approved for independent database analysis the beginning of May. However due to the instrument issues described above, no database analysis has been done.
- Two DNA analysts have been spending a great deal of time working with the instrument issue thus increasing our casework turnaround times.
- One DNA casework analyst is out on personal leave for an extended period of time.
- One forensic scientist has been approved to do biological screening and continues her training for DNA analysis.

July 1, 2010 – December 31, 2010
In July 2010, Applied Biosystems, the vendor of the 3130xl, provided a refurbished instrument to set up side by side with our problem 3130xl to do a direct comparison. Once the instrument arrived, the service engineer ran a short set of experiments developed by the forensic applications group. These experiments were designed to insure that our 3130xl is working correctly and also to compare the two instruments against each other. At this time there were two options: 1) if the refurbished instrument does not demonstrate the carryover issues seen on our current instrument, then the vendor would swap out the instruments and we would retain the one that works. 2) if both instruments demonstrate the carryover issue, the support group feels that it they have demonstrated that this is not an instrument issue. At that time it would be incumbent upon our lab to investigate alternative workflow methods in order to reduce overloaded samples being injected in the instrument.

In November 2010, it was determined that ISPFS would be keeping our upgraded instrument as the instrument provided by Applied Biosystems also had contamination and was actually worse as experiments progressed. A service engineer was responsible for the de-installation and crating of the loaner instrument. We are still having low-level contamination on the instrument but believe it may be related to specific lots of capillaries and could possibly be due to manufacturing defects. As of 11/2/2010 the performance verification was almost complete. Due to the DNA lab construction (not grant related) the instrument was taken out of service on 11/12/2010 for approximately one month. At the end of December 75 database samples had been processed.
During this reporting period:

- Ordered and received the TubeWriter. It was not set up or used prior to the end of this reporting period due to the construction. This will be a system that will be looked at by all disciplines as the time spent on tube prep has been identified as a bottleneck during a process mapping.
- The refrigerators and freezer for the new DNA lab were purchased and installed. All are working with no issues.

At this point we are in the process of compiling information for a no-cost extension GAN. Due to cost savings and products being unavailable; we have a large balance and will want to utilize all monies.

January 1, 2011 – June 30, 2011
During this reporting period, we had a substantial balance and submitted a Budget Modification GAN. It was approved and we were able to purchase the following items:
Document sequencer – it is now in use and counts and numbers the note pages within a matter of seconds as opposed to the laborious hand writing that was done previously. It also reduces the number of errors in page numbering that can happen with individual hand writing. Very positive purchase which relieved an identified bottleneck in throughput.
Driftcon FFC Temperature Verification system – we have received this instrument and it is now in use. At this time it has not increased efficiency since the older Driftcon is not working.

Purchased but not yet completely installed is a microscopy photography system which will be used in conjunction with Photoshop.
The Tubewriter purchased during the last reporting period is now being used for casework. This does not reduce the amount of time it takes to label tubes, but as promised, the ink does not wear off and the printing is easy to read now and in the future. A very positive purchase.
Again, due to savings during this reporting period, we have a balance of funds. A Budget Modification GAN was prepared and submitted in June, 2011. We are planning on purchasing computers (both laptop and personal) to replace current equipment that is not reliable, capillary arrays and we will upgrade the older Driftcon FFC Temperature Verification system as well as purchase additional annual calibrations for both Driftcon systems.

July 1, 2011 – December 31, 2011
During this reporting period GAN #3 Budget Modification was approved on July 7, 2011. A Sole Source GAN was submitted on November 1, 2011 and approved on November 22, 2011. This lack of sole source approval was discovered during the Grant Progress Assessment in September 2011. The Grant Administrator was contacted and advised the Grant Manager to submit a GAN for retroactive approval.
With the remaining funds of this grant the following items were purchased
Capillary arrays which will be used to process casework and database samples.
Two laptops and one computer tower. One laptop was for the supervisor for all of her DNA data analysis. The second laptop will be used to up case and offender information corresponding to CODIS hits. The CODIS workstations are not allowed to be on the general ISP network and by utilizing this laptop the analysts no longer need to write down the information and go to another office and look up the necessary information. This has proved to increase the efficiency of day to day CODIS operations. The tower was used to replace the older CODIS workstation which had quit functioning. This newer workstation will also be compatible with CODIS 7.0 when it is deployed in 2012.
Three copies of Microsoft Office were purchased and put on three laboratory computers that were purchased earlier on this grant. This will allow the analysts to open and use the standard worksheets.
Laptop batteries were purchased so that work can continue during those times that an electrical outlet is not available.
The older Driftcon was upgraded to deal with the problem of having broken probes. The Driftcons are considered critical equipment under the FBI Quality Assurance Guidelines so additional annual calibrations were purchased. We now have two functioning Driftcon FFC Temperature Verification systems.
As there were still funds available after these purchases, we purchased additional paper rolls for the paper dispensers purchased on this grant in January 2011. One additional chair and lab stools were purchased as approved in our initial grant application. The remaining funds were spent on bloodstain cards and foil seals to be used to process samples.
All funds were spent by December 31, 2011.

FY09 Recipient Name: DuPage County Office of the Sheriff
Award Number: 2009-DN-BX-K137
Award Amount: $284,612
Final Report:
GOAL 1: Reduce average TAT for DNA assignments to <30 days & increase items analyzed per full-time-equivalent (FTE) analyst from 22 to 25/mo. At the conclusion of the grant, the average turn-around was 38 days. This goal was nearly met, and represents an improvement over previous TAT. The number of items analyzed per FTE analyst per month during this reporting period is 31, and has now exceeded the target of 25 for three consecutive reporting periods; this goal has not only been met, but it appears that the grant funding has provided structural changes in the laboratory's systems that will allow the goal to continue to be met beyond the reporting period for this grant.

The elements most directly responsible for achieving Goal #1 are the purchase of casework supplies (which alleviated test-rationing in cases), the availability of over-time (to analyze cases), and the grant-funded DNA analyst (see Goal #6; this analyst allowed other analysts to focus on current cases rather than the backlog). All of these will end with this grant funding; however, structural changes resulted from the validation that was accomplished under Goal #4. These changes will continue to yield benefits beyond the grant reporting period.

GOAL 2: A current forensic biology analyst will complete 3 graduate courses to comply with the educational requirements of a DNA analyst per the FBI QAS. Jean Kinnane graduated and received her Masters in Pharmacy (Forensic Science Specialty) from the University of Florida. This goal has been met. The analyst now has the educational requirements needed to begin a DNA training program, and is expected to be able to aid in analyzing cases and preventing DNA backlogs upon the completion of that training program.

GOAL 3: ~100 hours of CE to existing DNA analysts. This goal was met (118 hours) in a previous reporting period. Due to careful attention to minimizing costs, budgeted funds in this category remain, and was used to meet 2011 QAS requirements for training of analysts. Analyst Greer-Ritzheimer attended an 8-hour workshop at the American Academy of Forensic Sciences (AAFS) meeting. Jackson and TL Saul attended the AAFS meeting (20 hours each). Total educational time under this goal is 166 hours. This training allowed the DNA staff to be aware of and implement the most modern and efficient methodologies, and also to meet FBI Quality Assurance Standards guidelines for continuing education.

GOAL 4: Advance the technological capabilities of the DNA section through the validation of new methods and procedures. Validation of Promega Maxwell improvements was completed. This goal has been completed with the aid of grant funds. The grant funding supplied the instrument and the supplies used by the instrument in its validation.

GOAL 5: Improve financial management capabilities of the laboratory. This goal was eliminated in GAN 003 and GAN 004 because it was not determined to be necessary by the new grant manager.

GOAL 6: Use grant funds to analyze back-logged cases. Back-logged cases were analyzed as reported in the grant metrics; this goal has been met. The original application for this funding, submitted by an individual no longer with our organization, did not link the hiring of a part-time DNA analyst to any particular goal. The contributions of this grant-funded analyst impacted both Goal 1 and Goal 6. Using funding from this grant, this analyst analyzed 32 cases, including screening for biological fluids. These cases resulted in 18 forensic DNA profiles of investigative significance being added to the DNA database. To date, 6 CODIS hits have resulted from these 18 DNA profiles, presumably resulting in these cases being adjudicated. Future benefits may be realized as a result of the grant funding because the remaining DNA profiles will continue to be searched through the DNA Index, and additional associations may occur after the reporting period for this grant.

New strategies for tracking CODIS results, referenced in a previous Progress Report and required due to the departure of the previous grant manager, were implemented as of January 1, 2011. These strategies occurred late in the process, but will remain in place for more accurate reporting in future grants, and were necessary to ensure the reporting was accurate and auditable. Stability within the agency of the grant recipient is extremely important and was the major challenge associated with this grant. A scientist with no background in accounting or grant management, or with no authority to accumulate the necessary grant metrics, can be thrust into the position of grant manager at the whim of the recipient agency. They then face a long and challenging learning process. Even if the new grant manager has experience with federal grants, they may not grasp the intimate details of how the previous grant manager intended to accomplish a goal. It is in the best interest of the recipient agency and the NIJ (whose staff must educate the new grant manager) to institute methods to discourage such instability. From a criminal justice perspective, the funding under this grant provided a myriad of benefits. Before testing begins, it usually isn't known which item from a scene will be the item most critical to solving the case; grant funding allowed more items per case to be analyzed. Additionally, more cases were analyzed. They were analyzed by a scientist with better training and more education. They were able to analyze cases on the most modern instruments using the most efficient methods. Some of these benefits will last well beyond the reporting period of the grant. As perpetrators of crimes are identified and convicted, and time is not wasted on pursuing the innocent, the commission of future crimes is deterred, further reducing the strain on the resources of both the laboratory and the criminal justice system. This project successfully met its stated objectives with the recognized assistance of the NIJ funding.

FY09 Recipient Name: Illinois State Police
Award Number: 2009-DN-BX-K128
Award Amount: $2,561,512
Final Report: Goals: Improve the analytical capacity of the DNA sections and reduce the forensic biology/DNA backlog. Funds from this program will be used to purchase supplies and provide overtime to existing staff.

REPORT #2: Progress – Goals are being accomplished. Supply orders started in late February/March, while overtime commenced in April. For this 'active' reporting period, funds from this award assisted with the analysis (and report delivery) of 727 DNA cases and 393 forensic biology cases. (NOTE: Capacity and casework performance metrics for the Forensic Biology sections are detailed below. See Forensic Biology Performance Metrics). Even though the DNA Section experienced an influx in the number of DNA backlogged cases*, there was a slight increase in the average number of samples analyzed per analyst per month. Additionally, the average number of days between the submission and the delivery of test results to the requesting agency was reduced by 11.7 days from the beginning award period. No problems were experienced during this reporting period.

REPORT #3: Progress – Goals are being accomplished. Supply orders continued to be made and overtime was worked during the reporting period. For this reporting period, funds from this award assisted with the analysis (and report delivery) of 2,439 DNA cases and 2,941 forensic biology cases. (NOTE: Capacity and casework performance metrics for the Forensic Biology sections are detailed below. See Forensic Biology Performance Metrics). The number of cases submitted for DNA analysis increased by 16% from the previous reporting period (Jan 1, 2010 – June 30, 2010). The DNA Section has experienced receiving 70 cases more per month during this reporting period and there was also a loss in personnel during this reporting period which contributed to the rise in the backlogged cases*. Another contributing factor to the rise in backlog is the furlough program that the state implemented. The increase in the number of cases being submitted for DNA analysis also contributed to the increased turnaround time.

REPORT #4: Progress - Goals are being accomplished. Final supply orders were placed and overtime was completed during this reporting period. Productivity in DNA cases worked per analyst per month increased by 14%, however, the DNA backlog increased by 29%. The increase in backlog is due to a large increase in case submissions. During this reporting period there were 3,141 cases submitted. In the same time period in 2010 the number of cases submitted was 2,505. This is an increase in submissions of 25.3%. A new sexual assault law passed in 2010 requires agencies to submit all cases of sexual assault, including old ones that had never been submitted to the laboratory, for analysis. The law provided no funding or personnel for the ISP to handle the influx of cases.

FY09 Recipient Name: Northeastern Illinois Regional Crime Laboratory
Award Number: 2009-DN-BX-K131
Award Amount: $284,613
Final Report: This grant was accessed starting November 2009 through March 2011.

Analyzing 300 cases over the lifetime of the grant.

Progress: Completed: A total of 567 DNA cases were analyzed with grant funds for this time period.

Validation of Quantifiler Duo.

Progress: Completed

Purchase of Exam Log software

Progress: Completed

Training

Progress Completed: Two analysts have attended PROMEGA for training.

Supply Purchases

Progress: Completed. $119,000 in supplies were purchased and used.

Equipment purchases for QIAgility, Scanner, Data Recorders, Crime Light and Camera

Progress: Completed: The need for a camera was evaluated and determined not to be needed. All other items were purchases. The QIAgility is being validated.

90% of all DNA cases done in 40 days, and 95% of crimes against persons started in 21 days.

Progress: Completed: From January thru March 2011 a total of 137 DNA cases were analyzed. Of these, 41 had reports completed 40 days post submission. However, only 15 of the 41 cases were the first report. Evaluation of the data shows that 26 of these post 40 day reports had more than one processed report. The reasons for numerous reports are varied, but in summary additional work were required and therefore these reports were not deemed over 40 days since at least one report was already generated. All cases against persons are started within 21 days and 11% of all cases have had at least one DNA report generated within 40 days of submission.

Notable cases:

A CODIS hit was generated from a convicted felon to an abduction/sexual assault. The profile was generated within 2 weeks of submission.

A CODIS hit was generated to a child sexual assault to her father who was a suspect in previous sexual assaults.

Several CODIS hits were generated to older 1998 sexual assault cases that were not analyzed for DNA at the time of the assault.

A CODIS hit was generated from DNA recovered from duct tape and connected to a gang of armed robbers who tied victims with duct tape in three different robberies. The profile was generated within 2 weeks of submission.

A CODIS hit connected a female armed robber, who bite the victim. The suspect was immediately arrested and is awaiting trial.

Summary:

NIRCL has been able to basically maintain the backlog from the beginning of the grant to the end of the grant. The average turnaround time is 38 days. From calendar year 2009 to calendar year 2010, the number of DNA/Biology cases has gone up 18%. What is interesting are the

number of DNA/Biology/CODIS reports generated (compared from 2009 to 2010) increased 16%. The number of CODIS reports doubled in this time period, from 55 reports generated in 2009 to 110 in 2010.

The impact of the grants cannot be understated. Without these grants, hundreds of cases would either have to be refused at the door, or remain on the back-log. This statement is not hyperbole. The staff at NIJ and GMS has been extremely helpful and professional. Throughout the year, several contacts/questions/problems were solved by the NIJ staff. Most of the issues were lab generated, and the NIJ staff provided expertise and advice on many occasions. This program has been of enormous value to the community at large.

FY09 Recipient Name: Indiana State Police
Award Number: 2009-DN-BX-K119
Award Amount: $580,160
Final Report: The following goals and objectives were set for this award:

Goal 1 - To increase capacity of the DNA lab by allowing analysts to work overtime.

- Progress Oct-Dec 09 – No overtime was used in this reporting period due to prior year grant funding.
- Progress Jan-Jun 10 – In this reporting period ISP DNA analysts worked 1383 hours of grant funded overtime. Time was used for in-house analysis and reviewed of outsourced casework. Combined, 775 cases were impacted. Most of these cases were worked in-house.
- Progress July-Dec 10 – In this reporting period ISP DNA analysts worked 1230 hours of grant funded overtime. Time was used for in-house analysis and reviewed of outsourced casework. Combined, 827 cases were impacted. All but 34 of these cases were worked in-house.

  Goal Complete

Goal 2 - To increase capacity of the DNA lab by providing contracts for maintenance of Applied Biosystems DNA analysis instruments.

- Progress Oct-Dec 09 – No funds were used for maintenance agreements in this reporting period due to prior year grant funding.
- Progress Jan-Jun 10 – No funds were used for maintenance agreements in this reporting period due to prior year grant funding.
- Progress July-Dec 10 – A one year maintenance agreement was paid.

  Goal Complete

Goal 3 - To increase capacity of the DNA lab by providing continuing education for biology personnel

- Progress Oct-Dec 09 – No continuing education was provided in this reporting period due to prior year grant funding.

- Progress Jan-Jun 10 - No continuing education was provided in this reporting period due to prior year grant funding.
- Progress July-Dec 10 - Four different out of state training sessions were attended each by one forensic biologist. This training met the continuing education requirements for the attendees.

  Goal Complete

Goal 4 - To increase capacity of the DNA lab by implementing DNA automation

- Progress Oct-Dec 09 – An automation committee comprised of DNA analysts and supervisors were formed to evaluate available DNA automation technologies and make recommendations. The committee met with six automation vendors and began the process of establishing specifications.
- Progress Jan-Jun 10 – A request for proposal was generated with input from the automation committee. Two proposals were received and evaluated. A vendor was selected and contract negotiations were initiated.
- Progress July-Dec 10 – The contract was completed and a purchase order issued. The instrument was delivered but not yet unpacked or set up by the vendor. Due to the availability of excess funds a portion of a second instrument for CE setup was also purchased to work in conjunction with the first robot
- Progress Jan-March 11 – Both robots were setup and training was received from the robot manufacturer. Additional training, robot accessories and software from Promega was also received. The validation process was initiated but has not been completed within the grant period. Validation will be completed without additional grant funds.

  Goal complete

Goal 5 - To reduce the casework backlog through the outsourcing of backlogged DNA cases.

- Progress Oct-Dec 09 – DNA data from 4 criminal paternity cases was outsourced for interpretation and statistical evaluation.
- Progress Jan-Jun 10 – During this period DNA data from 16 criminal paternity cases was outsourced for interpretation and statistical evaluation. Additional cases were outsourced for analysis but have not been completed.
- Progress July-Dec 10 – During this period DNA data from 12 criminal paternity cases was outsourced for interpretation and statistical evaluation. Outsource DNA analysis of 22 additional cases was completed.
- Progress Jan-March 11- One additional criminal paternity case was completed. In total 51 cases were outsourced with grant funds.

  Goal complete

FY09 Recipient Name: Indianapolis-Marion County Forensic Services Agency
Award Number: 2009-DN-BX-K129
Award Amount: $386,773
Final Report:

This project is still in progress

FY09 Recipient Name: Johnson County Kansas
Award Number: 2009-DN-BX-K105
Award Amount: $385,084
Final Report: The FY2009 Forensic DNA Backlog Reduction Program grant was officially awarded to the Johnson County Sheriff's Office Criminalistics Laboratory (JCCL) on September 24, 2009. During the first quarter of the grant period, no progress was made due to a grant extension to complete the FY2008 Forensic DNA Backlog Reduction Program grant. The main reason this grant extension was needed was due to the resignation of one grant funded Forensic Scientist (FS) on April 10, 2009. Therefore, progress and achievement towards the FY2009 DNA Backlog Reduction Program grant objectives did not commence until July 2010.

Objective 1: Dedicate personnel for biological screening and DNA analysis.
This objective has been achieved. Funding for the salaries and benefits of three Forensic Scientist (FS) positions was drawn down for this grant. All three FS are fully trained in biological processing and DNA analysis. Each FS has been competency and proficiency tested as required for accreditation. Finally, the grant funded FS positions were actively involved in performing forensic casework analyses and continuing education opportunities.

The three grant funded FS positions assigned to the Biology section perform biological processing and DNA analysis on forensic casework samples. The forensic casework productivity statistics for the entire grant (July 11, 2010 to July 13, 2011) are listed below:

Number of Biology cases analyzed – 162
Number of Biology items analyzed – 924
Number of DNA cases analyzed – 185
Number of DNA samples analyzed – 1018
DNA profiles entered into CODIS – 128
Number of CODIS hits – 61

Objective 2: Increase analysis of biological evidence on violent crimes and burglaries.
This objective has been achieved. Priority analysis is given to UCR part 1 violent crimes and burglaries. There are seven FS positions allocated to the Biology section (4 budgeted FTE's + 3 granted funded FTE's). The forensic casework productivity statistics for the entire Biology section during the grant period (July 11, 2010 to July 13, 2011) are listed below:

Number of Biology cases analyzed – 459
Number of Biology items analyzed – 2131
Number of DNA cases analyzed – 518
Number of DNA samples analyzed – 2301
Number of Biology items submitted for analysis – 2562
Number of DNA items submitted for analysis – 2317

Objective 3: Reduce backlogged DNA casework primarily for UCR part 1 crimes.

This objective has been achieved. The statistics listed below represent the progress made with this grant and comparisons to previous years. The forensic casework productivity statistics for the entire grant (July 11, 2010 to July 13, 2011) are listed below:

Total backlog of DNA samples at the beginning of the grant period (Oct. 1, 2009) – 438
Total backlog of DNA samples, July 2011 – 301
Backlog of UCR part 1 violent crime DNA samples, July 2010 – 182
Backlog of UCR part 1 violent crime DNA samples, July 2011 – 82
Backlog of UCR part 1 burglary DNA samples, July 2010 – 182
Backlog of UCR part 1 burglary DNA samples, July 2011 – 78

Average turn-around-time (TAT) of DNA samples at beginning of grant period – 119 days
Average TAT of DNA samples at the end of the grant period – 53 days
Decrease in TAT (Oct. 1, 2009 minus July 2011) – 66 days

Average number of DNA samples analyzed/analyst at beginning of the grant period – 36
Average number of DNA samples analyzed/analyst at the end of the grant period – 34

Total number of DNA samples analyzed for the year 2006 – 1239
Total number of DNA samples analyzed for the year 2007 – 1873
Total number of DNA samples analyzed for the year 2008 – 1791
Total number of DNA samples analyzed for the year 2009 – 1843
Total number of DNA samples analyzed for the year 2010 – 2146

Total number of DNA profiles entered into CODIS in 2006 – 163
Total number of DNA profiles entered into CODIS in 2007 – 296
Total number of DNA profiles entered into CODIS in 2008 – 392
Total number of DNA profiles entered into CODIS in 2009 – 408
Total number of DNA profiles entered into CODIS in 2010 – 360

Total number of DNA hits from CODIS in 2006 – 43
Total number of DNA hits from CODIS in 2007 – 98
Total number of DNA hits from CODIS in 2008 – 101
Total number of DNA hits from CODIS in 2009 – 103
Total number of DNA hits from CODIS in 2010 – 130

Objective 4: Purchase (1) Genetic Analyzer, (1) Thermal Cycler, (2) Maxwell 16 robots. This objective has been achieved. Two Maxwell 16 robots were purchased March 1, 2010, performance verified, and put on-line for casework analyses by May 1, 2010. One 9700 DNA Thermal Cycler was purchased on July 26, 2010, performance verified, and put on-line for casework analyses by August 10, 2010.

On March 29, 2010, the crime laboratory received a Sole Source Approval GAN to purchase (1) 3500 AB Genetic Analyzer. The 3500 Genetic Analyzer was purchased on April 13, 2010,

received in the laboratory on June 10, 2010, and installed on June 18, 2010. Validation and training on this instrument was completed in June 2011. The 3500 Genetic Analyzer is currently being used for casework analyses.

Summary:
The outcome of the grant funding was successful. All objectives that were established in the application were met. The biology processing and DNA item backlogs are declining at the crime lab for the first time in several years. The DNA backlog decreased from 527 items in July 2010, to 305 items in July 2011. The biology processing backlog decreased from 4833 items in July 2010, to 1734 items in July 2011. For the year 2010, the average turnaround time on DNA reports was 111 days. By July 2011, the average turnaround time for DNA reports for the year dropped to 53 days. There are several contributing factors that have led to the decreasing backlogs and turnaround times. The output capacity for DNA analyses has increased from 1843 DNA samples analyzed in 2009 to 2146 DNA samples analyzed in 2010. The estimated output for DNA analyses for the year 2011 is expected to increase to 2284 DNA samples. Increases in productivity can be attributed to the grant funded positions and instrumentation.

FY09 Recipient Name: Kansas Bureau of Investigation
Award Number: 2009-DN-BX-K122
Award Amount: $188,061
Final Report: This award was for purchase of equipment and the associated supplies for validation. The two goals were the purchase of a genetic analyzer for casework in the Kansas Bureau of Investigation's Kansas City Lab and the validation supplies associated with that and the purchase of extraction robots and the validation supplies associated with those purchases.

Three (3) small footprint robots have been bought from Applied Bio-Systems. Through comparison studies, the chemistry used by AB is more efficient in extracting DNA than the chemistry from Promega.

Due to further delays from Applied Bio-Systems, the chemistries for the robots did not arrive until mid- July. The Great Bend Laboratory has been validating the robots, but at this time, they have not been put into work for extraction in casework. The validation wet-work is nearly complete with a small number of touch samples waiting for extraction and evaluation.

A 3130 genetic analyzer was purchased for the Kansas City, KS Laboratory. They completed the validation studies for the use of the instrument in casework. All three scientists were qualified for work on the instrumentation in early March of this year. From March, using the 3130, equipment bought with the grant, the Kansas City Laboratory had entered 34 samples into CODIS and has received 34 hits from those entries. A total of 82 cases consisting of 327 samples have been run on the machine. For comparisons, during this same time frame the year before, the analysts worked a total of 46 cases consisting of 297 samples. This shows that the

3130 aids by obtaining sample results quicker and allows for more work to be done on the instrumentation.

The KBI laboratory, overall, has seen the loss of four DNA scientists. One in early August and the other had resigned in the first part of the 2010 year and two more this spring/summer. In late December, a scientist was promoted to supervisor. So, in effect, the laboratory is down five full time DNA scientists, this is on top of an attrition of 2 scientist positions due to budgetary cuts. Currently, the KBI has 5.5 DNA scientists, 2 supervisors who work limited case work and 3 scientists in training. This is down from an all time high of 11.5 DNA scientists. This has resulted in an increase of the turnaround time for cases with a corresponding increase in the number of samples per examiner.

There has been a significant drop in the number of cases backlogged. This is due in part to the new tracking method and due to a change in the management of cases when they are submitted without the necessary reference samples they have been kept outside the overall backlog of cases, since the cases were deemed to be incomplete . Previously, a case was in the "DNA backlog" the minute it was accepted. Now, a case is not accepted if there are some necessary elements missing from that case. For non-suspect burglaries, a sample conducive to having a biological fluid on it are now the only samples allowed to be submitted. Touch samples, such as swabs from cash drawers or locks are not accepted any longer. Samples collected without elimination or known samples need to be also submitted when the case has obvious victims and suspects. Those cases that warrant a scenario for eligibility for CODIS are not accepted for DNA without the scenario. This has eliminated a significant number of cases that would have been in the backlog waiting for the necessary standards or synopsis for testing.

Without the funding from NIJ for equipment, the number of cases done would have been approximately half the number for the Kansas City lab. Extrapolation from that would mean that there would have been a significant number of cases not examined at the other laboratories without the funding we have received from NIJ.

FY09 Recipient Name: Commonwealth of Kentucky
Award Number: 2009-DN-BX-K064
Award Amount: $571,663
Final Report:

This project is still in progress

Recipient Name: Louisiana State Police
Award Number: 2009-DN-BX-K087
Award Amount: $1,430,733
Final Report: Project Goal

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. The laboratories in Louisiana intend to reach the desired goals by streamlining their operations, incorporating new methods and technologies to work more efficiently, providing continuing

education and outsourcing a percentage of backlogged cases. The following information addresses what progress has occurred with the 2009 Forensic DNA Backlog Reduction Program grant. It includes data collected from each Subgrantee; Acadiana Criminalistics Laboratory (ACL), Jefferson Parish Sherriff's Office – Regional DNA Laboratory (JPSORDL), North Louisiana Crime Laboratory (NLCL), Southwest Louisiana Crime Laboratory (SWCL), and St. Tammany Parish Coroner's Office (STPCO).

Grant Progress July – December 2009:

- This grant was awarded on October 1, 2009. As a state we have two older backlog/capacity grants which are being currently being spent down in a push to allow for quick closure of our 2007 award. Several labs have already submitted an original budget modification, once the budget is approved then all Capacity purchases will be in the process of either being bid out or purchased directly. Several labs are excited about their future use of this award. We have been focusing our efforts in making all previous grant purchases before we work forward in the grant process. Contracts are being drawn up and projections are being made on how and when to spend this money but the main focus has been clearing out the older awards and preparing to have all the special conditions released in preparation of spending. Two Sole Sources requests have been submitted and approved for ABI and Qiagen on behalf of all State labs.

Grant Progress January – June 2010:

- During the reporting period there have been several submittals of GANs for budget modifications by many labs attempting to use their funding in the most productive manor. A change in POC has also been submitted and approved for each award that LSP currently has in place. The labs that are participating on this award have made a great deal of effort in working towards the spending process. Reimbursements will be slow for the next month or two due to it being the State's end of fiscal year. This will not slow any progress down.

Grant Progress July – December 2010:

- On December 6-9, 2010, LSPCL and sub-grantee's had the Grant Progress Assessment that was performed by the NFSTC. On January 3, 2010 the GPA was released with no findings. Two additional budget modifications have been submitted and approved for this award. Budgets are being cut across the state and labs are having harder time getting purchases approved which has slowed spending with some of the agencies. The labs are attempting to quickly navigate a smaller budget and higher requests for analysis.

Grant Progress January – June 2011:

- There have been 3 different budget modifications submitted and approved for different labs that are participating in this award. On 06/10/2011 a date extension was requested moving the end date of the award to March 31, 2012, thereby allowing ample time to complete spending. At the end of this project period there is approximately 31% of spending left to complete.

Grant Progress July – December 2011:

- There have been 4 different budget modifications submitted and approved for different labs that are participating in this award. At the end of this reporting cycle we have completed 96% of the spending. Things are moving quickly and we plan on a smooth grant closure in a few months.

Grant Progress January – March 2012:

- Most labs have completed their main portion of the award, with a few minor lingering purchases that have been completed. In this reporting cycle one final GAN had been completed allowing LSP to make budget changes giving them the ability to make their final purchases. A push for the final big purchases to be complete on time due to a few setbacks that have taken place. Each lab has used the funding to build the capacity of their crime labs and with continuing efforts this will allow for most efficient methods of DNA analyses. The additional equipment purchases, training, and other services provided through funding on this award have allowed the laboratories to maintain or build their laboratory capacities. However, along with the additional laboratory capacity and new methodologies the evidence submission rates have also continually increased. This path of productivity is projected to simultaneously increase just as the crime rates rise, leaving the laboratories to focus on developing more efficient and effective ways of analyzing, only to give them the ability to maintain current backlog rates.

The Acadiana Crime Laboratory originally identified the lack of training of laboratory personnel, as well as the need for updated equipment as a major need of the lab. The lack of service agreements on the new and in-house equipment is also an issue facing this lab. This is why their objectives include:

- Provide travel and training for several conferences or seminars,
- Increase the laboratory equipment to reduce turnaround time,
- The implementation of Service contracts with ABI and Qiagen, and
- The finally the outsourcing of approximately 40 backlogged cases.

July – December 2009: Initial budget modification has been completed. Requisitioning will begin promptly.

January – June 2010: During this reporting period, after completing two budget modifications, ACL has managed to purchase, bring in-house, and reimburse for The QIAcube and Qiagility. They have also put in place the service agreements for the 310 and the new QIAgility and QIAcube. During the month of April, ACL sent three employees to attend the LAFS conference/training held in Baton Rouge, LA.

July – December 2010: This reporting period has been active for ACL. They have purchased, invoiced and been reimbursed for a great of their requested items. There are purchases that include such as equipment requests as the DNA refrigerator, trip balances, centrifuge, storage cabinets, and the laboratory protection system. ACL has also put in place the Qiagen service agreement for the protection of an in-house QIAcube. Their outsourcing project is almost fully completed, they have outsourced, analyzed, and profiles have been returned. The final steps are to verify the results, make payment, and submit for reimbursement that is

projected to be complete within the next quarter. Finally, ACL has purchased the DNA printer that was needed, the Laptop for use in the Microscope area and 3 Justice Trax LIMS plus software licenses. Completion of this award is projected for the next reporting period.
January – June 2011: This reporting cycle has been fairly quiet due to the majority of the purchases being completed in the last period. During this cycle ACL purchased computers and accessories, some small equipment and verified all returned outsourced cases. These have all been submitted for reimbursements and payments have been forwarded. ACL has been focused on spending the funding on the 2010 Forensic DNA grant award.
July – December 2011: The final purchase arrived and this completed their activities for this award.
January – March 2012: ACL completed their award spending in the previous cycle and has since moved to their portion of the 2010 DNA award.

The Jefferson Parish Sherriff's Office – Regional DNA Laboratory has been able to increase their laboratory size by a dramatic amount. Due to space no longer being a factor JPSORDL has decided to:

- Increase the laboratory equipment to reduce turnaround time in casework reporting,
- Increase laboratory storage for samples and kits, and
- JPSORDL is also in need of supply items and reference manuals.

July – December 2009: Initial budget modification has been completed. Requisitioning began promptly following the approval of the budget.
January – June 2010: After the initial budget modification had been approved. JPSORDL began requisitioning for several of the requested items. Currently JPSORDL has received and is in the process of bringing online the Mideo forensic imaging workstation, SPEX freezer mill, Benchtop Autoclave and the AB 9700 Thermal Cycler. Requisitions are being prepared for the DNA requested computer equipment to further enhance the fluidity of the equipment.
July – December 2010: During this period spending was placed on the side due to several factors. The lab was under preparations for the move into the newly completed DNA lab that was completed. The move was scheduled for the end of September and the process of bringing the equipment back online and getting settled into the new facility. They also focused and getting staff members trained and released for casework. JPSORDL plans to move through spending in the upcoming future so that they can fully supply and equipment the new lab.
January – June 2011: Since the approved budget modification, during this reporting cycle JPSORDL has purchased almost 90% of their award. This includes the majority of items from their requested equipment, supplies and other various items. The remaining purchases are underway and expect to be completed in the near future. The JPSORDL has had a member of its staff out on maternity leave and have been waiting for her to return before beginning any of the training. Moving forward on 2010 grant purchases has also taken place.
July – December 2011: A budget modification had been completed and approved; with this in place they have almost fully completed their spending. JPSORDL has 11% remaining to complete. The items pending, such as; the Justice Trax Licenses, Computers and laboratory processing supplies have been purchased and are waiting to be received.

January – March 2012: During this final reporting period JPSORDL completed their spending. They finished this award with the purchase of Justice Trax licenses, Driftcon Thermal Cycler Probe Calibration, and laboratory workstation items such as; heat sealers and bags, barcode label printers and labels, brown paper roll dispensers and paper, and network switches. Combined with other purchased items throughout this award JPSO has had the ability to build their new laboratories capacity.

The Louisiana State Police Crime Lab originally identified one major objective with their considerable specialized backlog of 260 cases:

- Reducing DNA forensic casework backlogs through outsourcing, and
- The remaining funding will be to provide travel and training for several conferences or seminars.

July – December 2009: LSPCL has not started on this award.
January – June 2010: Initial budget modification has been completed. 21 current DNA analytical staff has attended the LAFS seminar that was held in Baton Rouge. Once the 2008 award is closer to completion LSPCLs direction and focus will be placed on creating a new budget that will better support the changes that are currently being administered.
July – December 2010: In October of 2010, 8 members of the DNA staff attended the International Symposium on Human Identification – Promega conference. A budget modification was drafted and approved that included the procurement of DNA module. This has been placed on hold due to the other funding source being towards the end of the award period and LSPCL was not confident in getting the specifications they needed in such a short time frame. Future plans are being made to use funding from the 2010 DNA Forensic Backlog Award to complete the DNA module purchase. The purchase of thermomixers is progressing and we hope to have the equipment in-house within the first quarter of the New Year. A great deal of effort is being focused on the DNA efficiency award that expires in March. Once this is completed then we can pull more attention into the DNA module.
January – June 2011: LSPCL has been focused on working through the 2008 DNA Efficiency Award and its closeout that most of our attention has been directed to completing that grant funding. Due to this direction of spending the lab used the Efficiency funding to purchase the requested Thermomixers for the lab. LSPCL did complete the Justice Trax Customization on DNA Random Kits at a cost of $9,000.00. In working through all of our current projects and tasks we have seen the need to maintain the technical staff levels that we have in place. The technicians that we brought in house have made a difference in the timeliness of processing the cases. The budget for our agency will only get thinner in the new fiscal year, leaving us in the position to move certain technical staff to grants so that we don't lose them. LSPCL is preparing to have the new technical staff work their tasks through the use of grant funds. Also, in seeing the increase in productivity we are being forced to look for better methods of monitoring, sharing, and increasing the rate of shared and stored data. With all of the spending changes that the lab has been under the 2009 Backlog grant spending will need to be re-evaluated and a budget modification submitted to reflect the changes. Some positive aspects for the laboratory are s of June 30, 2011, LSPCL completed all cases prior to 2011. The backlog reached a low of 98 cases with only 13 of those cases unassigned to a DNA analyst and all of the cases have been

screened for the presences of biological material and are ready for analysis. On average, greater than 95% of these cases are being completed in <30 workdays. LSPCL in conjunction with NOPD have also been working together on an outsourcing project to help work through a portion of the sexual assaults.

July – December 2011: LSPCL modified the spending plan for the 2009 Backlog grant to accommodate some budgetary shortfalls for this fiscal year. A budget modification was submitted and approved. LSPCL has purchased several new instruments for the laboratory. The new equipment items include the three Qiagen EZ1 Advanced XL instruments, one Qiagility liquid handler, a Crosslinker and a Stackable Fridge/Freezer combo unit for the CODIS laboratory. CODIS DNA offender collection kits were redesigned to provide for a more streamlined and automated analysis process for the processing of convicted offender CODIS samples. 10,000 kits were funded by this grant.

The CODIS Unit had exceeded its storage capacity for storing CODIS sample collection documentation that accompanies each CODIS arrestee sample. A spacesaver filing system was purchased, which has quadrupled the storage capacity for the documents. A custom designed system was installed which maximizes the available space in a safe and convenient-to-retrieve fashion.

The CODIS Hit Outcome Project has been implemented and is making good progress toward bringing closure to CODIS Hits. LSPCL has plans to continue the use of CHOP, not only with New Orleans Police Department (NOPD) as piloted, but with other agencies, eventually expanding its use throughout the state. There has been no state funds allotted for the maintenance of this software, therefore the grant funded this contract. The contract allows for continued support by the software vendor, as well as expansion and enhancement of the system. It is critical to have software support, as well as the opportunity for enhancements during implementation with additional agencies.

The FBI is upgrading the CODIS software system in 2012 to version 7.0. The new system requires a server with specific capabilities, which our current server does not have. We have used grant funds to purchase a new server, as well as updating the CODIS computers that interface with the system, that will meet the requirements. Installation will occur by March 2012.

In addition, one of the CODIS DNA analysts attended the national CODIS meeting, that there were no state funds to support. This improves development of the analyst, as well as provides valuable succession knowledge base for the CODIS Unit.

LSPCL is committed to expending grant funds in an expeditious manner that provides the best value to the DNA program, furthers the elimination of any backlog, prevents further accumulation of analysis and reporting, and promotes streamlined processing of current samples.

January – March 2012: LSPCL modified the spending plan for the 2009 Backlog grant to accommodate some additional changes for instance the inclusion of the required CODIS server upgrade. A budget modification was submitted and approved. During this period LSPCL made their final purchases of requested items. The CODIS server was purchased to accommodate the updated software system in 2012 to version 7.0. In additional to the purchase of the new server LSPCL used grant funds to update the CODIS computers that interface with the system that will meet the requirements. We were able to meet the installation date of March 2012. Due to the

large order of PCs LSPCL was able to get them at a discount rate and this gave us the ability to increase the computers that we purchased for DNA by five.
LSPCL has continued the use of CHOP, not only with New Orleans Police Department (NOPD) as piloted, but with other agencies. This was possible using funds provided through this grant. The contract that was put into place allows for continued support by the software vendor, as well as expansion and enhancement of the system. It is critical to have software support, as well as the opportunity for enhancements during implementation with additional agencies.
A great deal of the purchases for LSPCL had previously been put into place but had not been completed or drawn down. When a review of all the purchases was completed a problem had been discovered with the purchase of the Justice Trax customization contract. The contract was initialized on time; work began and continued to progress throughout the year but at the end of the last fiscal year (6-30-2011) the contract was paid in full using state funding. The grant reimbursement was not approved until all work had been fully satisfied by the CODIS. This situation put the contract payment and grant draw down in two separate accounting years for LSP and the reimbursement could not be approved. Due to this issue there was around $9,000.00 that was back on the grant budget. With some higher cost items from NLCL and other lab overages the remaining balance on the budget was decreased to approximately $4,129.00. LSPCL has learned to monitor state fiscal year spending as well as grant period spending so this problem does not arise again.
LSPCL is continually committed to the appropriate spending of grant funds in an expeditious manner as possible with the objectives to further eliminate the backlog, to prevent further accumulation of analysis and reporting, and to promote streamlining processes of current samples.

The North Louisiana Crime Lab expressed their objectives as equipment and supply issues, so they decided to spend their award portion in a couple of ways;

- To allocate funds towards the purchase of new updated equipment,
- The use a portion of funding towards the purchase of laboratory supplies, and
- The remaining funds will be used for analyst travel and training.

July – December 2009: NLCL has not started on this award.
January – June 2010: NLCL has not started on this award. They currently have been through personnel changes and are now attempting to work through their 08 award.
July – December 2010: Since the completion of the 2008 award, NLCL has been making purchase requests and working through their procurement process. They have also been preparing for one of our local forensic science meetings that are being hosted by their labs. Future goals include increasing spending on this award and drafting a budget modification for the 2010 award.
January – June 2011: NLCL has been working very hard at making all their approved purchases for this award. They have requested two separate budget modifications which have allowed them purchase the items that are best suited for their laboratory situation. A large portion of their equipment purchases have been made for such things as Qiagen EZ1 Advanced, 9700 PCR System, Driftcon Probe fixture, and centrifuges. NLCL has also purchased all of the needed pipettes through Ranin. Several software purchases have been placed and training has been

completed. This includes such things as the Drackonatas Lab FX Software, GenemapperIDX and Genemarker. The cameras, computers, and accessories have been purchased and put into place. Most of the purchases have since been reimbursed but there are a few still in process due to it being the end of the fiscal year. NLCL has projected the completion of their remaining 38% of their award to take place in the project period. They have also been focused on moving forward with the 2010 grant and planning this awards budget.
July – December 2011: After completing a budget modification NLCL quickly completed their spending. During this cycle NLCL has purchased, received and reimbursed the remaining of their supply items, also equipment items such as; the Olympus LED Microscope, AER control systems Dust collector, and the EZ1 Advanced. NLCL also put into place the Light Cycler service agreement. They have since moved on to other grant awards.
January – March 2012: The only purchase left for NLCL to draw down during this period was that of AB kits. It had been originally submitted for reimbursement with only a portion of the invoice to be paid, as it was more than their award balance but due to the draw down mistake of LSPCL, NLCL was able to get full reimbursement of their spending. This error helped out the NLCL during hard funding times as well as gave the opportunity for our state to not turn in so much in funding. They have been spending their 2010 award.

Southwest Criminalistics Laboratory expressed their objectives as equipment, service contracts and equipment validations. Training is also valued so they decided to spend their award portion in several ways;

- Funds have been allocated towards the purchase of new equipment and equipment /system updates,
- Implementing of service agreements with ABI,
- Completing equipment validations with Qiagen, and
- The remaining funds will be used for analyst travel and training.

July – December 2009: Initial budget modification has been completed. Requisitioning began promptly following the approval of the budget.
January – June 2010: SWCL has spent over 90% of their budget. They have requisitioned, received and brought online QIAgility, EZ1 Advanced XL, Micro centrifuge, and the UV Cross linkers. The requested service agreements have also been put into place, providing equipment protection and decreasing the analytical down town for repairs or service. Currently, SWCL is waiting to obtain their continuing education credits by attending the Promega conference that will be held in October. This will then fully complete their portion of the award.
July – December 2010: SWCL submitted a budget modification to make some small changes to their remaining portion of funding. The need for AC unit for the Amp room was something new that came under emergency circumstances. The room temp was affecting the instruments so it needed to be taken care of quickly. In October they had 2 staff members attend the Promega conference held in Texas. There are only a couple of purchases pending and it is predicted that this will be completed during the first part of the year.
January – June 2011: SWCL has most recently purchased the requested thermomixers, thermoblock and accessories from USA Scientific. The lab is working towards having them online for the analytical staff. The biggest issue that is faced with in this Crime Lab is space.

SWCL is trying to find new methods and ways of storing, sharing and maintaining data and case files. This would allow them to grow more substantially helping them to keep their backlogs at the low level that this lab has come to produce. Future spending is focused on producing a streamline and less paper method of record retention.
July – December 2011: They have previously completed their activities for this award.
January – March 2012: They have previously completed their activities for this award.

St. Tammany Parish Coroner's Office expressed their objectives as equipment, validations of equipment, analytical training, so they decided to spend their award portion in a couple of ways;

- Funds have been allocated towards the purchase of new equipment and equipment /system updates, and
- Completing equipment validations with Qiagen,
- A portion of funding will be used for analyst travel and training, and
- Any remaining balance will be used to bring in new computers and licenses for GMIDX.

July – December 2009: STPCO has not started on this award.
January – June 2010: Requisitioning has begun with the initial arrival of the two (2) QIAgen EZ1 XL robots. Once the requisition, purchase and arrival of the two (2) QIAgility liquid handlers are completed the validations will be performed bringing the new equipment online, to increase the lab capacity. Further purchase requests have been submitted and are awaiting agency buying approvals.
July – December 2010: The purchase of the QIAgility liquid handlers is completed and the validations have been performed. Review and in-house verification of the data provided from the validations is being analyzed and once a final report is complete the equipment will be brought online, increasing capacity. STPCO has spent 85% of their award and project that the final purchases will be completed in the next project period. They have been planning the future spending of the 2010 DNA Forensic Backlog Reduction award.
January – June 2011: Coroner Forensic Science Center, St. Tammany has recently finished the purchasing the items on the 2009 DNA backlog reduction grant. In the upcoming months once the invoices have been received and paid, we will file the necessary paperwork for reimbursement to finish the 2009 grant. The thermomixer used in the DNA extraction process has been calibrated and used in casework. It has help alleviate some of the bottle necking that was occurring in the extraction phase of DNA analysis. The validation of the QIAGEN EZ1-XL Robots is completed and the DNA analysts are preparing for their competencies. The validation of the QIAgility liquid handler is also complete; however, some of the results did not meet the requirements to release it for casework. The data for pipetting the 96 well plates for Quantitation, Amplification, and 3130 Instrument Set up was satisfactory. The Normalization of samples for amplification, however, was unsatisfactory and cannot be released for casework. The analysts training on the previous steps of the DNA process using the QIAgility is continuing and should be available to release by the end of the year. The Dri-Heat Block and 96-well adaptor is waiting calibration before it can be put into service for casework. The Milli-Q Integral 3 Water Purification System was installed this month and the procedures are being written. Now that the 2009 grant purchases are complete, we will start the purchasing on the items on the 2010 grant.

July – December 2011: The QIAGEN Advanced EZ1 XL has been put into service for case work and the temperature verification of Dry Block and Procedures submitted for implementation. They have completed their activities for this award.
January – March 2012: They have previously completed their activities for this award.

FY09 Recipient Name: City of Boston
Award Number: 2009-DN-BX-K154
Award Amount: $312,794
Final Report: *The first portion of this final report will address the goals of the BPD FY09 DNA Backlog Reduction grant based on the budget categories of the award.*

Summary of funds being used for the LIMS Administrator position as well as further implementation and customization of the BPD LIMS:
During the fall of 2010, a meeting was held with Porter Lee and members of the Forensics Group to introduce Crime Lab staff to the product as well as answer questions. Staff from the four parts of the Forensics Group at BPD (Crime Lab, Latent Print Unit, Firearms Analysis Section, and Crime Scene Response) formed a LIMS committee to assist with answering questions and providing feedback to Porter Lee about specific needs. A server dedicated to Porter Lee was established to set up a "test product" for Forensics staff to begin using.

The funds in this award are aimed at purchasing, implementing, and customizing the LIMS at the BPD, though most of the LIMS was purchased using FY08 DNA Backlog Reduction funds. Specifically, funds in this award are aimed at conversion, RMS Interface, the design of management reports, a processor license, and system configuration. These items were under the Contracts line, while the SQL Server Standard Processor License was under the supply line.

	Item Type	Description	Qty	Unit Cost	Cost
C	Management Reports Design	Customization of Management and Statistical Reports	10	$1,200.00	$12,000.00
	Conversion	4 Access Database Conversion estimate (pending review of actual data)	1	$12,000.00	$12,000.00
	RMS Interface	Optional interface to existing RMS system for automatic transfer of finalized lab results/reports (pending ODBC connection and design/scope of work definition)	1	$10,000.00	$10,000.00
	System Configuration	Includes configuration of analytical reports, evidence intake, case forms, worksheets, review process, assignment management, Image Vault set up (DNA, Trace, Chemistry, Latent Prints, Ballistics)	40	$1,200.00	$48,000.00
	Total of all costs				$82,000.00

The LIMS project was originally met with extensive delays, but with the hiring of our LIMS Administrator along with a payment schedule with Porter Lee (instituted in order to base payments on deliverables) expedited the implementation of the system. All equipment for the

LIMS system was purchased and arrived at the BPD Crime Lab during the spring of 2011. The LIMS Administrator began handling duties as the project manager and working in conjunction with the vendor to implement and configure the test system.

Before the vendors' first visit the server was configured as a virtual machine and then the OS, MS SQL Server and LIMS software were installed. The LIMS client was installed on all of the forensic division analysts' computers. The barcode scanners and printers were tested. The labs' two all in one machines were configured to scan into the LIMS

The LIMS Administrator and section leaders visited with the Massachusetts State Police to see how they are utilizing the LIMS. At the vendor's request, the LIMS Administrator created the "requirements document" defining the needs of the labs by holding meetings with each section of the Forensic Group. These meetings created a plan for the collection of data for use in generating reports and statistics. The LIMS administrator met with each section leader to design the "Panels" for data entry improving upon the departments existing worksheets. The vendor visited the BPD for the second time to review the plan and have the analysts answer questions.

The LIMS administrator has been working on configuring the LIMS, researching a DIMS/DAMS solution and assisting the Crime Lab with general tech upgrades. The LIMS Administrator has been working on integrating the LIMS with the existing evidence management system Evidence Tracker (ET) with Porter Lee, and Tracker Products, ET's producer. Work has been done to edit down the selection of "Item Types" from Evidence Tracker's massive selections and implementing them into the LIMS for a quicker input process. The BPD has been collaborating with Tracker Products to create XML forms to import and export data between Evidence Tracker and the LIMS so as to update the chain of custody of items of evidence.

Data entry "panels" have been created and are near finalization out of worksheets and workflow for the Crime Lab groups: Criminalistics, Serology, Trace and DNA. The "panels" were started for Firearms and Latent Prints and customization will continue during the beginning of 2012. Porter Lee has begun custom programming for Forensic Group sections including Latent Prints, Firearms, and Forensic analyzable signature capture to be used with Topaz Signature Pads.

Computers and Ergonomic Equipment used to mount the machines at the lab benches in the lab have been researched, quoted, and ordered. The BPD is approaching the final two payments to Porter Lee applicable to the initial contract on completion of the agreed upon work.

The LIMS administrator has been solving the daily IT problems in the Forensic Group such as properly formatting the Lab manuals, maintaining the Mideo DIMS and other machines used to store data from instruments and assisting in the upgrade for the BPD's FBI C.O.D.I.S. SQL Server.

Summary of Grant-Funded Crime Lab Staff: This grant program funded two Crime Lab staff: one forensic technologist and one Criminalist in the DNA Section. Their presence in the lab has greatly increased the efficiency of the lab, adding to the success seen in this grant program as

discussed above. Beyond those impressive numbers, these two staff were able to complete 196 cases, upload 207 profiles into CODIS, and produce 138 CODIS hits. Please read on for further information about the number of cases affected by this grant program.

Summary of Overtime funds: The casework performed and reported under the FY09 grant was generated through full time employees of the Crime Laboratory using overtime. Work performed included evaluating and screening evidence from backlogged cases with potential biological evidence, as well as performing DNA testing on biological evidence from backlogged cases submitted to the DNA section for analysis. Work performed also included technical review of backlogged cases to expedite delivery of test results to the customer, and evaluation of possible CODIS DNA hits that were backlogged. Please see performance measures for complete statistics.

The following portion of the final report will address the goals of the BPD FY09 DNA Backlog Reduction program as set out in the original application.

The goals, as stated in the BPD's FY09DNA Backlog application:

Goal One: To maintain high quality services and improve the overall efficiency of the Boston Police Crime Laboratory's DNA section

Goal Two: To improve coordination and tracking of cases across units and investigators

Goal Three: To maintain low DNA casework backlogs and maintains a low DNA casework turnaround time

OBJECTIVES	STATUS
Physical Space	
Develop physical workspace to ensure efficiency & increased productivity – increase bench & equipment space	*Completed with NIJ Capacity Enhancement funds.*
Reduce analysis turnaround time by reducing downtime/wait-time at PCR amplification step	*Purchased additional thermalcyclers through 2007 NIJ Backlog Reduction Grant; Ongoing staffing support.*
Staffing requirements	
Augment current DNA staffing by maintaining the Contracted DNA position to allow for assistance in DNA analysis & backlog reduction.	*Since 2004, NIJ Backlog Reduction Grants have supported contract analyst under this objective and the overall goal of reducing turnaround times & backlogs.*
Augment current DNA staffing by maintaining the Contracted Forensic Technician positions to screen new & cold cases for DNA analysis	*Since 2005, NIJ Backlog Reduction Grants have supported contract analyst under this objective & the overall goal of reducing turnaround times. Additional contract analyst supported since 2006.*
Training and Development	
Ongoing training & professional development	*Ongoing with Coverdell Grant base funds & limited Departmental funds)*
Equipment and technology	
Maintain Laboratory supplies to keep DNA lab functioning at optimal levels of efficiency	*NIJ grant funding to assist in the maintaining much-need supplies to augment DNA case processing & screening*
Meet optimal equipment standards; Increase equipment to maximize casework processing & reduce downtime	*Purchased Genetic Analyzer with 2005 NIJ Backlog funds; Purchased additional thermalcyclers & evidence storage freezer with 2007 NIJ Backlog funding.*
Improve lab standards for evidence storage, case file management, improved case coordination with other forensic units & detectives, & management integrity.	*A portion of LIMS system to be received under a 2008 NIJ Backlog Reduction Grant & 2007 State Community Policing Grant; Remaining LIMS system needs to be*

	met through 2009 NIJ Backlog Grant to ensure improved evidence tracking & case management.

The BPD Crime Laboratory continues to work tirelessly towards achieving the goal of maintaining an efficient, high quality lab service. Despite rising levels of violence, budget cuts, and a staff of now only five DNA analysts, the lab has been able to address backlogged cases while also quickly returning cases that are of high priority for the BPD. During 2010 and 2011, the City of Boston has seen increases in non-fatal shootings, homicides, and breaking and entering incidents that demand a large amount of forensic attention.

In spite of the numerous demands on the BPD Crime Lab, it is still the goal of the BPD to decrease the backlog of DNA samples awaiting analysis. During this award period, the BPD was able to more than cut the DNA Backlog *in half* (from 450 on October 1, 2009 to 217 as of March 31st, 2012). The BPD has also greatly reduced the time it takes to get DNA results back to the requestor, going from 235 days to just 90 days. The great progress seen in the backlog reduction can be attributed both to the ongoing physical improvements in the lab, staff training, and dedication of the analysts. It is also due largely in part due to the NIJ DNA Backlog Reduction program, which has provided staff that has been instrumental in reducing the backlog and increasing the efficiency of the BPD Crime Lab. Training and professional development of Forensic Group staff is mostly funded through the Coverdell program, though from the FY10 DNA Backlog Reduction grant forward, DNA related training will be funded through this program.

In accordance with the goals of this and other DNA Backlog grants, the Crime Lab has maintained a grant funded analyst and forensic technologist as part of the FY10 DNA Backlog Reduction program and will continue to fund them on the FY12 award once FY10 funds have been expended. The BPD will also be transitioning a cold case dedicated DNA analyst to the DNA Backlog Reduction program in order to make process on cold cases while allowing the other Criminalists to address backlogged cases on overtime. The BPD has also maintained a LIMS Coordinator as part of the FY10 grant, who has been integral in assimilating the LIMS system into BPD.

Supplies are purchased on an as-needed basis, and have not been purchased during this reporting period. When Lab staff determine it is necessary, further casework supplies will be purchased with FY10 and FY11 funds. The Crime Lab is in very good shape as far as equipment, but is close to purchasing a new Genetic Analyzer using FY11 DNA Backlog funds in order to replace a discontinued model.

On the technical side, the Crime Lab has also been improved by the purchase and implementation of the LIMS, spearheaded by the LIMS Administrator first funded under this program. The primary benefits of the LIMS is increased productivity, efficiency, accuracy, and case capacity of the Lab by reducing redundancy, errors and encouraging the observation of proper procedures, protocols, and policies. It provides an ironclad chain of custody using electronic mechanical signatures and barcodes complete with an auditing feature. It can interface with the medical examiner's office to allow bulk importing of evidence.

The LIMS provides the lab with a holistic process to simplify evidence intake, collecting general case information with notes, sequencing of multiple types of analysis, resubmissions, item sampling and automated report generation. Completed forensic reports can be accessed by the District Attorneys via a secure web site. The system also tracks lab activities such as training, research, presentations, supply ordering, billing, and equipment maintenance and quality assurance.

In conclusion, the BPD is extremely grateful to have been given the opportunity to greatly improve the services provided by the Forensic Group. Without the assistance of the grant-funded technologist and analyst, the BPD DNA backlog would be steadily increasing rather than decreasing. They greatly improve the capacity and output of the lab, some of the most important objectives of the DNA Backlog Reduction program.

FY09 Recipient Name: Massachusetts State Police
Award Number: 2009-DN-BX-K123
Award Amount: $958,640
Final Report:

This project is still in progress

FY09 Recipient Name: Anne Arundel County MD
Award Number: 2009-DN-BX-K055
Award Amount: $132,000
Final Report: GOAL: Maintain increased case output through retention of contract staffing (Biology Analyst, W2 with benefits). Maintain CODIS function through replacement of server. Increase case output through purchase of required QA/QC equipment (temperature verification unit) for validating new higher capacity thermal cyclers for DNA casework.

Report #5 (Jul-Sept 11)
PROGRESS: The award was fully expended to provide salary and fringe benefits to a full time Biology Analyst (W2 contract with benefits). Her presence was critical in maintaining case output when the DNA technical leader assumed acting Lab Director duties on August 3rd. The analyst's case output exceeded 36% (58 DNA specimens of 158) of total unit output. She also participates fully in peer reviews of casework, as well as regular quality assurance duties.

A compact freezer was purchased for storage of DNA analysis reagents in the PCR room. The previous freezer failed to maintain an adequate temperature and replacement was less costly than repair.

FINAL SUMMARY: An analyst (W2 contract with benefits) was employed as a full time Biology Analyst under this grant, proving an invaluable asset to the lab. Her case output exceeded 56% of cases completed (595 out of 1,047) and 44% of DNA samples tested (461 out

of 1,045) during the award period. At least 134 profiles were entered into CODIS and 45 cold hits are attributable to her output.
Quality assurance equipment, including a temperature verification unit for the new high-throughput thermal cyclers and a replacement freezer for storage of reagents was purchased with this award, as well as a replacement CODIS server necessary for an upgrade to CODIS 7 (scheduled for March 2012).
This award funding proved critical for decreasing unit turn-around time by 27% (from 160 days to 117 days) and the unit backlog by 27% (from 215 cases to 156), despite ongoing furloughs and scheduled maternity leave.

FY09 Recipient Name: Baltimore County Maryland
Award Number: 2009-DN-BX-K061
Award Amount: $245,479
Final Report: The goal of this project was to increase the capacity of DNA analysis and the overall efficiency of the Biology Unit for DNA case analysis. Performance measures utilized to monitor these goals were the turn around time of case analysis from the time of submission to the laboratory to the return of results to the investigator, and the average number of DNA items analyzed per analyst per month. The goal of the project was achieved by decreasing the turn around time by 33.6% and increasing the number of DNA items analyzed per analyst per month by 16.1%.

At the beginning of this grant project, the Biology Unit had three (3) DNA analysts (2 full-time DNA analysts and 2 analysts who split their time equally between serology and DNA analysis). At the close of this project, the Biology Unit had two (2) DNA analysts (1 full-time DNA analyst and 2 analysts that split their time equally between serology and DNA analysis). The turn around times fluctuated over the time period of the award. This was due to a couple of reasons. Cases are prioritized and handled based on different circumstances. Cases set for trial have the highest priority, followed by cases in which arrests have been made, then violent crimes with no suspects, followed by crimes against property with no suspects. Months that showed an increase in turn around times were because analysts did not have priority cases to complete and had the time to analyze the oldest, lower priority cases. The number of items analyzed per analyst per month continued to increase on average 18% each reporting period. The average turn around time for DNA case analysis from the beginning of the award period to the end of the award period decreased 33.6% and the average number of DNA items analyzed per analyst per month was increased by 16.1%.

This grant funding assisted the Biology Unit in the purchase of additional equipment for the previously expanded laboratory space provided for under the 2005 DNA Capacity Enhancement Grant (2005-DA-BX-K008), the 2007 Forensic DNA Backlog Reduction Program (2007-DN-BX-K112), and the 2008 Forensic DNA Backlog Reduction Program (2008-DN-BX-K024). These purchases included a Qiagen QIAgility liquid handling robot, a Qiagen EZ1 Advanced XL robot, Crime Lites (alternate light sources), a freezer for DNA evidence storage, and computer hardware and software for GMID-X software for the 3130 genetic analyzers purchased under the

2007 Forensic DNA Backlog Reduction Program (2007-DN-BX-K112). Funds under this grant were also used to network the different rooms in the Biology Unit for future automation. Document tracking software was purchased to assist the laboratory in meeting the goal of ISO accreditation in 2014. Funding also allowed three (3) DNA analysts to attend the Bode Advanced DNA Technical Workshop and one (1) DNA analyst to attend the Promega DNA symposium. Without these training funds, attendance to these meetings would not have been possible. Additional DNA analysis supplies were purchased with the remaining funding.
The continuing ongoing challenge in the laboratory is maintaining staff. At the beginning of this award, the unit had one (1) supervisor and five (5) analysts, two (2) of which were full time DNA analysts and two analysts were conducting DNA analysis 50% of their time. During the course of this grant, one full time DNA analyst resigned leaving only the equivalence of 2 full time DNA analysts doing case work. This resignation resulted in two vacancies in the Biology Unit. One analyst who filled one vacancy in September 2011 is in training and should pass competency tests in 2012 for serology and DNA case work. Interviews are ongoing to fill the remaining vacancy.

Another ongoing challenge is the County's procurement process. It takes months for most requests to work their way through the system before permission is granted for purchase or award of a request to a vendor. For example, it took seventeen (17) months from the time the request for the outsourcing of the Quant Duo validation was submitted to the time of the award, including 4 months of legal wrangling with the vendor over the terms of the contract. It took an additional two (2) months for the vendor to come into the lab to conduct the on-site validation experiments. Although the on-site validation was just completed in June 2011, the teach back did not occur until close to the end of this award period. Part of the validation and teach back included the GMID-X computers and software. Validation data review, the writing of comprehensive operating procedures, and competency testing of the analysts must occur before the system is approved for case work analysis. Since the implementation for case analysis of the genetic analyzers needs to occur first, the robots purchased with this grant have not been validated as of yet. Funding exists in subsequent awards to outsource the validation of the robots. Outsourcing validation projects is of paramount importance because it permits the analysts to devote their time to case work analysis.

The acquisition of the equipment, the computer hardware and software, the funds for outsourcing validation, and the funds for training provided in this grant were valuable to support to the expanded Biology Unit space and personnel. The goal of increasing capacity and the overall efficiency of the Biology Unit has been accomplished. These accomplishments would not have been completed without the funds awarded to this agency through this grant program.

FY09 Recipient Name: City of Baltimore
Award Number: 2009-DN-BX-K096
Award Amount: $438,696
Final Report:

Goal 1 – To increase the capacity of the DNA Lab by purchase of automated equipment (QIA Symphony).

- As a means to further improve throughput, the DNA laboratory endeavored to add a new robot to the current work flow as a goal. The QIA symphony was selected due to familiarity with the chemistry and the performance record of existing earlier models. We are now in the final stages of the validation, resolving some minor issues with the manufacturer, but performance does appear to meet expectations. We expect the outstanding issues to be resolved in the next few months, easily doubling the current throughput in the initial implementation. Future work to develop protocols for quantitation and reaction setup will only further multiply our capacity. . Goal completed

Goal 2 – Increase capacity of DNA Lab staff through the use of overtime funding.

- Progress –Overtime funding is the most cost effective way to increase the laboratory capacity for labor requiring activities. Staff already trained in laboratory processes and protocols can immediately be productive, without additional investment in training or new procedure development (such as evidence handling for outsourcing or training on new equipment). The impact of this grant has been significant, particularly in the area of case administrative and technical review, where without overtime the case backlog would have been much less manageable. Goal completed

Goal 3 – Fund 2 fulltime casework technicians to support the DNA Lab

- Progress – Training new staff is always a challenging endeavor, but necessary for a growing laboratory. This goal enabled the laboratory to hire two staff members as assistants to Analysts, further assisting in the backlog. Although the training period reduced productivity, after completion of the program they made a significant. Goal completed

Goal 4 – Purchase supply items to support DNA Lab.

- Progress –Besides staff and facilities, supplies are the third most important required part of the casework production formula. Without supplies, testing activities would cease. This grant funded ongoing activities during a time of significant economic turmoil for many jurisdictions. These supplies insured that the BPD-CL could go forward with improvements (such as new amplification chemistry validation) without impacting current work. Other supplies purchased from this grant (computer video cards and displays) were designed to improve analyst data efficiency. Some purchase funded ongoing casework analysis materials (scissors, forceps, lab coats). Goal completed

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FY09 Recipient Name: Maryland State Police
Award Number: 2009-DN-BX-K060
Award Amount: $351,908
Final Report:

- Goal – Reduce the DNA casework backlog, reduce forensic DNA sample turnaround time, and increase throughput of the DNA laboratory within the Forensic Biology Section.
  - Progress – During the reporting period the DNA casework backlog decreased and the number of samples analyzed per analyst per month increased. However, the turnaround time increased due to a large number of older cases being reported during the final month of the reporting period.
  - Final Report – Over the course of the grant the DNA casework backlog decreased by 279 cases (70%), the number of samples analyzed per analyst per month increased by 29 samples (270%), and the turn around time did not significantly change.

- Objective #1 – Eliminate the current DNA casework backlog.
  - Progress – During the reporting period a total of 1 case was outsourced, reviewed, reported, and paid from this grant.
  - Final Report – Over the course of the grant a total of 93 cases were outsourced, reviewed, reported, and paid from this grant. From these 93 cases a total of 82 DNA profiles were entered into CODIS resulting in 18 hits.

- Objective #2 – Continue to build infrastructure through knowledge and technology.
  - Progress – During the reporting period 1 text book was purchased for the Biology Section. Also, 5 new pipettes and 1 thermal shaker were purchased.
  - Final Report – Over the course of the grant training events for 11 individuals and a total of 5 text books were funded from this grant. Also, 8 replacement computers, 3 mobile lab tables, 14 pipettes, 6 micro-centrifuges, 1 vortex, and 1 thermal shaker were purchased.

- Objective #3 – Implement measures to most effectively handle challenged samples.
  - Progress – During the reporting period 1 UV meter was purchased to calibrate the UV crosslinkers.
  - Final Report – Over the course of the grant 6 new alternate light source flashlights were purchased for the Biology laboratory and 20 new alternate light source flashlight kits were purchased for use by crime scene personnel to assist with locating and collecting biological evidence. In addition, 2 UV crosslinkers and 1 UV meter were purchased for the purpose of exposing consumables to UV light in order to inactivate any spurious DNA that could otherwise cause contamination issues with challenged samples.

FY09 Recipient Name: Montgomery County
Award Number: 2009-DN-BX-K085
Award Amount: $100,663
Final Report: Three main goals were set for this grant: reduce the average number of days between submission of a DNA sample for analysis and the delivery of the test results to the Detective, increase DNA analysis throughput for the analysts and to reduce the section's backlog.

The following equipment was purchased under this grant to increase the section's capacity to process more DNA samples at a time, reduce the turnaround time and in the end decrease the overall backlog of cases.

CODIS replacement server, additional client and data cartridges = the server upgrade was a necessity to enable our system to be compatible with the current software upgrade occurring in 2012, the additional client was extremely useful so that we have two workstations for analysts to utilize the CODIS programs and the data cartridges were needed to perform critical backups of our data and maintain them off-site to comply with accreditation requirements

Leica microscope, digital camera adapter, graticule and stage micrometer = the addition of another microscope for sperm searching was helpful with the addition of two new analysts and the digital camera adapter, graticule and stage micrometer allow for sperm to be captured for a case file if necessary along with a form of measurement

Crime-lite white light with magnifier = this addition now has ensured that each analyst has the ability to screen items of evidence for minute staining simultaneously

Digital cameras, cases and flash memory cards = each analyst now has the ability to screen evidence and photograph it for the each case file simultaneously

Set of pipettes, vortex mixers and microcentrifuges = this equipment has increased the number of extraction workstations available to the analysts so that more than one analyst can extract at the same time in the laboratory

Two thermoshakers = the addition of thermoshakers is needed for our current validation project involving Qiagen extraction chemistry along with adding QIAcubes to automate our extraction procedure, the validation project is finally underway and expected to be completed in early spring 2012, this project will certainly increase the number of samples to DNA analysis by removing the intensive hands-on procedure of organic/microcon currently in use by the section

Post-amplification robot tip chute and NIST-traceable weights = the tip chute encloses the tip dispense step performed by the robot which is preferred since this robot is handling amplified DNA and the weights are utilized during the semiannual gravimetric pipette check to ensure the calibration of the balance used during this procedure

Driftcon Temperature System = this system was purchased to decrease the amount of time being spent to perform quality control checks on our thermal cyclers, this unit has not been implemented into our section to date, this validation process will begin in early 2012

Automatic page counter and scanner = the page counter is being used for each case file and replaces the analyst from hand counting each and every page and the scanner has been extremely useful in copying case files for discovery and eliminating the need for numerous binders of paperwork for multiple QC checks

Lab and office chairs = with the increase in analysts, additional chairs were desperately needed so that each analyst had a chair in an appropriate working condition for the office and each workstation within the lab areas

Lab safety videos = updating the safety videos enabled the safety training program for the two new analysts to greatly improve and become current in addition to providing a great refresher for the current analysts in the section

PowerPlex 16 Hot Start Kits = Promega's amplification kits were purchased and the internal validation required was started for this kit implementation into the section, required studies involving sensitivity and reproducibility are nearly completed and the remaining portions of this validation will be completed in 2012, this kit will then replace our current PowerPlex 16 Kit

Funding to complete the 2008 DNA backlog reduction grant for DNA Software package from Bode Technology = the section is currently working with Bode Technology on customizing this software package to fit our DNA analysis procedures and the final product will be implemented in 2012

Funding to complete the subscription for scientific literature = this subscription has increased the journals from which articles are routed for annual review by the analysts in the section

Funding to attend 22nd International Symposium on Human Identification by Promega = Four analysts were able to attend this annual conference in addition to each attending a different workshop session, this training fulfilled the annual training requirement for DNA analysts in addition to providing updated information on various DNA topics such as rapid field testing and upcoming changes to CODIS loci are just examples of a few topics covered

Overall this grant has been utilized to purchase additional equipment to outfit the growing needs of the section. As a result of adding additional analysts and adding more work areas within the section, the three main goals set forth in this grant have been met.

- Turnaround time has decreased by 47 days
- Sample throughput has increased by an additional sample per analyst
- Section's backlog reduced by 52 cases

FY09 Recipient Name: Prince George's County
Award Number: 2009-DN-BX-K073
Award Amount: $342,847
Final Report: Our first goal was to reduce our backlog by 225 cases.
Progress: To date, we have outsourced and received 224 cases, one case shy of our goal. This was due to the number of evidence sample associated with some cases. 145 of these cases have been reviewed with 79 cases still in the review process. 11 CODIS hits have been recorded. Of these hits one was from a 1991 homicide cold case. Another was from a 2007 sexual assault

where the individual committed suicide once the suspect was aware that a warrant was out for his arrest. One of our main focus was that of our sexual assault backlog. We have been able to outsource and reduce this backlog by half of our original number.
Our second goal was to add a document management system.
Progress: The document management system has been delivered. The system was implemented and is in use at the laboratory. This system has allowed the laboratory to streamline its documents and capture all administrative documents in one location.
Our third goal was to utilize fund for overtime to assist in the reduction of our backlog.
Progress: Overtime funding has allowed the laboratory to upload into CODIS 28 profiles from 145 cases that were analyzed and reviewed with funds directly related to this grant award. This grant has also allowed us to enter into CODIS 47 profiles that were analyzed with funds from a previous grant but reviewed with overtime funding from this award.

FY09 Recipient Name: Maine State Police
Award Number: 2009-DN-BX-K159
Award Amount: $99,483
Final Report:
1/1/10 - 6/30/10

The goal set for this solicitation was for a fulltime DNA Analyst to average 17 cases tested per month yielding a yearly total of 205 cases. There is also $10,377.30 for DNA supplies.

One of the homicide cases influenced by this funding involved an unknown suspect that killed three people, including a 10 year old boy. This grant funded analyst was a key to solving this crime as she matched DNA profiles found on critical evidence to a person of interest. It was these matches and a fingerprint match that gave the evidence necessary to make an arrest before he potentially killed again.

The Maine State Police Crime Laboratory only recently (2/21/10) began working under the NIJ FY 09 Forensic DNA Backlog Reduction Program Formula Grant whereas we were still using FY08 funds until then. The numbers reported for cases completed, CODIS profiles obtained and CODIS hits using funding from this grant only reflect cases completed since 2/21/10.

7/1/10 - 12/31/10

For this period the analyst completed 61 cases. This is below the predicted average of 17 cases per month. I do believe that the analyst is working at a very acceptable level producing high quality work and just feel that the prediction was too aggressive.

One of the CODIS hits came from a glove tip left behind at a burglary in which over $10,000 worth of items were taken. This profile hit against a Maine convicted offender profile in the database. The suspect is being looked at for additional burglaries at this time.

Another forensic DNA profile entered into CODIS from this grant funding is from a rape

case in which a stranger broke into a house and held the victim at knife point. The investigators have obtained a John Doe warrant for the arrest of the suspect for when the profile presumably hits against a convicted offender.

There are a relatively small amount of DNA supplies left to be purchased under this grant.

1/1/11 - 06/30/11 FINAL REPORT

For this 6 month reporting period the analyst completed 77 cases. The funding did not last the entire reporting period. It ran out on 5/28/11 at which time the analyst was moved to the 2010 DNA Casework Backlog Reduction Grant. Work completed after 5/28/11 is being reported in that grant. The analyst supported by this grant completed a total of 161 cases from the start of the grant until the finish (some with grant funded supplies and some with other supplies - see metrics). That is below the predicted 205 cases but I do believe that the prediction was too aggressive, especially considering the number of samples per case and time off/training.

If not for this funding the backlog at the end of this grant period would be 559 instead of 398. These cases completed included some high profile cases such as the triple murder mentioned above in which the suspect was at large and unknown until the DNA match. However, it also included many other crimes against people cases such as gross sexual assaults and aggravated assaults and robberies. We have been able to catch up our crimes against people cases in large part due to grant funding and now keep caught up with these cases.

We are now getting to our property crime cases which are mostly burglaries. You will note that our turnaround time has gone up significantly with this report despite the backlog going down. This is a phenomenon that is created by the manner in which we produce the report for turnaround time in which cases that are unassigned do not get factored in: Date Report Administratively Reviewed - Date Analysis Requested = Days between Submission and Delivery of Results. As we complete these oldest cases now, future turnaround times will go down once we will be working on the newest cases again.

Finally, we were able to purchase $10,377.30 of DNA supplies with this funding to support some of the testing done above. The stats are more detailed in the metric section under questions 7, 8 and 9.

FY09 Recipient Name: State of Michigan
Award Number: 2009-DN-BX-K126
Award Amount: $2,466,470
Final Report:

This project is still in progress

FY09 Recipient Name: Hennepin County, Minnesota

Award Number: 2009-DN-BX-K127
Award Amount: $116,521
Final Report: The following goals and objectives were set for this award:

- Goal 1 – Increase capacity from 45 DNA samples per analyst per month to 68 DNA samples per analyst per month. This will be accomplished by increasing through put using a 3130 CE instrument and adding another thermalcycler. This new instrumentation will complement the automation recently put into service.

    - Progress from Report 1: (Q4 2009) A quote for the CE instrument and thermalcycler has been requested and received. No other activity during this reporting period.
    - Progress from Report 2: (Q1 2010) A sole source request was prepared and submitted to Hennepin County Purchasing for a Applied Biosystems 3130 Genetic Analyzer and a 9700 thermalcycler. No other activity during this reporting period.
    - Progress from Report 3: (Q2 2010) Hennepin County purchasing has encountered problems with the contract and quotation language associated with this purchase. Hennepin County purchasing has held up the procurement of these instruments until the offending language can be removed. Applied Biosystems has been cooperative in this process, but purchasing has been extraordinarily slow to move this forward. It is expected the purchase will be complete in the third quarter of 2010. A vacuum centrifuge was purchased during this reporting period. The vacuum centrifuge will be used to evaporate liquid from DNA samples to increase the concentration of DNA and provide a faster method sample concentration of low level samples. The validation of this instrument has begun during this reporting period and is expected to be complete early in the third quarter of 2010.
    - Progress from Report 4: (Q3 2010) Performance checks were completed for the 3130 and 9700 thermalcycler during this period. Bringing the 3130 on-line will provide sufficient CE capacity for our laboratory for the next several years. It also promotes better use of batch processing and allows the lab to process our high volume samples faster and more efficiently. The 9700 provides the additional instrument to ensure that samples do not spend time waiting for a thermalcycler to become available.

During this reporting period backlogs were reduced considerably (32% reduction). Much of this can be attributed to the implementation of previously incorporated automation and improved process controls as well as the addition of equipment purchased as part of this grant. The Hennepin County Crime Lab was award funds to increase the number of analysts in the DNA lab as part of the ARRA Program. The lab added 3 DNA scientists, 2 biology screeners and clerical support as part of this program. All of the performance metrics reported from the 3rd quarter on will have this additional component.

    - Progress from Report 5: (Q4 2010) Two additional rotors were purchased for the vacuum centrifuge to better accommodate the type of tubes and plates the section is using. Overall section backlogs have been reduced from 465 requests at the beginning of the reporting period to 333 at the end of this reporting period, a reduction of approximately 28.4%.

Turn around times from violent crime requests have shown a significant decrease from 97.5 days at the beginning of the reporting period to 46.2 days at the end of this reporting period, a reduction of 52.6%. Property crime turn around times have shown a reduction from 164.6 days at the beginning of the reporting period to 65.5 days at the end of this reporting period. Overall reduction in property crime turn around times is 60.0%. The information included in the metrics above is an average value of turn around times.

- Progress from report 6: (Q1 2011) During this reporting period approximately $15,000 in supplies were purchased in order to replenish the stock of supplies used during the preceding year in which backlogs were dramatically decreased and analyst productivity was increased. Due to the implementation of the capability building and backlog reduction program described in the program proposal, funding for supplies was requested in order to insure adequate resources to perform DNA testing on additional cases.

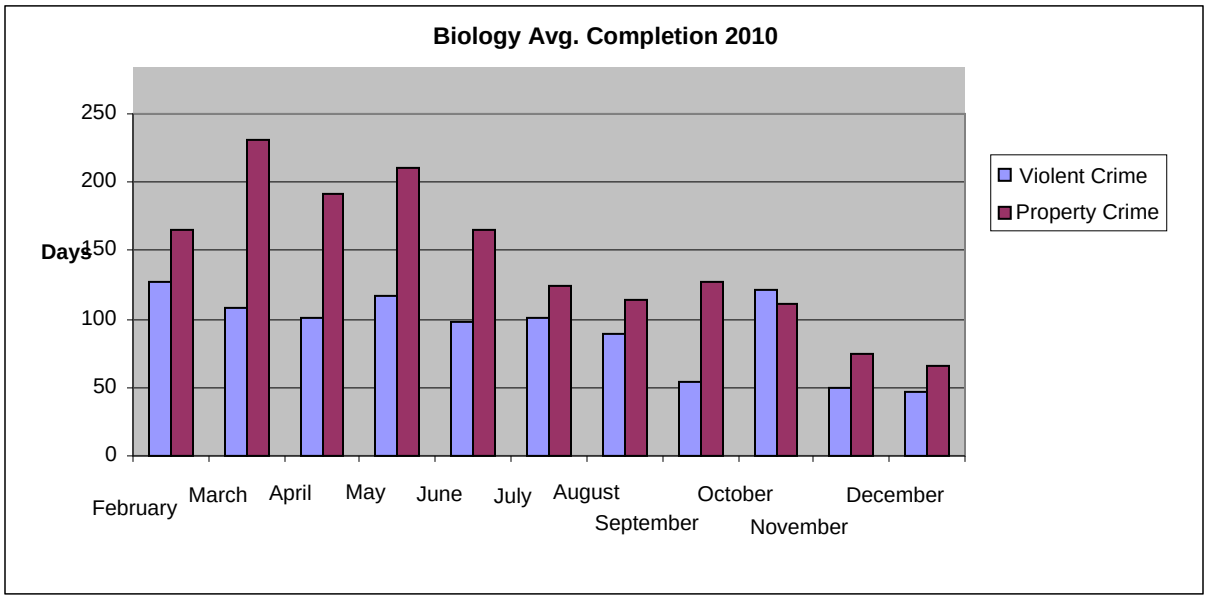
Since supplies were purchased during the end of the project period, a select number of cases opened during the months of February and March, 2011 and completed by the end of March, 2011 were identified as having been directly affected by grant funds and were thus considered as having been worked as a result of funding from this grant. A total of 13 requests were worked using funds during the indicated time period.

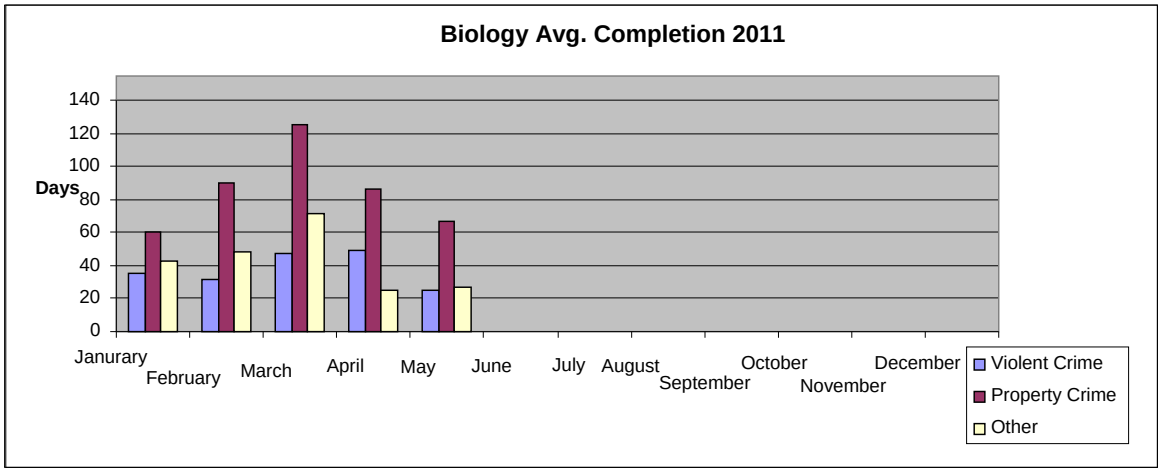
Case Number	Offense	CODIS Upload	CODIS Hit
11-0008	Asslt. –Sex	0	0
11-0190	Weapons	0	0
11-0270	Asslt –Sex	1	0
11-0332	Robbery	1	1
11-0217	Burglary	0	0
11-0250	Misc.	0	0
11-0237	Burglary	0	0
11-0242	Burglary	0	0
10-0592	Burglary	0	0
09-1134	Burglary	0	0
11-0563	Narcotics	0	0
11-0212	Assault	0	0
11-0219	Burglary	0	0

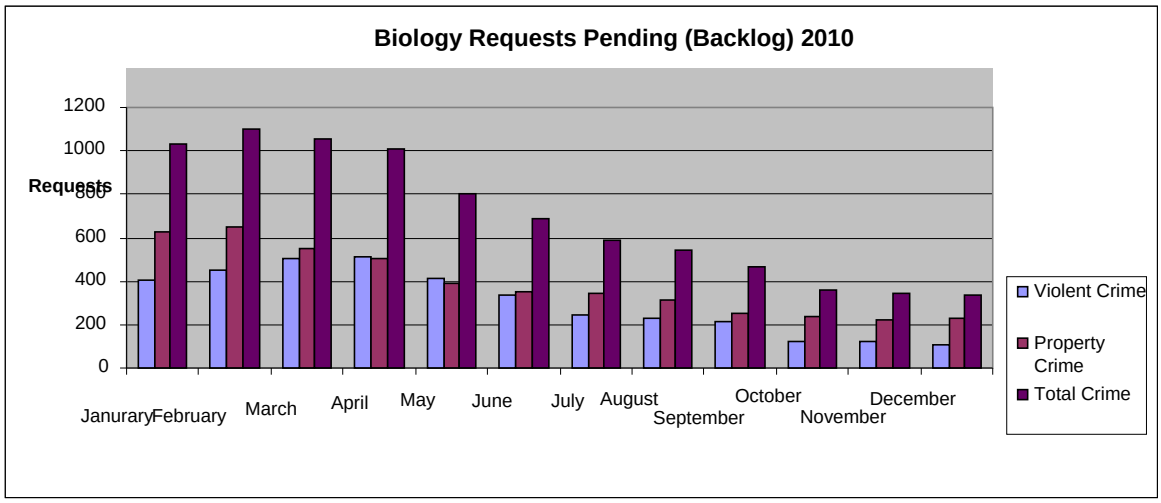
The Graphs below provide a visual representation of reductions in request backlogs and average turnaround times for the various categories of crime.

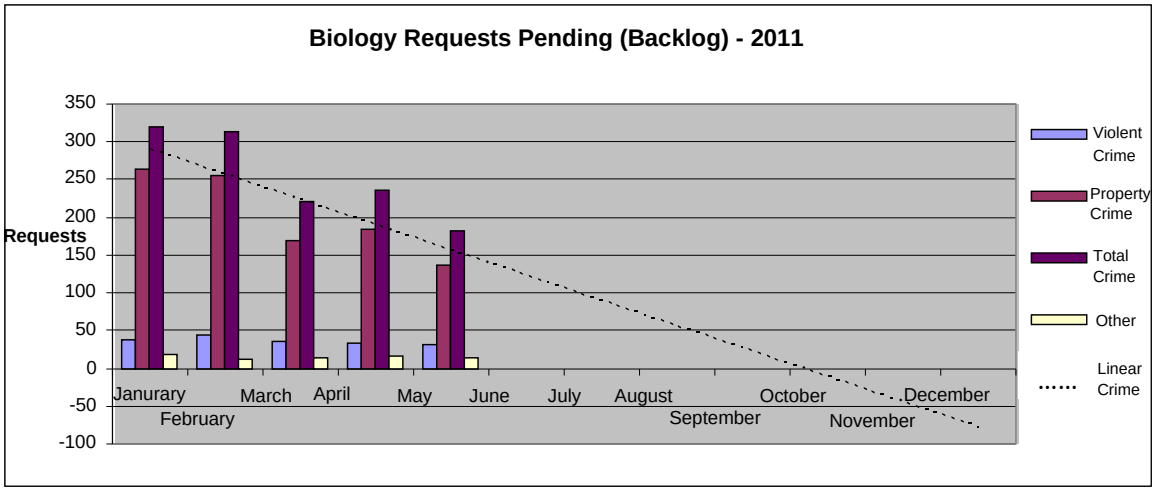
All told, from the beginning of the grant project period to the end the HCSO lab reduced requests by almost 65%.

This document presents final grant reports report submitted to the U.S. Department of Justice. These reports have not been published by the Department. Opinions or points of view expressed are those of the authors and do not necessarily reflect the official position or policies of the U.S. Department of Justice.









The preceding graphs represent the monthly progress made by the laboratory in both backlog reduction and in turn around times.

Final Progress

- Goal Status: The procurement process for instrumentation has been delayed due to a contract language issue raised by Hennepin County Purchasing. It is anticipated this issue will be resolved early on during the third quarter of 2010 and the purchase of this instrumentation can be finalized shortly after.
- In the second quarter of 2010 the number of DNA samples worked per analyst per month rose from 45.2 at the beginning of the grant period to 77.9 at the end of the second quarter of 2010. Backlogged cases were also reduced substantially during the same reporting period. Process improvements and automation equipment recently brought on-line are the driving factors for the increase in analysts' productivity.
- During the second half of 2010 the number of DNA samples analyzed per scientist per month averaged 47.3. This was a significant decrease compared to the previous three months. The decline can be attributed to several factors: 1) Validation of new DNA

chemistry (Identifiler Plus) has diverted staff and resources to this time consuming project. 2) The lab has seen a leveling of high volume submissions. However, we are currently working with law enforcement agencies to determine the extent of the need for DNA processing on high volume crimes anticipated in 2011. The lab has the capacity in place and will be able to meet all of the programmatic goals for the project.

- Final Status Goal 1: The lab was able to increase amplification and CE capacity by adding a 3130 Genetic Analyzer, thermalcycler and vacuum centrifuge to our operation. The lab did see an increase in analyst productivity from 45.2 to 51.6 DNA samples per analyst per month, an increase of approximately 14%. We did not reach the anticipated goal of 68 DNA samples per analyst per month. Several reasons may account for not reaching the goal. 1) The length of time to procure large equipment severely reduces the amount of time the lab has the instrumentation available. Most productivity gains are realized after the project period has expired. 2) The lab started a large validation project at the end of 2010 and into 2011. Many hours of staff time had to be devoted to this project and impacted the overall analyst's case productivity numbers. 3) It appears demand for DNA testing in Hennepin County has begun the plateau and the lab may have been too aggressive in projections for the number of requests and samples requiring DNA testing.

- Goal 2 – Decrease the Biology sections case backlog by using approximately $11,000 of funds to purchase supplies to be used for in-house casework. Reduce the case completion cycles from approximately 123 days to 76 days on average.

  - Progress from Report 1: (Q4 2009) No activity during this reporting period.
  - Progress from Report 2: (Q1 2010) No activity during this reporting period.
  - Progress from Report 3: (Q2 2010) No activity during this reporting period.
  - Progress from Report 4: (Q3 2010) No activity during this reporting period.
  - Progress from Report 5: (Q4 2010) No activity during this reporting period.
  - Progress from Report 6: (Q1 2011) the lab purchased approximately $15,000 worth of supplies required for a DNA testing laboratory including PPE, pipette tips, scalpel blades, trays, foil covers, tubes and capillary arrays. The lab also purchased replacement packs for the labs water purification system.

  - Goal Status: Awaiting release of funds hold. No activity this during this reporting period
    - The lab will be using this funding during the first quarter of 2011 and will be able to report activity on the final report.
    - Final Goal Status: Goal was to reduce turn around times to 76 days on average and backlog reduction to 195 requests. Cleary, capacity enhancement, turn around times and backlog reduction go hand in hand. Final turn around times at the end of the grant period was 106 days and backlogged requests were 220. Both are lower than the expected performance measures originally projected at the end of the project period. However, the number of backlogged requests is within 25 requests of the projected value and overall a significant 60% reduction. As stated

in earlier progress reports, support in the form of additional personnel from an ARRA grant also contributed to the backlog reduction.

Turn around times decreased by approximately 13.8% during the project period. Actual turn around times was longer than the performance measures originally projected at the end of the grant period. Again, due to a large validation experiment staff scientists were unable to process as many requests as predicted and thus the smaller reduction in turn around time. It should be noted that during this project period the lab completed 2250 requests for DNA analysis. During the previous 18 month period the lab reported slightly more than 1100 requests for DNA analysis. Request output has more than doubled since 2008.

FY09 Recipient Name: MN Department of Public Safety
Award Number: 2009-DN-BX-K158
Award Amount: $568,899
Final Report: The BCA Laboratories in St. Paul and Bemidji utilizing funding from the 2008 DNA Backlog reduction grant until March 31, 2010. The 2008 grant was used to achieve essentially the same goals stated in the 2009 grant. For that reason, funding from the 2009 grant had not been utilized until March of 2010
The overall goals of the 2009 grant are to identify and reduce the number of backlogged DNA cases and support activities that contribute to high quality work in the DNA area. The plan outlined to accomplish these goals, along with the progress of each plan are listed below.

Plan of implementation

1. Identification and removing bottlenecks in DNA analysis process.
   Report for January – June, 2010 - At the time of application for the 2009 Grant, the BCA had planned to purchase additional Maxwell 16 robots to increase the capacity for extracting DNA samples in variety of case types. The lab had purchased a number of Maxwell robots with previous grant funding and those instruments are now on-line in the St. Paul Lab and have had a noticeable effect on the number of samples that can be extracted in a short amount of time. The lab is now in the process of evaluating whether additional Maxwell robots would provide greater output efficiencies vs. the affect introducing an automated liquid handling system into the DNA casework protocol. The Lab has been performing an in-house evaluation of the Qiagility system from Qiagen for the last several weeks. If it is determined that the addition of a liquid handling system would have a greater effect on productivity, we will submit a GAN that would seek to purchase that system instead of additional Maxwell robots. Progress: The lab is finalizing its evaluation of the liquid handling system.
   Report for July – December, 2010 – After evaluating the possible use of a liquid handling system during the previous reporting period, the BCA Laboratory submitted a GAN requesting the removal of Maxwell 16 robots from the equipment category and replacing them with the purchase of two liquid handling units. After the GAN was approved in August, the laboratory issued a solicitation

for two liquid handling units. QIAgen was awarded the contract and two QIAgility liquid handling systems were delivered, one to the St. Paul Laboratory and one to the Bemidji laboratory, in December, 2010. QIAgen also provided training to BCA staff on these instruments in December.

The lab also moved forward on the trade-in of an AB7000 Real-Time PCR instrument for a new AB7500 instrument as was included in the original grant proposal. The AB7500 was also delivered to the St. Paul Laboratory in December, 2010, with set-up and training scheduled to occur in January, 2011. With the purchase of the three instruments, the laboratory has exhausted the funding in the equipment category of the budget. The Lab has assigned individuals who will be responsible for the validation of the new equipment and implementing their use in casework.

Final report – The validation of the AB 7500 is nearing completion. At the writing of this report, the Technical leader estimated that the validation is approximately 75% complete with an estimated completion date of July 1, 2011. The validation of the QIAgility liquid handling system is in the beginning stages. The staff assigned to the project is in the process of designing the validation study based on the expected uses of the instrument. The study will most likely be completed in stages, so that the instrument can be introduced into the DNA analysis process as that part of the process is validated.

2. Increase personnel capacity by funding overtime hours for scientists to work on backlog cases.
   Report for January – June, 2010 - Progress: An overtime budget has been setup and is in use. Work has been performed in approximately 250 cases using overtime funded by the grant during this reporting period. This portion of the program will continue until all funds budgeted for overtime have been consumed.
   Report for July – December, 2010 - The laboratory exhausted the funding in the overtime category of the budget in September, 2010. During this reporting period, a portion of 96 cases were analyzed using overtime funded by the grant.
   Final Report – No overtime hours were claimed during the final three months of the grant period. Overall, lab staff worked on part or all of a total of 346 cases using overtime funding from the grant.

3. Increase personnel capacity by funding a temporary support position.
   Report for January – June, 2010 - A position had been created whose job responsibilities include performing quality assurance checks on regents and assist with validation of new technologies. The individual who held the position under the previous grant has accepted a permanent position with the BCA. Therefore, the position had to be posted and filled. Progress: During this reporting period, a qualified candidate was chosen and that person started in the position on 06/23/2010.
   Report for July – December, 2010 – The temporary position has been occupied for the duration of this reporting period. The job duties for this position include QC

checks on all critical reagents, reagent preparation, maintenance checks on equipment and support of validation studies on new instrumentation. This support position continues to be one of the most effective parts of the backlog reduction program, as it allows case working scientists to spend more time on the bench.

Final Report – The support position funded through the grant was occupied since June of 2010. This position has proven to be very beneficial for the laboratory in both a quality and efficiency stand point. The incumbent performed and documented most routine quality control procedures and prepared reagents for both the St. Paul and Bemidji laboratories. He also participated in the validation of instruments that were brought on-line during the grant period.

4. Support the analysis of DNA cases through the purchase of consumable supplies used in DNA analysis.

   Report for January – June, 2010 - Progress: Approximately $241,946 has been utilized to purchase supplies during this reporting period. The supplies consisted of higher cost amplification and quantification kits as well as lower cost consumables such as test tubes, pipette tips and gloves.

   Report for July – December, 2010 – During this reporting period, the Laboratory utilized approximately $103,838 of grant funding for the purchase of consumable supplies which brings the total supply expenditure for the grant to approximately $346,784. No further supply orders with 2009 grant funding are anticipated.

   Final report – An assessment of the grant budget determined that there were savings of approximately $30,000 in other categories, including Personnel, Equipment, and Contracts. We determined that spending these savings on supplies would meet our needs and the goals of the grant. Therefore, a total of $30,619.69 was spent on supplies during the final three months of the grant. This purchase brings the total expenditure of grant funding on supplies to $377,404.53 for the grant period.

5. Support of DNA casework through the funding of service contracts to ensure that the instrumentation used is maintained in good working order and repairs are made in a timely manner.

   Report for January – June, 2010 - Progress: All genetic analyzers and real time PCR instruments in use for casework are currently covered, either under a service contract or under warranty. The contracts will be funded with this grant from this time forward until the end of the grant period.

   Report for July – December – 2010 – Service contracts are still in place to ensure that all instruments relied on for casework are covered through the remainder of the grant period.

   Final Report – All instruments that were in service for casework were covered either by warranty or service contract during the entire grant period. As a result, all instrumentation was received an annual maintenance check and the lab was able to have any needed repairs performed in a manner to minimize the downtime for that instrument.

6. Support the continued quality of work by providing funding for DNA scientists to attending training events.
   Report for January – June, 2010 - During this reporting period, one scientist attended the American Academy of Forensic Sciences Annual Meeting in Seattle, WA. In February, during that time, she attended a workshop on the Identification of Human Remains. Progress – The Lab is assessing other training opportunities for scientific staff. This part of the program is on-going.
   Report for July – December, 2010 – Two Biology staff members, one from the St. Paul Lab and one from the Bemidji Lab, attended the Promega Human DNA Symposium in San Antonio, Texas the week of October 11, 2010. No further training expenses are anticipated with grant funding.
   Final report – No BCA staff received any training using grant funding during the final three months of the grant period. A total of three scientist attended training events during the grant period, as indicated in previous progress reports.

FY09 Recipient Name: MO Board of Police Commissioners
Award Number: 2009-DN-BX-K138
Award Amount: $425,877
Final Report: The following goals and objectives were set for this award:
The goal of this grant program was to decrease the backlog of cases awaiting DNA analysis at the Kansas City Police Crime Laboratory while also effectively reducing the turnaround time for analysis and increasing the throughput of the DNA section.

Objective 1 – To utilize grant funded personnel and overtime for laboratory personnel to decrease the backlog of cases awaiting DNA analysis.

- Progress Jan-Jun ‘10
  - 790.2 hours of overtime were used to screen 81 cases and analyze and report 101 DNA cases. 58 of those DNA cases were screened using grant funds, therefore 43 unique DNA cases were analyzed during this reporting period.
  - Five grant-funded positions were employed screening a total of 155 cases for biological evidence.
    - Two contract employees screened 87 Violent Crimes and 34 Non-Violent Crimes for biological evidence.
    - One contract employee screened a total of 34 cases for biological evidence and is currently in training to assume DNA analyst duties.
    - The remaining two contract employees completed screening training this period.
  - A total of 216 cases were screened using overtime hours or by contract employees and a total of 43 additional unique cases were analyzed for DNA for a composite total of 259 cases completed during this reporting period.
  - It should be noted that a new laboratory wide LIMS system was implemented in April 2010. The number of cases worked has slowed following this

implementation as analysts learn the new system. As a result, the backlog has increased in the last three months. It is anticipated that analysts will be able to work more cases per month under the new LIMS system as they become more familiar with it, therefore, the backlog may continue to rise for a while, but should decrease after the learning period is over.

- Progress Jul-Dec '10
    - 1031.6 hours of overtime were used to screen 73 cases and analyze and report 72 DNA cases. 23 of those DNA cases were screened using grant funds, therefore 49 unique DNA cases were analyzed during this reporting period.
    - Five grant-funded positions were employed screening a total of 293 cases for biological evidence. One employee is currently in training to assume DNA analyst duties.
        - Two contract employees screened 64 Violent Crimes and 73 Non-Violent Crimes for biological evidence.
        - The remaining three contract employees screened a total of 156 cases for biological evidence.
    - A total of 366 cases were screened using overtime hours or by contract employees and a total of 49 additional unique cases were analyzed for DNA for a composite total of 415 cases completed during this reporting period.
- Progress Jan-Jun '11, Final totals
    - 1821.8 hours of overtime were used to screen 154 cases and analyze and report 115 DNA cases. Both exceed the goal of 35 cases screened and 90 DNA cases reported.
    - Two contract employees screened 151 Violent Crimes and 107 Non-Violent Crimes for biological evidence. This is 9 less violent crimes and 7 more non-violent crimes than the goal.
    - The remaining three contract employees screened a total of 190 cases for biological evidence.
    - All contract employees complete their training.
    - Goal Completed

Objective 2 – To purchase and implement specific pieces of equipment and supplies to increase the capacity of the DNA Section.

- Progress Jan-Jun '10
    - The Universal Power Supply for the SDS 7500 was procured and placed into service.
    - The Autoclave was procured and placed into service.
    - The Sperm Hyliter System has been procured and validation is currently in progress.
    - The digital UV/IR cameras are no longer available for purchase and funds have been re-allocated during grant revision to other equipment.
    - It was determined that validation of Minifiler was not needed at this time and funds have been re-allocated during the grant revision to other contract services and equipment.

- In a grant revision, funds were secured for customization of the LIMS System.
    - Decisions on what customization is needed are currently being made.
- In a grant revision, funds were secured to add additional electrical outlets to the DNA laboratories.
    - An estimate has been obtained and scheduling of the work is underway.
- In a grant revision, funds were secured for additional network drops in the Trace and DNA laboratories. An estimate for the drops has been obtained.
- In a grant revision, funds were secured for the purchase a Universal Power Supply for the ABI3130. An estimate has been obtained for this item.
- In a grant revision, funds were secured for the purchase of desk chairs for all DNA and Trace analysts. An estimate is being procured.
- In a grant revision, funds were secured for the purchase of a new CODIS server. It is anticipated that this will be procured at the end of the grant period to accommodate the timing of the switch to CODIS software version 7.0.
- No supplies have been purchased to date as the laboratory just closed out its FY 2008 DNA Backlog Reduction grant.

- Progress Jul-Dec '10
    - All equipment and supplies have been purchased, received, and validated except the LIMS customization. This is currently in progress but has not been completed.
- Progress Jan-Dec '11
    - All equipment and supplies have been purchased, received, and validated.
    - Goal Completed.

FY09 Recipient Name: Missouri State Highway Patrol
Award Number: 2009-DN-BX-K136
Award Amount: $434,900
Final Report: Purpose, Goals and Objectives:
The overall goals of the program are to leverage the Laboratory's Automation capacity in order to reduce our backlog by 30% and decrease turnaround to under 200 days.

Progress update: Since our last progress report, we have completed our project with Sorenson to validate our Tecan EVO 100 robotic workstation. Sorenson was on site at or main laboratory for about eight weeks working on the project, which consisted of validating the Tecan EVO 100 to perform automated quantification set up, post-quant normalization and amplification setup. We spent several weeks writing the project up and completed the validation at our main laboratory on March 18, 2011. The project was so successful that we used remaining funds in 2009-DN-BX-K136 to repeat the project at our Springfield laboratory.

Our main laboratory anticipates procedure implementation and competency testing of automated quantification set up, post-quant normalization and amplification setup to occur the first week in May, 2011. The Springfield laboratory has completed their validation work and we are in the process of editing their write-ups.

Our custom STaCS LIMS (purchased with 2008-DN-BX-K076) was installed the week of January 17, 2011. We underwent user acceptance testing the week of February 6, 2011 and formal training the week of February 27, 2011. At this point we are populating the STaCS database with consumables, scenarios and procedures. We still have some customizing that we would like to have done, but at this point the system is working and we anticipate paralleling casework to test STaCS soon. Germaine to this grant however, is the fact that with the monies in 2009-DN-BX-K136 we purchased PC monitors, notebook PC's, barcode readers, and barcode printers to support the Tecan automation and STaCS in all three of our laboratories.

What is uniquely interesting about the timing of the two aforementioned projects is that we were able to build an integrated informatics solution that could quite possibly be one of a kind. By simple fate of purchasing and scheduling, we ended up having Sorenson and STaCS on site at the same time, this enabled the two companies to work together and design unique solutions and informatics that we feel could quite possibly set precedence in forensics.

GeneMapper IDX for all of our caseworking analysts as well as supporting PC's was also purchased under 2009-DN-BX-K136. Our validation of GeneMapper IDX was completed within this reporting period and the installation is scheduled to begin the week of April 17, 2011.

Program Challenges: Monthly DNA case submissions continue to increase and validating our new technology has taken time. Over the past 6 months we have moved several people almost exclusively to validating new technologies. Moreover, we moved a DNA analyst to a supervisor, moved the vacant DNA position to our Cape Girardeau laboratory and hired a new DNA criminalist. Training of the new Criminalist on top of the validations has also taken time. Additionally, one of our DNA Criminalists resigned, essentially putting us down two criminalists for a period.

As a result of the validation projects and being down 2 Criminalists, our case report output has declined by 30% over the grant period. At one point our pending cases dropped by 20%; however, since, the backlog has trended back upward another 14%. Overall our backlog reduced 9.2%, by far underperforming our targeted 30% reduction. Our turnaround time has gone largely unchanged and remained at about 250 days. We have, however, improved our per criminalist sample throughput nearly three fold.

Conclusions: We feel we have made significant progress toward automation and a revolutionary and comprehensive information tracking system that will lead to better workflow process design that can be leveraged to increase process cycle time, increase throughput and decrease turnaround.

FY09 Recipient Name: St. Charles County
Award Number: 2009-DN-BX-K134
Award Amount: $31,915

Final Report: The primary objective of this DNA backlog reduction program was to increase the overall DNA analysis throughput of the St. Charles County Sheriff's Department Criminalistics Laboratory's (SCCSDCL) DNA Section through the purchase of an additional thermal cycler and reimbursement for analyst overtime to process DNA cases. Two goals for this award were:

1) Reduce the turnaround time for DNA cases to less than 75 days
2) Increase the average number of DNA samples analyzed per analyst to greater than 20/month

The SCCSDCL worked 601.5 hours of overtime under this award; beginning in March 2010 - after it completed working overtime under its previous DNA Capacity award (FY08) – and continuing until the end of January 2011. During the project period an additional thermal cycler was purchased, verified and implemented for casework analysis.

Goal #1: At the end of the project period the turnaround time spiked to 197 days. The turnaround time averaged approximately 105 days over the course of the project period. The following factors all contributed to the increase in turnaround time during the project period:

1) Equipment maintenance & repairs,
2) Training and
3) Preparation for an external DNA audit.

These factors decreased the number of hours available for DNA analysts to work on cases. Significant time was also spent rewriting manuals and improving the DNA quality system which pulled analysts away from some of their casework responsibilities. The complexity of many of the DNA cases analyzed also increased. Additionally the overall number of cases submitted to the laboratory increased approximately 10% during the project period.

Goal #2: The average number of samples analyzed/analyst/month was 58 at the end of the project period. Almost triple the goal of 20 set at the beginning of the project. The increase in sample throughput and the accompanying increase in the turnaround time reflects the increase in complexity of the DNA cases being analyzed by the DNA Section.
The SCCSDCL successfully completed this project by working overtime to analyze DNA cases and purchasing and implementing an additional thermal cycler.

FY09 Recipient Name: St. Louis County
Award Number: 2009-DN-BX-K116
Award Amount: $143,616
Final Report:
Goal 1 - Maintain two full-time biological screeners and to hire two additional employees, a part-time forensic scientist to screen cases and a part-time technician to assist with reducing the turn-around-time and increase the number of eligible samples entered into the CODIS database.

Progress 10/1/09-12/31/09 In this reporting period, two screening positions were maintained with funding from the FY09 Forensic Casework DNA Backlog Reduction Grant. With the addition of these two employees, the DNA analysts are able to work full-time in the DNA Unit. A hiring process for the two part-time employees was started once the grant was awarded. The part-time

technician was hired and started training on 12/21/09. An offer was made to the part-time forensic scientist with a start date of 1/5/10. We saw an increase in the number of samples entered into the CODIS database and the turn-around-time remained constant.

Progress 1/1/10-6/30/10 The part-time forensic scientist hired with grant funds, a previously qualified analyst completed her training and successfully completed her competency test on 01/14/10. One analyst has been working independently in the biological screening section and has been forwarding casework for DNA analysis. The part time technician hired with grant funds completed a portion of her training on 1/22/10, which allowed the analyst to swab trace cases to be forwarded for DNA analysis. On 6/2/10, Ashley completed her training which would allow the analyst to assist the DNA analysts with setting up reactions. A grant funded employee resigned on 6/1/10. The analyst discussed above replaced the employee that resigned and currently resides in the full-time position vacated. The analyst is currently in a training program to become a qualified biological screener. Interviews were held to refill the part-time technician position vacated. An offer was made to an individual pending a background investigation. The turn-around-time remained constant even though the backlog has increased. The DNA unit has completed more cases in this reporting period than ever before. We have also seen an increase in the number of samples entered into the CODIS database and in the number of hits received.

Progress 7/1/10-9/30/10 The part-time DNA technician started on August 2nd, 2010, and is currently training with an anticipated completion date of January, 2011. The part-time technician has assisted with administrative duties while performing her training. Due to the lag time for the hiring process for the new technician some additional funds were reallocated. A 100X dry objective was purchased to be used with our microscope with camera adapter. It was installed and is currently being used to aid in photo documentation. Three Dragon Speak Voice Recognition Systems were purchased and are being validated for use. A new laptop was purchased and received to be used in conjunction with the new LIMS system being implemented. Just over one thousand dollars was used to purchase one unit of consumable supplies for an ABI 310. Based on guidance from the Senior Consultant-Program Management Specialist, these supplies should only cover one case and she did not feel it was necessary to report just the one case. The Laboratory has seen a 62% increase in the number of cases submitted to the lab from 2009 compared to the number of cases submitted in 2010 to date. Even though turn-around-time increased it would have been a massive increase if grant funding had not been provided to hire the additional personnel. The Laboratory has seen an increase in the number of CODIS Hits obtained and investigations aided.

*Performance metric data submitted for the Jul-Dec reporting period covers metrics through 9/30/10. A factor which negatively impacted the turn-around time was a 62% increase in cases submitted for DNA. The laboratory is heavily involved in a LIMS project which takes time away from casework, recently underwent reorganization and the DNA Technical Leader acquired more duties and therefore less casework completed.

FY09 Recipient Name: St. Louis Metropolitan Police Department

Award Number: 2009-DN-BX-K132
Award Amount: $319,731
Final Report: The primary goal of this grant was to decrease the backlog of DNA cases by hiring additional employees and using department overtime for screening evidence for biological material and analyzing the evidence for DNA profiles. The lab committed to performing 320 cases in biological screening and/or DNA analysis and report review. The lab has biologically screened 31 cases and performed 729 DNA analyses and case reviews. Of the 729 cases analyzed, 285 cases were worked by grant-funded employees using grant-funded supplies. An additional 444 cases were worked by department-funded analysts working overtime funded by this grant. This work led to 332 forensic unknown profiles being uploaded to CODIS resulting in 72 CODIS hits [see Table]. This number includes all profiles uploaded to CODID regardless of whether they were performed on overtime or by grand-funded analysts. There has been an increase in the number of DNA analyses performed by this laboratory which can be attributed to casework performed by grant funded employees and overtime worked on grant eligible cases by department funded employees.

Progress Report Date	# Cases Analyzed	# Cases in Backlog, Beginning	# Cases in Backlog, End	# Profiles Uploaded to CODIS	# CODIS Hits
Final, 11-8-11	729	565	1,662	332	72
06/30/2011	63*	565	1,662	40*	20*
12/31/2010	525	565	1,277	137	9
06/30/2010	136	565	543	137	20
12/31/2009	0	565	362	0	0

*An error in counting was discovered for the 06/30/2011 progress report. These are the corrected numbers.

The average turn-around time for DNA cases has reached a plateau of 195 days [counted by a crystal report in our LIMS system]. Due to staffing issues, the Biology and DNA sections of the SLMPD Lab had been working at less than full staff. At this time a full staff has been hired and is in training. The turn-around time has stayed consistent while signed off analysts are training the new analysts. When the new grant hired analysts get signed off, it is anticipated that the turn around time will decrease.

At the start of this grant an additional goal was identified which increased the DNA backlog. The St. Louis Metropolitan Police Department has in storage potential DNA evidence from cases dating back to before 1986. The evidence tracking system was implemented January of 1999. All the cases from pre-1986 to 1998 have been biologically screened, however were not entered into our evidence tracking system. There were potentially unsolved cases where the investigation could be aided if that evidence were analyzed. The evidence freezers were inventoried, all evidence was barcoded and research into these old cases was initiated. Thus far

over 1000 cases have been added to the DNA backlog due to determining that evidence from the crime still remains and is eligible to be entered into CODIS if a DNA profile related to the crime is detected, that the case has not been adjudicated and that the statute of limitations has not run out. Not all of the cases have been researched yet so there is the potential to add more cases to the backlog.

The SLMPD Crime Lab purchased with 2009 DNA Backlog Reduction Grant funds an Advanced EZ1 XL Robotic Workstation. This workstation allows for the extraction and purification of DNA from 14 samples at one time as opposed to the 6 samples that can be extracted and purified on the Classic EZ1 BioRobot. As the instrument was purchased at the end of the grant period it was only in the validation stages by the time the grant ended. We anticipate that this robotic workstation will allow analysts to handle samples in a more efficient manner which will result in more cases being analyzed.

We additionally purchased 16 EZ1 DNA Investigator Kits and 13 Identifiler kits to extract and amplify samples. The purchase of these kits allowed for the extraction and the amplification of 768 samples. For the 729 cases that were analyzed with 2009 Grant funds, 1156 samples were worked. By purchasing the EZ1 and Identifiler kits, the consumables and reagents necessary for the extraction and amplification of 66% of these samples were made possible so that analysts working as grant funded employees or employees working overtime on grant eligible cases could complete the laboratory portion, as opposed to the data analysis portion, of their casework. The cases worked with these kits were included in the above numbers of cases worked with these grant funds.

SLMPD would like to thank NIJ for making these funds available as well as all the support resources that are provided with this funding. The crime lab is more than satisfied with these results and will continue to have long term benefits from this funding.

FY09 Recipient Name: Mississippi Department of Public Safety
Award Number: 2009-DN-BX-K059
Award Amount: $388,418
Final Report:
Program Goals and Objectives: The overall objectives of the program are: increasing the efficiency and timeliness of the MCL response to requests for Bioscience examinations, reducing the backlog of unworked Bioscience cases and continuing support of the ongoing development of the Convicted Offender Database.
We propose to achieve these objectives by accomplishing the following goals:

1. Expanding the services offered in the Gulf Coast regional laboratory to include Serology and DNA,
2. Adding an experienced DNA analyst (funded by another source) and a Biology trainee to the Gulf Coast laboratory,
3. Acquiring the equipment necessary for use in the basic DNA analysis processes,

4. Utilizing overtime funds to accomplish the validation of the new instrumentation without a negative effect on case production,
5. Purchasing supplies to provide to the Department of Correction for collection of convicted offender samples

Progress toward meeting the program goals:
Oct – Dec 2009: The grant has been awarded and accepted but no grant funds have been expended to date.

Jan – June 2010: The Forensic Biology Trainee was hired in June, 2010. His salary and fringe benefits of $3,905.41 were the only project finds were spent during this reporting period.

A request for sole source approval for the purchase of instruments for the new DNA lab was submitted and approved and the bid process has begun to select a vendor for validation services. Goals #2 and 3 are being met.

July – Dec 2010: With the exception of the personnel expenditures for a Forensic Biology Trainee, no project funds were spent during the reporting period. He is training in the Jackson DNA lab and will be assigned to the MCL Gulf Coast Regional Lab when his training is complete. An experienced DNA analyst has been hired with funds from another source and assigned to the Gulf Coast Laboratory.
Goal # 2 has been met

Jan - June 2011: Construction of a new Gulf Coast Laboratory began in 2009 with a projected completion date of February 2010.There have been numerous delays in the construction of the new building. Construction was completed in March 2011. The following equipment and software necessary to perform the DNA analyses has been purchased:

- AB 3130 HID w/GMID 3.2.1,
- AB 7500 SDS unit,
- Two AB 9700 Thermal Cyclers,
- Initial license of GeneMapper ID-X and
- Two Client licenses GeneMapper ID-X.

Because of continuing issues with the area assigned to the DNA unit, the instruments have not been installed. The contract for validation services was bid and a vendor was selected. Once the instruments are installed, the validation process can begin. The Salary and Fringe Benefits for a Forensic Biology Trainee for twelve months have been paid with project funds. He is now being paid with funds from another grant. The Convicted Offender Buccal Swab Collection Kits included in the Grant budget have been ordered.
Goals # 3 and #5 are being met.

July – Dec 2011: The total project award amount was $388,418. Costs and laboratory needs changed after the original award requests were made leaving excess funds in some categories and shortages in others and a Budget Modification was requested and approved. Expenditures

complied with these projections with the exception of the personnel costs for overtime. The staff was able to complete their validation tasks with minimal overtime needed leaving a balance of $5230 in the Personnel Category and $423 in the Fringe Benefits Category. This overage, plus $27 from the Supplies Category amounted to $5680. This amount was transferred to the Equipment Category and used to purchase additional equipment for the new DNA lab (additional pipettes and a balance enclosure/workstation). The amount transferred was only 1.46% of the total grant budget and was moved from one existing budget category to another.

The new Gulf Coast Laboratory has been completed and the Bioscience (DNA and Serology) unit is operational. All equipment has been purchased and validated. Serology cases are now being worked in the Gulf Coast Laboratory. When a second analyst, who is completing DNA training in Jackson joins the staff, DNA cases can be worked by that unit.
Goals #1 and #4 have been met.

All expenditures of grant funds are detailed below by Budget Category.

PERSONNEL: $32,151 funded the salary of a new Forensic Biology Trainee to be assigned to the MCL Gulf Coast Regional MCL System Laboratory and $1,088 in overtime wages for existing staff giving a total personnel cost of $33,233.

FRINGE BENEFITS: $10,908 was required to fund the fringe benefit package of the new Forensic Biology Trainee. $83 in fringe benefit was required for the overtime wages to be paid. The total expenditure for Fringe Benefits was $10,991.

LABORATORY EQUIPMENT: $189,826 for the purchase for the laboratory instruments necessary to perform the DNA analysis processes in the new Gulf Coast Laboratory. This included: an AB 3130 Genetic Analyzer, an AB 7500 Real-Time Tower, two AB GeneAmp PCR System 9700, a QIAGEN EZ1 Advanced, three centrifuges, twenty adjustable volume pipettes and a balance enclosure/workstation.

SUPPLIES: $1,167 for three Investigator Kits required to validate the QIAGEN EZ1.

CONSULTANT AND CONTRACTOR SERVICES: $99,549
Validation Services performed by Applied Biosystems. Performance Check Packages were supplied by AB who performed initial validation. MCL completed the validation and validate the QIAGEN EZ1.

Project costs included:
$23,800 for the 7500 Quantifiler H Performance Check, AB furnished all validation supplies.
$19,000 for Identifiler performance checks: AB furnished all validation supplies.
$19,000 for CoFiler performance checks: AB furnished all validation supplies.
$19,000 for Profiler performance checks: AB furnished all validation supplies.

The following extended warranties are also included in this category:

$3,853 for Warranty PLUS 1, BioRobot EZ1
$4,698 for AB Extended Warranty 7500
$1,200 for two AB RC Support 9700-96 Well
$8,998 for AB Assurance 1 PM 3130.

OTHER: $53,651
Total Expenditures of $53,652 from this budget Category were:
$15,000 for One Initial License of GeneMapper ID-X
$15,000 for two Client Licenses of GeneMapper ID-X.
$3,500 for GeneMapper ID-X training
$2,092 Shipping charges for equipment.
$18,060 for Convicted Offender Buccal Swab Collection Kits,

The number of backlogged cases was reduced from 62 to 36 over the grant period achieving one of the overall objectives of the program.

All goals of the NIJ FY 2009 Forensic DNA Backlog Reduction Program have been met.

A spread sheet showing the details of all Program expenditures is attached.

FY09 Recipient Name: Montana Department of Justice
Award Number: 2009-DN-BX-K135
Award Amount: $125,818
Final Report:

The goals and objectives for this project include:

i) a reduction in forensic sample turn-around-time,
ii) an increase in forensic DNA sample throughput and
iii) a decrease in the forensic DNA casework backlog.

Progress from 070111 - 093011 (closure)
During this reporting period, the turn-around-time for forensic casework analysis has begun to drop back down from highs detailed in the previous reporting period. The current turn-around-time for forensic casework is at 99 days. That this metric is still higher than that reported at the beginning of the grant period (89 days) is primarily due to circumstances outside of the control of the DNA section; namely, the HVAC re-engineering project, 2 maternity leaves and the resignation of a grant funded analyst.

During this reporting period, forensic DNA sample throughput has remained at the highs detailed

in the last reporting period. The current forensic DNA sample throughput is at 37 samples/analyst/month.

During this reporting period, the number of backlogged cases is slightly higher than that reported for the beginning of the grant period. This is likely due to a couple of factors. One, in two of the last four months the lab has received 30% more cases than normal. Two, the maternity leaves and the resignation of the grant funded analyst as detailed above.
During this grant period, the paltry number of cases completed, profiles uploaded and CODIS hits developed are due to those circumstances detailed above. Nevertheless, this grantee remains optimistic that significantly positive impacts in these metrics are on the near horizon. Validation of the robotic DNA extraction instruments (Maxwell 16s) are underway and are proceeding very well.

FY09 Recipient Name: City of Charlotte
Award Number: 2009-DN-BX-K150
Award Amount: $351,398
Final Report: *All CODIS matches in the final report are based upon the new NDIS guidelines from January 2012; therefore may not correlate with previous progress reports.*

The Criminalist II was funded under this grant from April 2011 until April 3, 2012. The Criminalist I was funded under this grant from May 2011 until March 31, 2012.

Outsourcing cases: the CMPD outsourced a total of 188 Property Crimes consisting of 199 samples. Profiles that were eligible for CODIS were obtained from 158 samples. These samples were reviewed by the laboratory and uploaded. The CMPD obtained 107 CODIS hits from these profiles. Due to the success of this program, the number of Property Crimes being submitted to the laboratory has greatly increased. Since January 1, 2012 to present, 176 lab requests from Property Crimes have been submitted.

From April 2011 to April 2012, the Criminalist II was able to process 62 DNA cases and input 66 profiles into CODIS. 26 of these profiles were forensic unknowns and 40 were suspect DNA standards. 12 of these profiles had CODIS matches.

From May 2011 to March 2012, the Criminalist I was able to screen 111 cases by swabbing them for DNA. 24 of these cases were proceeded by a DNA analyst and 17 Suspect standards (since suspect standards are not included in the swabbing, these profiles are not included in this CODIS match #'s; however they are included in the total numbers for the lab) were input into CODIS and 3 unknown profiles. Two of these profiles had CODIS matches.

Equipment: The following equipment was purchased using funds from this grant, a thermal mixer used in the extraction area, 4 UV lights used in two extraction hoods, the quant/pre-amp set up hood, and the post amp hood; 2 crosslinkers, one used in the extraction area and the other

used in post amp; a heat block for heating the 3130 96 well trays in post amp and a 3130 Genetic Analyzer. All are actively being used in the laboratory to perform casework.

Training: The CMPD had Y-STR training on August 12th and 13th.

Supplies: supplies were purchased in accordance with the budget to process cases in the CMPD laboratory.

The following goals and objectives were set for this award:

1. To reduce its current backlog of DNA cases--From April 2011 to April 2012, the Criminalist II was able to process 62 DNA cases and input 66 profiles into CODIS. 26 of these profiles were forensic unknowns and 40 were suspect DNA standards. 12 of these profiles had CODIS matches.
   From May 2011 to March 2012, the Criminalist I was able to screen 111 cases by swabbing them for DNA. 24 of these cases were proceeded by a DNA analyst and 17 Suspect standards (since suspect standards are not included in the swabbing, these profiles are not included in this CODIS match #'s; however they are included in the total numbers for the lab) were input into CODIS and 3 unknown profiles. Two of these profiles had CODIS matches.
2. To decrease significantly the turnaround time of casework--The turnaround time has decreased 50 days from the beginning of the grant. The number of priorities that the CMPD has received from those cases going to court to those that have caught the Chief's attention has increased causing the turnaround time progression to be slower than originally planned.
3. To increase the number of forensic DNA samples processed by each analyst per month—Although this number appears to have dramatically decreased. In 2009, the CMPD had fewer priorities. Samples are generally batched; however, due to the number of priority cases, batching became much more difficult thereby reducing the ability to process more samples.

FY09 Recipient Name: North Carolina Department of Crime Control and Public Safety
Award Number: 2009-DN-BX-K152
Award Amount: $1,579,363
Final Report:
Objective 1 - work an additional 1000 cases in-house with an eye toward working more unsolved cases and entering additional profiles into CODIS - During this reporting period, 277 cases were worked; 66 DNA profiles have been entered into CODIS and 13 hits have been made. This was accomplished with supplies too numerous to list individually and overtime hours funded from this grant.
Cumulatively, there were 2,254 cases analyzed, 624 profiles entered into CODIS and 186 hits. The number of cases worked, turnaround time and cases pending analysis were negatively affected during the life of this grant. In 2010, the State Crime Laboratory began the process of preparing for ISO 17025 accreditation. In early 2011, the NC Legislature mandated that every eligible Forensic Scientist obtain individual certification. Preparation for accreditation and

certification demanded much of the scientist's work time. The Melendez-Diaz Supreme Court ruling has resulted in the Forensic Scientists being taken away from bench work to appear in court more frequently. Court hours doubled between 2009 and 2011. In addition, the Forensic Biology Section has experienced a significant increase in the number of submissions for analysis. The Section is on pace to receive 4200 submissions this fiscal year, a 25 % increase from the previous FY. Lastly, the section suffered from a significant loss of personnel. On the end date of this grant, there were a total of eight vacant positions in the Section.

Objective 2 - identify new systems to be used for evidence analysis - equipment, including 7500s, Speedvacs, GeneMapper software, BioRobots, centrifuge and thermocyclers, have been purchased. The validation process for the 7500s and the robots is on-going due to the demands placed on laboratory employees and the very lengthy procurement process that exists in NC. It is anticipated everything will be on-line this summer.

Objective 3 - training - members of the section have attended training activities, including the SAFS Conference, MAAFS Conference, AAFS Conference, Bode Conference and Promega Conference; Maintenance contracts - appropriate maintenance contracts were obtained to cover applicable instrumentation and equipment. Calibrations were performed on applicable weights, pipettes, equipment and instrumentation.

Since this is the final report:
No corrective action plan anticipated.

No changes needed in implementation plan at this time.

No technical or administrative assistance is needed from the grantor at this time.

FY09 Recipient Name: North Dakota
Award Number: 2009-DN-BX-K140
Award Amount: $100,000
Final Report: As stated in the grant application, the overall objective was to increase the capacity and decrease the current backlog of forensic casework in the DNA Unit of the Forensic Section of the Crime Laboratory Division. The goal of this grant was to analyze at least 55 cases. The laboratory exceeded this goal several fold by processing 403 cases. A case was counted towards the grant if funding was used to purchase extraction or profiling kits. A total of 156 profiles were uploaded to CODIS which resulted in 30 hits.
Increased Capacity

The average number of samples analyzed per analyst at the beginning of the project was 11 samples and has increased to 29 samples. This is mainly due to changing from a manual extraction method to a robotic extraction method.
Decreased Backlog
At the beginning of the reporting period the backlog or workload for the unit was recorded as 489 cases waiting to be analyzed. Current numbers indicate the backlog is 298 cases (As of 03/31/12). The overall workload has decreased even the though the number of cases submitted are increasing – this means the laboratory is catching up to the workload. Turn-around time is still decreasing in the laboratory; the average for screening biological evidence is 11 days while DNA analysis is averaging 81 days. The laboratory is currently training the biological screening analysts to become qualified DNA analysts. Once the staff is fully trained it is conceivable that the overall turn-around for casework will approach an average of 30 days.
The DNA Unit has increased capacity and decreased the current backlog of forensic DNA casework using the available funding from this grant. The success of the unit would not have been possible without these grant funds and the flexibility to use the funds effectively when technology and goals change. The grant had several changes in scope, budget, and project period.

Reporting Period 1 - 10/01/2009 to 12/31/2009: Funding was not utilized during this reporting period.

Reporting Period 2 - 01/01/2010 to 06/30/2010: The laboratory Purchased 5 DNA profiling kits and consumables during this project period ($26,825.80). The laboratory has analyzed 91 cases and 51profiles were uploaded into CODIS. A total of 12 CODIS hits were generated using funding under this award.

Reporting Period 3 - 07/01/2010 to 12/31/2010: The laboratory purchased 4 DNA profiling kits and consumables during this project period ($15,633.77). The laboratory has analyzed 97 cases and 46 profiles were uploaded into CODIS. A total of 5 CODIS hits were generated using funding under this award.

Reporting Period 4 - 01/01/2011 to 06/30/2011:
GAN Number 1 - Change project period
GAN Number 2 - Remove special conditions
The laboratory purchased 4 DNA profiling kits and consumables during this project period ($28,251.83).
The laboratory has analyzed 110 cases using funding from this grant and 39 profiles were uploaded into CODIS. A total of 10 hits were generated using funding under this award.

Reporting Period 5 - 07/01/2011 to 12/31/2011:
GAN Number 3 - Change project period
GAN Number 4 - Change in project scope
GAN Number 5 - Budget modification
The laboratory purchased two GeneMapperIDx licenses ($18,000.00).

The laboratory has purchased DNA supplies, profiling kits, and GeneMapper IDx with funding available from this grant. The DNA Unit staff received training on GeneMapperIDx and is in the process of validating the software. Implementation of the new software has been delayed because import and export files have to be compatible with a newly installed Laboratory Information Management System. A programming request to accommodate the new software has been made to the vendor.
During this reporting period, the DNA Unit reported out 36 cases, uploaded 19 profiles to CODIS, and 4 hits occurred as a result of funding from this grant.
Please note the difference in the performance metrics:
The new LIMS calculates the turn-around times *separately* for biological screening and DNA testing from the time the evidence is submitted to the laboratory until a report is released.
The data points in previous performance metrics were calculated as follows:

- Biological Screening – from the time the evidence is submitted to the laboratory until a Biological Screening report is released.
- DNA Testing – from the time DNA was assigned (or started in the laboratory) until a DNA report is released.
- Overall – Biological Testing/DNA Testing- from the time the evidence is submitted to the laboratory until a DNA report is released.

Final Report - 01/01/2012 to 03/31/2012
The laboratory purchased 2 DNA profiling kits and consumables during this reporting period ($11,288.60).
The laboratory processed 7 cases using funding from available from this grant and 2 profiles were uploaded to CODIS. One hit resulted from the uploaded profiles during this reporting period.
The chart represents the overall performance metrics recorded for this grant:
The performance metrics were reviewed for accuracy and consistency for reporting and some discrepancies were observed. The discrepancy can be explained by a manual tracking system and data entry errors in an Excel spreadsheet.

	01/01/09 to 09/30/09	10/01/09 to 12/31/09	01/01/10 to 06/30/10	07/01/10 to 12/31/10	01/01/11 to 06/30/11	07/01/11 to 12/31/11	01/01/12 to 03/31/12	03/31/12
Biological Screening	32	36	64	31	15	65	35	10
DNA Testing	83	82	121	88	59	73	81	83
Screening and DNA	280	288	253	179	116	73	81	81
Samples analyzed per month per analyst	11	22	28	26	27.5	28	29	
Number of profiles uploaded			51	46	39	19	2	

CODIS Hits			12	5	10	1	1	
Cases processed under this grant			91	97	110	98	7	
Backlog	489	425	178	203	261	291	298	

FY09 Recipient Name: Nebraska State Patrol
Award Number: 2009-DN-BX-K108
Award Amount: $245,194
Final Report: During the life of this project the average number of days between the submission of a sample to the laboratory and delivery of the test results decreased by 68 days from 182 to 114. The average number of samples analyzed per analyst, each month increased by 13.8 from 14.2 to 28. The number of backlogged cases remained unchanged at 157.

From 10/1/09 to 9/30/11, 29 profiles were entered into CODIS as a result of funding provided under this award;

From 10/1/09 to 9/30/11, 5 five CODIS hits attributable to analyses funded under this award were recorded;

From 10/1/09 - 9/30/2011, 212 cases were analyzed and delivered to the requesting agency using funding provided under this award;

The grant funded analyst analyzed 87 cases and uploaded 21 profiles to CODIS prior to becoming an agency funded analyst. No CODIS hits were reported.

Individual activities that impacted project success are described in the following paragraphs.

A new analyst was hired in November 2009. This analyst completed training and began screening cases in June 2010. In July 2011, that analyst was moved to a permanent, agency funded position and the grant funded position was re-filled. The new analyst has been hired and is completing the second half of the training program where she is screening cases under the supervision of qualified analysts. The new analyst will complete the training program and will be actively working cases in January of 2012.

Overtime hours were used by qualified analysts to process and/or perform technical reviews of cases requesting DNA analysis. This was helpful for cases with rush requests due to pending court dates by allowing the analysts to work additional hours to meet court deadlines.

Project funding allowed for forensic scientists to attend training, as required by the federal standards (QAS). A total of 9 trainings were attended including: 2009 Promega Symposium (two forensic scientists), 2010 CODIS Meeting (backup state administrator), 2010 American Academy of Forensic Science meeting (one forensic scientist), ISO Training by Forensic Quality Services (one forensic scientist), 2010 Midwestern Association of Forensic Scientists (two

forensic scientists), 2011 Midwestern Association of Forensic Scientists (two forensic scientists). Without the assistance of this grant, the forensic staff would have been unable to attend these high quality trainings and would have only been able to complete very basic training which would not have benefited the scientists to the same degree.

Project funding was also utilized to continue updating equipment used for processing DNA cases. A second 3130 Genetic Analyzer was purchased to replace three 310 Genetic Analyzers (two of which were over 10 years old). This upgrade allowed for consistency as the 3130 is now the only platform in use. This uniformity allows for the efficient processing of both casework and databank samples. In addition, numerous smaller items were replaced and upgraded including one microscope and five centrifuges. Various additional pieces of electronic equipment were purchased to be used in conjunction with the BEAST LIMS. This equipment was necessary for the future implementation of the DNA module which will be used to track samples through the entire DNA analysis process.

Funding from this grant allowed the Nebraska State Patrol Crime Laboratory to purchase kits for the extraction, quantitation, and amplification of forensic DNA casework samples.

In summary, this grant project provided funding that allowed for the completion of several critical objectives. Had Federal funding not been available, the Nebraska State Patrol Crime Laboratory would not have been able to hire the forensic scientists, attend high quality training, or upgrade equipment.

FY09 Recipient Name: New Hampshire Department of Safety
Award Number: 2009-DN-BX-K124
Award Amount: $100,000
Final Report:
Goal 1-Process 130 forensic biology cases utilizing funds for consumables and overtime
The laboratory has met its goal of delivering 130 forensic biology cases to submitting agencies, and has in fact utilized grant funds either in the form of consumables which were purchased with grant funds, or overtime paid for with grant funds perform serology and/or DNA analysis on an additional 304 cases. The turnaround time has gone down slightly over the grant period. We anticipate it could have improved further but for the loss of one analyst during the project period due to maternity leave. Overall, over the course of the grant period, the availability of overtime has resulted in a significant decrease in the backlog when the laboratory is fully staffed. The goal of analyzing 130 cases has been completely satisfied and exceeded.
During the project period, a horrific home invasion and homicide involving the hacking of a mother to death, and severely injuring her 13 year old daughter occurred. During the initial investigation, there were no suspects and the lab's timely work on items was crucial. Grant funds were utilized for overtime serology and DNA work to be performed on numerous items of evidence related to this case. Ultimately, five teenage suspects were developed, and all either pled guilty or were convicted in court for their actions in this crime. Two of the individuals received life sentences without the possibility of parole.

Goal 2-Provide training for analysts to satisfy FBI QA Standards
Two analysts attended the Green Mountain DNA Conference in July 2010. Another analyst attended the National CODIS Conference in November 2010. Registration and all expenses for these meetings were funded through this grant. Each of the analysts has now satisfied continuing education requirements as required by the FBI Standards. This goal has been completely satisfied.

Goal 3-Purchase service contracts for genetic analyzer
Service contracts have been purchased and are currently in place. Due to discounting which was offered to the State of New Hampshire, additional funds were remaining in this account after the purchase of the service contracts. A portion of these funds were used for the repair of a biological hood in the extraction room, which had failed re-certification. Without this hood, the DNA lab¿s throughput was hampered as only one biological hood was available for DNA extraction. Additional funds were used for pipettes in the DNA lab which had failed in-house calibration to be sent out for re-calibration and associated repairs if necessary. This goal has been completely satisfied.

CODIS hits:
Twenty-two offender hits and one forensic hit, aiding a total of 24 cases in New Hampshire, were obtained on cases processed using grant funds. Most of the cases (19) involved property crimes to include burglary, theft and receiving stolen property. Five of the cases were sexual assaults, including one on a minor. Thirteen of the twenty-two offender hits were with out of state offenders. In most cases, the police department did follow up on the hits and submitted new known samples from the offenders for confirmation of the hits.

FY09 Recipient Name: New Jersey Department of Law and Public Safety
Award Number: 2009-DN-BX-K161
Award Amount: $1,306,652
Final Report:

This project is still in progress

FY09 Recipient Name: Las Vegas Metropolitan Police Department
Award Number: 2009-DN-BX-K057
Award Amount: $489,000
Final Report:

GOAL 1: The Laboratory will purchase and validate 2 9700 thermalcyclers for forensic DNA casework.

Objective 1: The Laboratory will purchase 2 9700 thermalcyclers within 6 months of the grant award.
Objective 2: The Laboratory will validate the thermalcyclers within 3 months of the arrival of the instruments.

Progress 01 October - 31 December 2009: The LVMPD purchased and received 2 9700 thermalcyclers December 28, 2009. Objective 1 of Goal 1 has been met. The LVMPD will validate the thermalcyclers and incorporate them into casework in the next reporting period.
Progress 01 January – 30 June 2010: The validation of the 2 9700 thermalcyclers was completed and released for casework April 13, 2010. Goal 1, Objectives 1 and 2 have been met.
Progress 01 July – 31 December 2010: Goal 1, Objectives 1 and 2 were previously met.
Progress 01 January - 31 March 2011: Goal 1, Objectives 1 and 2 were previously met.

GOAL 2 – The Laboratory will purchase and validate a 7500 SDS for forensic DNA casework.

Objective 1: The Laboratory will purchase a 7500 SDS within 6 months of the grant award.
Objective 2: The Laboratory will validate the 7500 SDS within 3 months of the arrival of the instrument.

Progress 01 October - 31 December 2009: The LVMPD purchased and received a 7500 SDS December 29, 2009. Objective 1 of Goal 2 has been met. The LVMPD will validate the 7500 SDS and implement it into casework in the next reporting period.

Progress 01 January – 30 June 2010: The LVMPD validation of the 7500 SDS was completed and brought online for casework May 3, 2010. While the instrument was not brought online within 3 months of the instrument's purchase as stated in Objective 2, it was brought online 2 months sooner than the original 9-month goal outlined in the original grant application. Goal 2, Objectives 1 and 2 have been met.
Progress 01 July – 31 December 2010: Goal 2, Objectives 1 and 2 were previously met.
Progress 01 January - 31 March 2011: Goal 2, Objectives 1 and 2 were previously met.

GOAL 3 – The Laboratory will purchase and outsource the validation of a liquid handling robot for forensic DNA casework.

Objective 1: The Laboratory will research and select a liquid handling robot and a subcontractor for validation outsourcing services within 3 months of the grant award.
Objective 2: The Laboratory will prepare and submit the sole source justifications to the National Institutes of Justice and to the LVMPD Purchasing Unit for approval to purchase the robot and outsourcing services within 1 month of robot and outsourcing vendor selection.
Objective 3: The Laboratory will submit the paperwork for the purchase of the instrument and validation services within 1 month of government and LVMPD purchasing approval.
Objective 4: Liquid Handling Robot validation will be completed by March 31, 2011.

Progress 01 October - 31 December 2009: The LVMPD researched 4 liquid handling robots and validation services from 2 companies during this reporting period. The LVMPD has selected a liquid handling system for purchase. Objective 1 of Goal 3 has been met. In the next reporting period, the LVMPD will initiate the purchasing process for the liquid handling system and the validation services.

Progress 01 January – 30 June 2010: In October 2009, the LVMPD noticed a severe data degradation issue with Applied Biosystems' Identifiler Kits, which is currently the LVMPD's only validated amplification kit for casework processing and CODIS data entry. The LVMPD was the second laboratory in the United States to notify Applied Biosystems of such an issue, and during the subsequent weeks through the beginning of December, the LVMPD spent several weeks trouble-shooting the issue. After Applied Biosystems notified all its customers of a product hold on Identifiler kits in December 2009, the LVMPD received new kits which were allegedly corrected. However, the detail had ongoing problems with the kits until April 2010 when Applied Biosystems finally recognized the problem and indicated the kits would be improved with tighter manufacturing specifications for lots released in May 2010. Due to the extensive amount of time spent trouble-shooting the problem combined with a huge influx of DNA case requests, the DNA case backlog jumped by several hundred to an all-time high of over 1,100 cases. In March the Biology/DNA Detail made a decision to move away from Identifiler Kits, conducted an internal comparison study of new Promega and Applied Biosystems kits, and submitted a GAN to re-purpose the funds for the purchase of the liquid handling robot to use for in-house overtime (a minimum of 71 cases will be processed in-house), a 3130XL Genetic Analyzer, and contract services to outsource the validation of new quantitation and amplification chemistry. This GAN was submitted and approved in March 2010.

Grant-funded overtime was initiated in April, and in just one month, the Biology/DNA Detail successfully completed 79 forensic cases and entered 73 profiles into CODIS, resulting in 27 CODIS hits. Overtime on backlogged forensic casework will continue into the next reporting period. More information regarding cases processed on overtime during this reporting period is outlined in the General Comments section.

The 3130XL Genetic Analyzer was ordered in May and received in June. The outsource validation contract for new quantitation and amplification chemistries will begin in next reporting period. The new 3130XL will be brought online with the new amplification chemistry in the next reporting period. The original objectives of Goal 3 have been revised, and progress towards completing the outsourced chemistry validation, validating the 3130XL Genetic Analyzer and continuing overtime work on backlogged cases is ongoing.

Progress 01 July – 31 December 2010: Overtime on backlogged forensic casework continued through October 2010. More information regarding cases processed on overtime during this reporting period is outlined in the General Comments section.

The outsource validation contract for new quantitation and amplification chemistries ended in October 2010. As of December 2010, the review of the validations is almost complete and is expected to be brought online during the next reporting period. As such, the new 3130XL will also be brought online with the new chemistry in the next reporting period.

Progress 01 January - 31 March 2011: The outsource validation contract for new quantitation and amplification chemistries was completed and brought online March 31, 2011. The Biology/DNA Detail has been utilizing the new Plexor HY and Identifiler Plus chemistries and has been able to quantitate male DNA and have increased sensitivity with less inhibition for casework samples processed with these new kits.

The new 3130XL was brought online April 11, 2011. Even though this instrument was not brought online by the end of the grant cycle, it has been in use since April and has greatly aided in alleviating a bottleneck in the genetic analysis step during laboratory processing.

GOAL 4 - The Laboratory will purchase and validate the 7500 SDS software upgrade.
Objective 1: The Laboratory will purchase the 7500 SDS software upgrade within 6 months of the grant award.
Objective 2: The Laboratory will validate the 7500 SDS software upgrade within 3 months of the arrival of the software.

Progress 01 October - 31 December 2009: The new 7500 SDS received December 29, 2009 came with the new forensic quantitation software upgrade. In the next reporting period, Applied Biosystems will train the Biology/DNA Detail on the new forensic quantitation software. After the 7500 SDS validation is complete with the new software, additional software upgrades will be purchased to complete this goal.

Progress 01 January – 30 June 2010: In February of 2010 the entire Biology/DNA Detail attended training associated with this new 7500 SDS software in anticipation of its purchase. As mentioned previously, due to problems with Applied Biosystems kits the LVMPD conducted an internal study of new forensic-DNA chemistries, and decided to outsource the validation of Promega's Plexor HY quantitation kit. It was during this time (March) the LVMPD discovered the new 7500 forensic software being marketed by Applied Biosystems is not compatible with Promega's Plexor HY Chemistry because Plexor HY uses a melting-curve technology, and Applied Biosystem's forensic software currently does not have the capability of capturing melting curve data. Therefore, in March funds for this purchase were re-purposed for electrical reconfiguration to accommodate the 3130XL Genetic Analyzer and industrial freezers, and all such electrical work was completed in June. The revised goals and objectives have been met.
Progress 01 July – 31 December 2010: The revisions to Goal 4, Objectives 1 and 2 were previously met.

Progress 01 January - 31 March 2011: The revisions to Goal 4, Objectives 1 and 2 were previously met.

GOAL 5 - The Laboratory will purchase all remaining equipment and supplies within 12 months of the grant award.

Objective 1: The Forensic Lab will purchase convicted offender and sex registrant kits over the lifetime of the grant.

Objective 2: Within 3 months of the grant award, the Biology/DNA Detail will coordinate with the Evidence Vault of the LVMPD to order industrial freezers for frozen storage of biological evidence.

Progress 01 October - 31 December 2009: The LVMPD purchased and received power sources for the 7500 SDS and 9700 thermalcyclers December 21, 2009. In addition, the Biology/DNA Detail has coordinated with the Evidence Vault to facilitate the electrical work required before the industrial freezers are purchased. Additional progress towards the completion of Goal 5 will continue into the next reporting period.

Progress 01 January – 30 June 2010: Twelve thousand convicted offender kits were received in June 2010. Additional kits will be ordered as needed in the next reporting periods. Objective 1 of Goal 5 is ongoing.

In June, six industrial freezers were delivered to the LVMPD: four units were delivered to the main evidence vault and two freezers were delivered to the forensic lab. The units are all being used, and have provided much-needed storage space for the long-term storage of biological evidence. Objective 2 of Goal 5 has been met.

Progress 01 July – 31 December 2010: In October 2010, the budget was modified to reflect a total of 12,000 convicted offender kits to be purchased with grant funds. Excess funds were moved to the Equipment Category for the purchase of magnetic stands for the Prepfiler extraction chemistry validation. The Prepfiler stands were received in December 2010 and the Prepfiler validation is expected to be completed during the next reporting period. Goal 5 Objective 2 was previously met.

Progress 01 January - 31 March 2011: The Forensic Lab completed and brought online the Prepfiler validation January 3, 2011. This extraction system is currently being used in casework, and it provides a sensitive option for examiners who chose not to utilize organic extraction methods. Goal 5 Objective 2 was previously met. The revisions to Goal 5 Objective 1 have been met.

GOAL 6 - The Laboratory will reduce case turn-around-time and increase sample throughput

Objective 1: Through the purchase and validation of all requested equipment, the Forensic Lab will reduce case turn-around-time by 10 days from the beginning of the grant award to the end of the grant award

Objective 2: Through the purchase and validation of all requested equipment, the Forensic Lab will increase the amount of samples processed per analyst per month by 20 from the beginning of the grant award to the end of the grant award

Progress 01 October - 31 December 2009: This goal is still pending, and is expected to be completed within the 18 months of the proposal award as outlined in the original grant narrative.

Progress 01 January – 30 June 2010: This goal is still pending, and is expected to be completed within the 18 months of the proposal award as outlined in the original grant narrative.

Progress 01 July – 31 December 2010: This goal is still pending, and progress towards the achievement of this goal will be a focus of the Biology/DNA Detail in the next reporting period.

Progress 01 January - 31 March 2011: The Forensic Lab has not been able to reduce case turn-around-time by 10 days from the beginning of the grant award to the end of the grant award. In fact, turn-around-time increased by 5 days from October 2009 →March 2011 climbing from 130 days to 135 days. In addition, the Forensic Lab has not been able to increase the amount of samples processed per analyst per month by 20 from the beginning of the grant award to the end of the grant award. The Biology/DNA Detail actually had a decrease of 67 samples processed per analyst per month from October 2009 →March 2011. The backlog also significantly increased from 871 to 1,259 cases from October 2009 → March 2011. Reasons are outlined in the General Comments section 01 January – 31 March 2011. Goal 6, Objectives 1 and 2 not met.

General Comments 01 October - 31 December 2009: In evaluating the required metrics, it was noted there was an increase in the number of backlogged cases from 871 to 890 from October →December 2009. Calendar year 2009 marks the end of the second consecutive year where the Biology/DNA Detail of the LVMPD has seen a significant jump in the number of DNA requests received at the forensic laboratory annually. The information below shows the rapid rise in DNA requests due to advances in DNA technology (such as low-template DNA analysis), coupled with offering more DNA services (such as property crimes which now comprise over 50% of the DNA backlog). Despite the LVMPD's ability to reduce case turn-around time and increase sample throughput during this reporting period, the LVMPD does not anticipate the flood of DNA requests coming into the lab will lessen anytime in the future. Instead, the Forensic Lab believes the requests will steadily increase as detectives and investigators continue to develop an appreciation for the power of DNA analysis.

Total Number of DNA Requests Received:

Calendar Year 2007: 845
Calendar Year 2008: 1319
Calendar Year 2009: 2278
Calendar Year 2010: 2492

General Comments 01 January – 30 June 2010: In evaluating the required metrics, it was noted there was an increase in the number of backlogged cases from 871 in October 2009 - 1238 in June 2010. This relates directly to the Identifiler kit issue and the large increase in requests received previously mentioned (see Goal 3 Progress 01 January – 30 January 2010 for details). As a result of this growing backlog, the LVMPD initiated grant-funded overtime for backlogged DNA cases in April 2010 from a GAN that was submitted and approved in March 2010. From April - June 2010, the Biology/DNA Detail completed 198 cases, entered 176 profiles into CODIS, and had 42 hits as a result of using grant-funded overtime. Cases processed on overtime in this reporting period are as follows:

April – June 2010 Grant Funded Overtime	Number of Cases Processed	Number of CODIS Entries	Number of CODIS Hits
Burglaries	134	125	24
Auto Thefts	27	28	12
Other Property Crimes*	10	10	0
Grand Larceny	10	10	0
Homicide	7	0	1
Sexual Assault	3	0	0
Robbery	1	1	5
Assault and Battery	1	1	0
Home Invasion	1	0	0
Officer Involved Shooting	1	0	0
Misc. Crimes∞	3	1	0
Totals	198	176	42

Other Property Crimes includes Malicious Destruction of Personal Property and Vandalism
∞Misc. Crimes include Theft and Hit and Run

In May 2010, the LVMPD also had a GPA assessment and this grant was reviewed. There were no issues identified with the management or spending of funds associated with this grant.

General Comments 01 July – 31 December 2010: In evaluating the required metrics, it was noted there was an increase in the average number of days between the submission of a request for DNA analysis and the delivery of test results to the requesting agency (130 days to 186 days) 01 October 2009 - 31 December 2010. In addition, there was a drop in the number of samples analyzed per analyst per month (108 to 48) 01 October 2009 →31 December 2010. During this reporting period casework analysis slowed as the Biology/DNA Detail focused on wrapping up three large validations associated with casework: new extraction chemistry, new quantitation chemistry and new amplification chemistry. In addition, the staff focused on training three new DNA examiners. The three new validations and the training program of two new examiners should be complete in the next reporting period which will enable the staff to focus on casework in 2011. It is expected the training program of the third new examiner will end in the latter half of 2011.

Due to reporting protocols of the LVMPD, there can be a time lag between the reporting of samples entered into CODIS and the reporting of CODIS hits. As such, the number of CODIS entries and CODIS hits from April - June 2010 actually changed as follows:

	Reported in July 2010	**Reported in January 2011**
Number of Cases Processed	198	198
Number of CODIS Entries	176	184
Number of CODIS Hits	42	91

Clearly, the number of CODIS hits has more than doubled from the original 198 cases processed on grant overtime April - June, 2010.
Grant overtime associated with processing backlogged forensic cases was exhausted in October 2010. Between April 2010 - October 2010, the Biology/DNA Detail processed 291 cases on overtime, which is over 400% more than what was originally promised by the LVMPD (71 cases). Cases processed on overtime, CODIS entries and CODIS hits for the entire grant cycle are summarized below:

April – October 2010 Grant Funded Overtime	**Number of Cases Processed**	**Number of CODIS Entries**	**Number of CODIS Hits**
Burglaries	188	184	76
Auto Thefts	32	34	23
Other Property Crimes*	14	13	3
Grand Larceny	11	10	2
Homicide	13	0	1
Sexual Assault	14	0	0
Robbery	5	2	6
Assault and Battery	3	2	1
Home Invasion	1	0	0
Officer Involved Shooting	3	0	0
Misc. Crimes∞	7	1	0
Totals	291	246	112

Other Property Crimes include Malicious Destruction of Personal Property, Vandalism, Petite Larceny, Larceny, Possession of Stolen Property and Theft ∞Misc. Crimes include Theft, Hit and Run, Person in Possession of a Firearm, Pandering and Fraud

Of interest, 3 burglaries processed with grant funds were linked to 4 other burglaries which hit to a convicted offender. In addition, two auto thefts processed with grant funds were linked to 5 other burglaries which eventually hit to a convicted offender.

Looking at the chart indicates burglaries and auto thefts yield the largest number of CODIS entries (218) when compared to the number of burglary and auto theft cases processed (220) – roughly 99%. Of the 218 CODIS entries for burglaries and auto thefts, 45% yielded CODIS hits

(99). LVMPD's CODIS success highlights the continued importance of performing DNA analysis on property crimes cases.

General Comments 01 January - 31 March 2011:

Total Number of DNA Requests Received:

Calendar Year 2007: 845
Calendar Year 2008: 1319
Calendar Year 2009: 2278
Calendar Year 2010: 2492

Despite the LVMPD's efforts to use grant-funded overtime to process casework and combat the backlog, it is obvious the Biology/DNA Detail simply cannot reduce the forensic case backlog when case requests increase from 9% - 70% annually. The jump in the amount of DNA requests received over the life cycle of this grant will explain the 388 case backlog increase from October 2009 - March 2011 (871 cases - 1,259 cases). A growing backlog also affects case turn-around-time, which is evident through the increase of 130 days - 135 days during the life cycle of this grant. To help combat the backlog, the Forensic Laboratory hired 1 additional employee in January 2011, hired 3 additional employees in March 2011, and is hiring a fourth employee in July 2011. These trainees should have an impact on reducing the backlog in 2012 when their training programs are complete.

During this reporting period, the Biology/DNA Detail released only one employee from training and had an additional 6 employees in training. The toll training takes on the Biology/DNA Detail is evident by the drop in the number of samples analyzed/per analyst/month. Training activities must be monitored and supervised, which takes time away from case processing. These training activities can account for the huge drop in the number of samples processed per analyst per month from October 2009 - March 2011 (108 samples/analyst/month to 41 samples/analyst/month).

Despite DNA casework backlog challenges, the Biology/DNA Detail has been able to complete several significant validations associated with this grant: the validation of Prepfiler extraction chemistry, Plexor HY quantitation chemistry and Identifiler Plus amplification chemistry. These new chemistries have enabled the forensic lab to acquire current technology available, detect the amount of male DNA contained in a sample, increase sensitivity and decrease inhibition. In addition, the Biology/DNA Detail acquired and validated a 7500 Sequence Detection System and a 3130XL Genetic Analyzer, which have already alleviated bottlenecks in DNA casework processing.

Finally, between April 2010 - October 2010, two hundred ninety-one (291) backlogged cases were analyzed on overtime which generated two hundred forty-six (246) CODIS entries and produced one hundred twelve (112) CODIS hits. The LVMPD far exceeded the NIJ's initial goal of working 71 cases with overtime funds, rendering a safer community for the citizens of the Las Vegas Valley.

This grant has been another successful program and cooperative effort between the Las Vegas Metropolitan Police Department Forensic Laboratory and the National Institute of Justice.

FY09 Recipient Name: Washoe County Sheriff's Office
Award Number: 2009-DN-BX-K099
Award Amount: $390,766
Final Report: The award period of this grant extended from October of 2009 to September of 2011. The two main goals associated with this award were to reduce the casework backlog and improve the turnaround time of DNA casework samples through the purchase of equipment and the validation of time-saving technologies for the quantitation assays. The Washoe County Sheriff's Office Forensic Science Division Biology Unit consists of the DNA Section, Primary Examination Section, and CODIS Section. These sections work cohesively to process casework samples, generate DNA profiles, and upload the profiles to the National DNA database (CODIS). The Biology Unit is comprised of a unit Supervisor, five DNA analysts, three of which also perform Primary Examinations, a DNA Technical Leader, and the State of Nevada CODIS Administrator. The Technical Leader and CODIS Administrator each process casework as less than 50% of their duties. Contributions from other sections including the Forensic Investigation Section and the Evidence Section have also been instrumental in assisting the Biology Unit in achieving the goals of the grant.
The Biology Unit has successfully completed the two goals as listed above and has every expectation that the decrease in the casework backlog and the decrease in turnaround time of reports to customers will become the new status quo of the Unit with ongoing efforts to increase customer satisfaction through timely case processing. This grant has allowed for the purchase of numerous pieces of equipment, instrumentation and supplies, as well as the validation of new instruments and technologies that have contributed to the overall success of achieving these goals.

<u>Casework Backlog</u>
The total number of DNA backlog cases at the initiation of this award (October 2009) was 287. The Unit determined that 150 backlogged cases would be processed during this grant cycle. Backlogged casework processing began approximately in March of 2010, with priority given to the oldest cases assigned to each analyst, and crimes against a person given priority over property crimes. The types of cases processed included homicide, sexual assault, robbery, assault and battery, auto theft, burglary, theft, larceny, and vandalism. The DNA casework backlog at the end of this grant cycle was 135 cases. This equates to a 53% reduction in total backlogged cases. The majority of the casework was done in the first nine months of the grant cycle with continued processing through September of 2011.

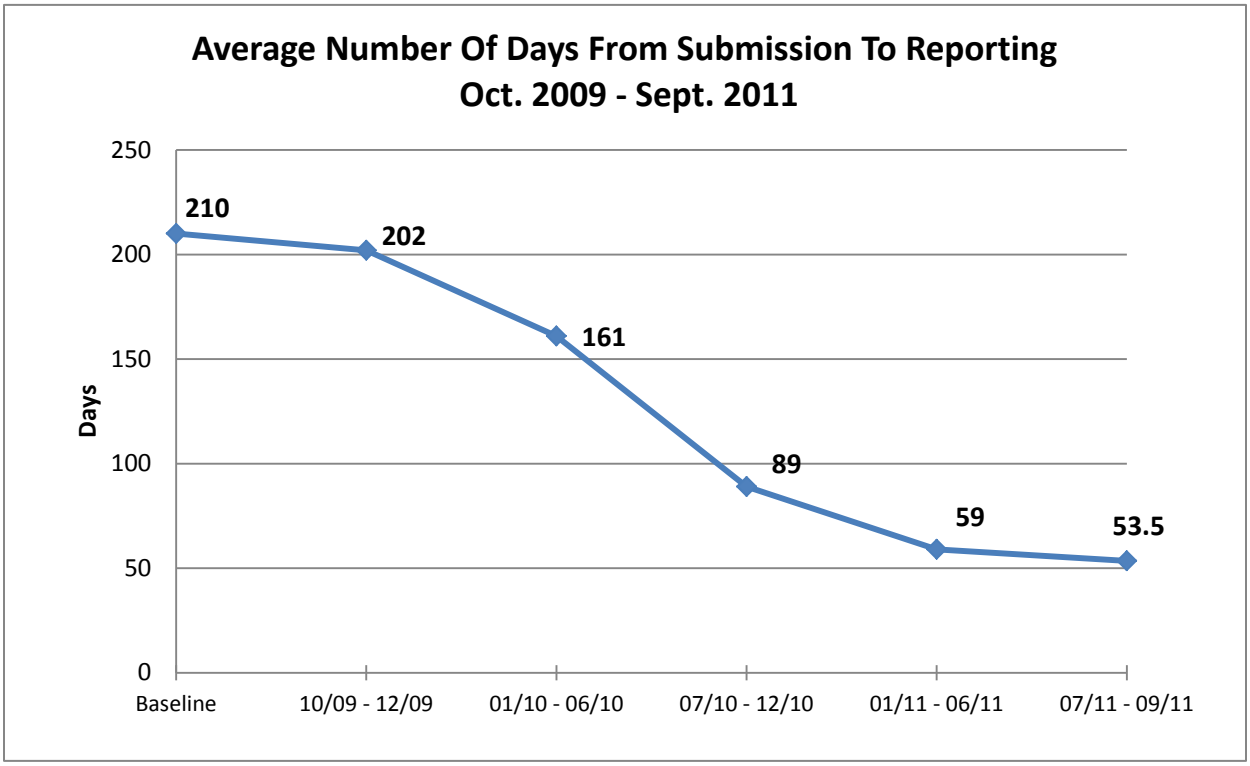
Graph 1 illustrates the backlog decrease per reporting period throughout the life of the grant. The total number of cases completed utilizing grant funds was 158. This goal was met and was exceeded by 5%.

Graph 1

Turnaround Time Decrease

The second goal associated with this grant was to decrease the turnaround time of casework analysis to include the final reporting to agencies. A 15% decrease in turnaround time (approx. 30 days) was projected to occur as a result of this award. The average number of days to complete a report (from evidence submission to agency receipt of report) at the initiation of this grant was 202 days or 6.7 months. The average turnaround time for casework during the grant cycle was 113 days or 3.7 months. This indicates an approximate reduction in turnaround time of 44% from initial baseline data.

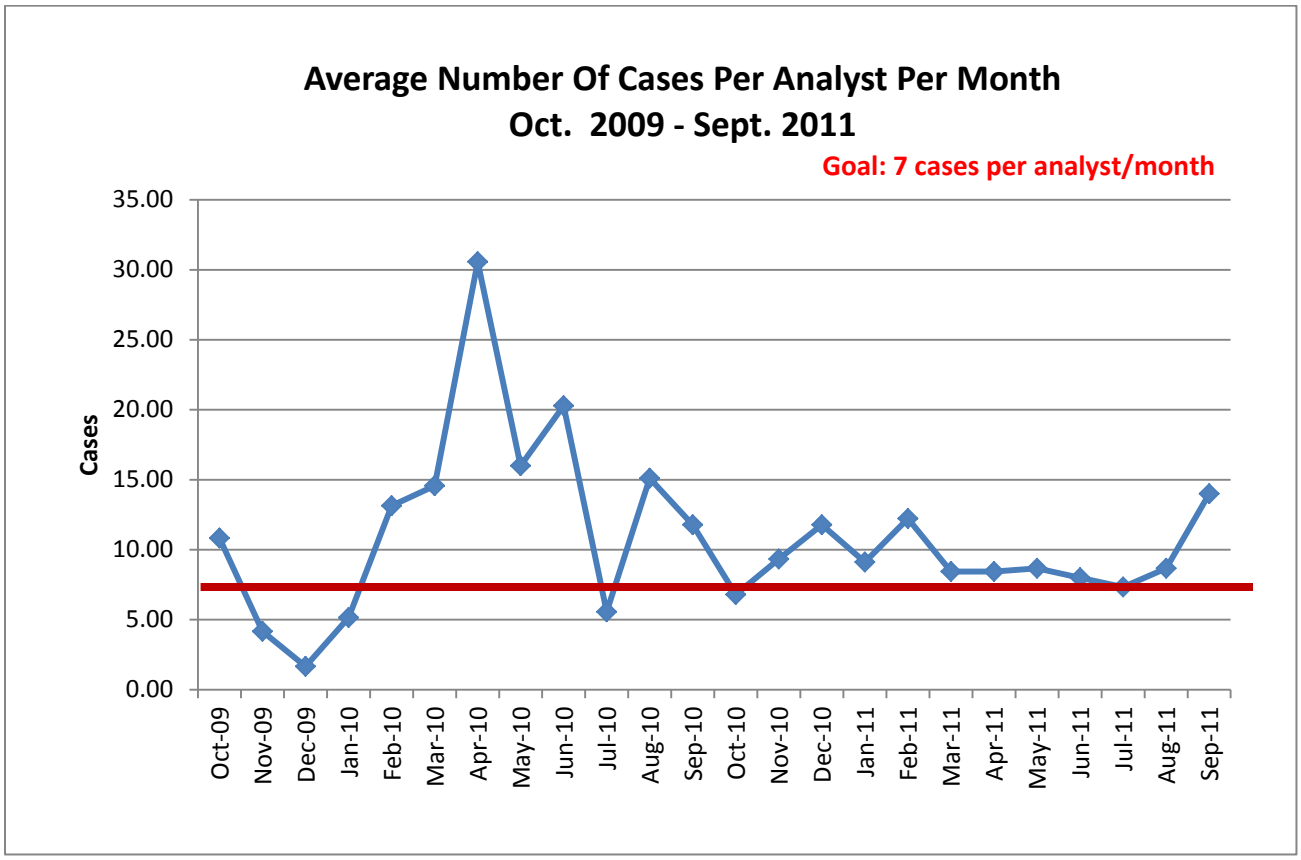
The turnaround time for casework completion has consistently trended downward and has occurred in spite of STR kit manufacturer quality issues and laboratory shut down, the hiring and training of two new DNA analysts, vacancies in the Unit, and numerous validation projects. Although the average turnaround time since the initiation of this grant is 3.7 months, the current turnaround time on average is less than 60 days. Through aggressive casework processing and implementation of new technologies and instrumentation, and focused Unit goals, the Biology Unit has met and exceeded this goal as indicated in Graph 2.



Graph 2

Other metrics reported during each semi-annual reporting period included average number of samples processed per analyst/month and average number of cases completed per analyst/month. The goal was to complete 7 (approx. 16.7% increase) cases per analyst/month. The average number of cases completed per analyst/month at the start of the grant was 6. At the end of the grant cycle the average number of cases completed per analyst/month was increased by 83% to almost 11 cases per analyst/month. The average number of cases processed is somewhat high due to the large amount of cases processed for backlog reduction; however, these occurred primarily in the first nine months of the grant cycle. More significant is that the average values for the past year when backlogged casework processing had decreased substantially, decreased nearly 50% to an average of 9.4 cases per analyst/month. Graph 3 demonstrates that this goal was also met and exceeded.

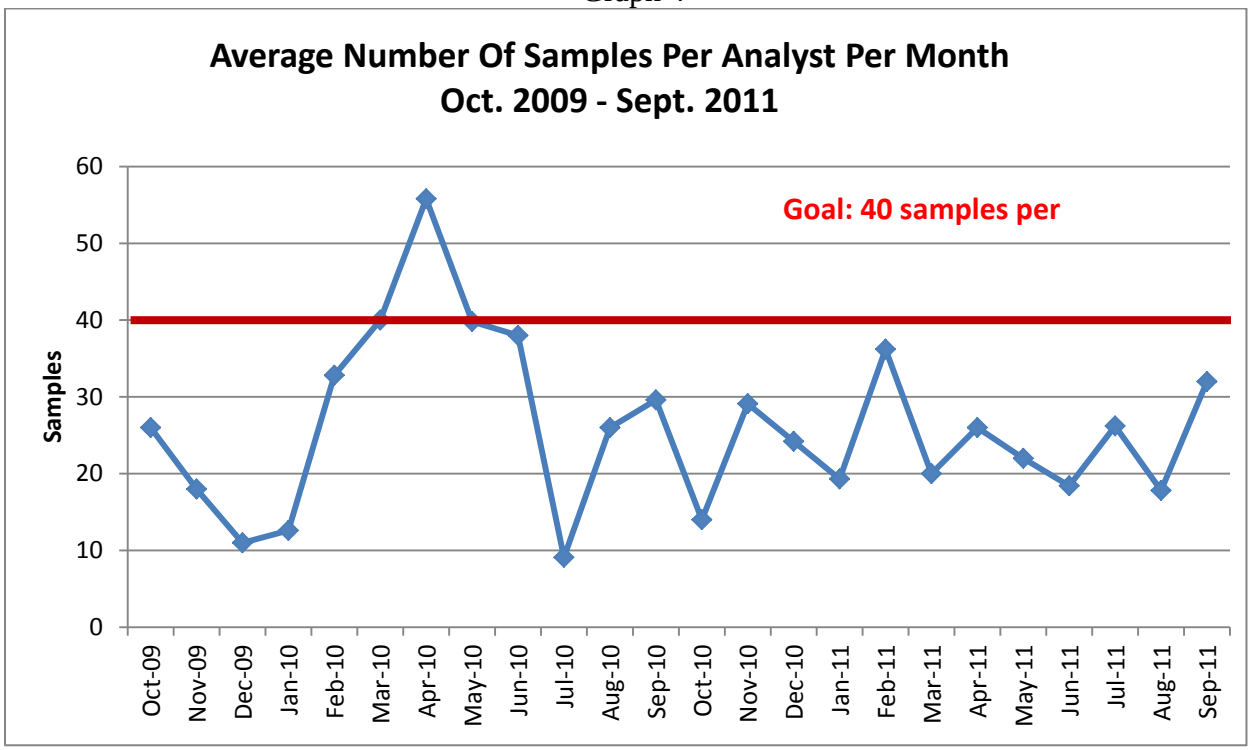
Graph 3



Sample Number Increase

A goal of a 25% increase in the average number of samples processed per analyst/month was proposed as one of the metrics to demonstrate the success of this grant. The baseline average number of samples processed per analyst/month was 30 samples. An increase of 25% would require each analyst to process 40 samples per month. This goal has never been met and the expectation that there will be a 25% increase in samples processed per analyst/month is unrealistic. The number of samples processed has decreased over time due in part to sample processing limits set by the Laboratory and an evident decrease in casework submissions (Graph 4). The failure to meet this goal should in no way be looked upon negatively since the backlog has decreased and the turnaround time of sample processing and report writing has increased, which were the main goals of the Biology Unit.

Graph 4



CODIS

Sixty-eight DNA profiles generated from the 158 cases completed on this grant were uploaded to the National DNA Database (CODIS). A total of 435 profiles (forensic and reference profiles) were generated from these backlogged cases. Approximately 16% of these profiles were entered into CODIS. A total of 14 hits were obtained from the 68 profiles entered into CODIS and included 7 burglaries, 2 auto thefts, 2 sexual assaults, and 3 larceny/theft cases (2 of which are to the same case). Nineteen other matches were obtained but resulted in no hits, with an additional 35 profiles having obtained no matches at this time.

Two of the hits that occurred from DNA profiles entered into the database as a result of grant funds were burglary forensic unknowns that were case to case matches. These 2009 cases also hit to two additional burglary cases that were not processed using grant funds. A total of four cases were linked from two different agencies. The evidence was processed by two different analysts and upon discovering the hits and notification to the agencies, investigative work by the agencies' detectives, a suspect was developed. The individual was an April 2010 convicted offender whose offender sample had not yet made it in to the database but was scheduled to be outsourced. The sample was processed in December of 2010 and uploaded to CODIS resulting

in a hit to the four cases. An evidentiary reference sample was collected and confirmed the matches. These cases are all currently awaiting adjudication.

Equipment and Instruments

This grant allowed for the purchase of numerous pieces of equipment and instrumentation that contributed to assisting us in meeting our goals. Some of the items purchased were new and helped with bottlenecks within the Primary Examination and DNA Sections and others were basic technological upgrades/replacements to existing equipment.

A new camera was purchased for the existing stereomicroscope in the Primary Examination Section, along with a new transmitted light microscope (Image 2). The new microscope alleviated a bottleneck that existed for the screening of items as only a single microscope was available for three analysts. Additionally, the camera for the existing stereomicroscope (Image 1) assists in the screening of large items for microscopic stains not visible with the naked eye, and allows for better photo documentation of evidence.

Image 1

Camera and Desktop Computer for existing Stereomicroscope

Image 2

Transmitted Light Microscope

To alleviate a bottleneck that existed in the DNA Section, four Eppendorf thermal cyclers (Image 3) were purchased and are currently in the process of being validated. The Section currently has four thermal cyclers and seven analysts. At any one time a single analyst can utilize up to two instruments for amplification. As efforts are made to turn around casework more quickly, analysts often do find that they have to wait for thermal cycler availability. With the four additional thermal cyclers, this bottleneck will be eliminated. The validation of these instruments will be completed after the close of this grant.

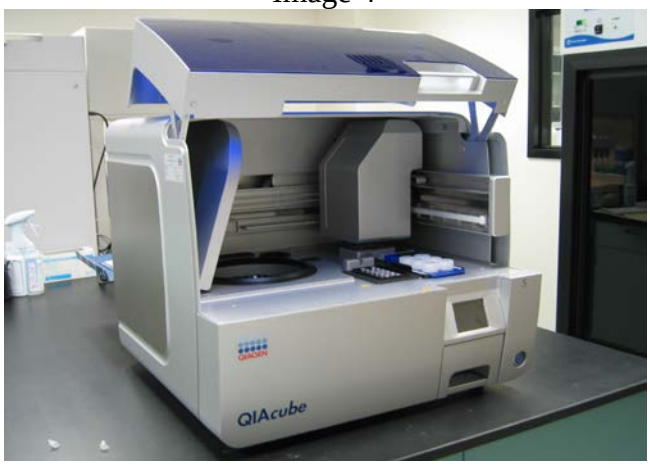
Image 3

Four Eppendorf thermal cyclers

In our efforts to increase the efficiency of our DNA laboratory, four QIAcube extraction robots (Image 4) were purchased and validated in-house by Sorenson Forensics. The implementation of these extraction robots has been a tremendous time-saving factor due to the ability to run all four instruments in tandem. Each instrument can extract 12 samples in approximately 2 hours per instrument. If all four instruments are running, 48 samples can be completed in the just over the same amount of time. The average analyst can manually extract 16 samples (including

incubation and hands on work). More importantly is that the actual amount of hands on time is approximately 20 minutes per extraction run (1.5 hours), leaving the analyst more time to perform additional extraction procedures not validated on the QIAcubes such as differential and hair extractions.

Image 4



QIAcube Extraction Robot – 1 of 4 instruments

Along with the purchase or upgrade of instruments, numerous pieces of equipment were either upgraded or additional items added to the Unit. A new ultrasonicator was added to the Primary Section, along with two complete sets of Alternate Light Source (ALS) systems.

Previously only one ultrasonicator was available to the three analysts. The additional ALS systems allowed for multiple analysts to work at the same time, each with their own complete set of lights for evidence screening. New digital cameras (Image 5) and photo printer/scanners were added to the DNA and Primary Examination laboratories. Prior to the award of this grant, the photo documentation system used for evidence had been a Polaroid instant camera (Image 6) with poor resolution and no capability to adjust aperture or regulate the flash.

The scanner and photo printer in each laboratory allow the analyst to conveniently copy any document submitted with the evidence including Database consent forms and seizure orders, and not have to remove all protective gear to photocopy in another room. The new photo documentation equipment has also been utilized to enhance presentations for court and customer training. Additionally, photos were taken to incorporate into a document that demonstrated how the laboratory prevents sample mix-up and contamination during extraction, quantitation, amplification, and capillary electrophoresis set-up. The photos were of extreme close-ups that would not have been possible without the telephoto lens on the new camera.

Image 5

New Nikon Digital Camera

Image 6

Old Polaroid Instant Camera

New laptops were purchased with grant funds to replace existing, outdated laptops. These laptops have been used to analyze electrophoresis data; convicted offender sample review; write reports for backlogged cases processed utilizing grant funds; and prepare numerous presentations including court presentations, The National Judicial College Scientific Evidence and Export Testimony course, and the State Bar Continuing Education DNA training.

The laptops with state-of-the-art operating systems have significantly saved time in printing out electrophoresis data from GeneMapper *ID-X* software. GeneMapper *ID-X* was validated and installed on all desktops and laptops in the DNA Section. One drawback to this software upgrade was the excessive amount of time needed to print out a single electropherogram (approx. one minute per page). Numerous efforts have been made to correct this problem including purchasing new printers and upgrading the desktops. This problem is still not resolved, but a work around is to print all data from the laptop (approx. print time is 10 seconds). On average, an analyst will run 40 or more samples per 3130 run. This means that each sample electropherogram, the ILS associated with the sample, and amplification positives and negatives for each case packet must be printed out. This equates to at least 200 pages of data, and at 1 minute per page printing could take 3.3 hours. Utilizing the laptop, the time to print is reduced to 33 minutes. Using the laptop to print out GeneMapper *ID-X* data is 83% faster than using the desktop.

Validations

Six validations were completed utilizing funds from this grant and ranged from funding for consultant services for the validation of QIAcubes, to overtime and supplies funding for the in-house validation of new DNA typing kits (PowerPlex 16 HS), a new quantitation kit (Plexor HY), a third quantitation instrument (ABI 7500 RT-PCR system), Eppendorf Multi-channel temperature probe, and GeneMapper *ID-X* software.

The use of Sorenson Forensics for the validation of the QIAcubes extraction robots was undertaken to expedite the validation process. Although the laboratory work and write-up were completed by Sorenson within a timely manner, the data generated and reported was poorly written with numerous errors that had to be repeatedly corrected after the final report was received by Washoe County. Upon data review by the Technical Leader, extensive back and forth communication took place to get the reports to reflect the correct calculations and conclusions. The lack of completeness of the final report from Sorenson Forensics resulted in an extreme delay (approximately 6 months) in implementing the new instruments in the laboratory.

The PowerPlex 16 HS STR Kit and Plexor HY Quantitation kit were simultaneously validated in-house. Manufacturer quality issues were observed in the STR kits that we were using in 2009, which resulted in the temporary closure of the DNA Section. During the closure, a new STR and quantitation kit from a different manufacturer were evaluated and subsequently validated within 2 months. The STR kit allowed for the use of less input DNA and was optimized to overcome inhibition better than the previously used kit.

Additionally, the new quantitation kit allowed for a single reaction set-up to generate quantitation values for both total human and male specific DNA. A single reaction allowed for a time-savings of at least one hour per quantitation, as a second plate would not have to be set up and run. Also, only 2 µl of sample is now needed to get results rather than the previously used total sample volume of 4 µl for total human and male specific DNA results. There was also a cost savings in the price of the kits associated with these validations.

The validation of the multi-channel temperature probe was one of the most relevant stress reducers associated with this grant. The multi-channel probe previously utilized in the lab for monthly thermalcycler temperature checks was expensive to run and maintain, was poorly made, and did not collect data correctly requiring the tests to be redone. Many probes repeatedly fell off of the instrument requiring service of the entire system and on several occasions, at least one thermalcycler was out of service due to the inability of the laboratory to verify the monthly temperature values for the instrument. The newly validated multi-channel temperature probe is a robust instrument with no problems to date. Data generated is of good quality, the instrument itself is of high quality and no thermalcyclers have been taken out of service as a result of temperature probe issues.

The validation of an additional 7500 real-time PCR instrument for quantitation removed a second bottleneck that existed in the DNA Section, as only two instruments were available for seven analysts. With the validation of a third instrument, there is generally no longer a wait for

an instrument, and with the new quantitation kit, this step is no longer a bottleneck in the process.

GeneMapper ID-*X* was validated in-house by an intern from Marshall University. The data review and final write up associated with this validation, including validation support for the intern, was performed by the Technical Leader on overtime utilizing grant funds. Without the use of funds from this award, the validation write up of the GeneMapper ID-*X* software program would have taken at least an additional two months. The software upgrade has been a great addition to efforts to determine possible contamination as all employee profiles are in the GeneMapper ID-*X* program. With use of the *Profile Comparison* tool in GeneMapper ID-*X*, samples can be compared to the database of profiles and to each other or determine the possibility of analyst or sample to sample contamination.

Validations that were are also funded (overtime and supplies) under this grant but not yet complete include four thermalcyclers, one pre-amplification robot to set up quantitation and amplification plates, one post-amplification robot to set up 3130 capillary electrophoresis plates, and a 30 cycle amplification protocol for PowerPlex 16 HS. These last four validations will be completed after the close of this grant but will have a great positive impact on the DNA Section. Implementing robotics in the laboratory not only frees up analysts' time, but negates the possibility of sample pipetting errors, and reduces the likelihood of contamination of samples by analysts' manipulation.

The following are registered trademarks of the Promega Corporation: PowerPlex 16 HS and Plexor HY.
The following are registered trademarks of Life Technologies, Applied Biosytems: GeneMapper ID-*X* and ABI 7500 RT-PCR System.
Eppendorf Multi-channel temperature probe is a registered trademark of Eppendorf.

FY09 Recipient Name: City of New York
Award Number: 2009-DN-BX-K162
Award Amount: $799,920
Final Report:
Casework capacity: The decrease in samples analyzed per analyst per months is a normal fluctuation probably caused by the number of holidays in November and December. The laboratory was able to keep the turnaround time stable, which can be considered a major achievement in light of the budget reduction and loss of headcount (see final narrative for more detail).

Supplies: 25 grant funded Identifiler kits were purchased from ABI Life technologies and placed in the laboratories for use on October 1st, 2011. All of these kits contained Taq Gold with the lot

number N12473G that allowed the cases worked to be tracked. No other lot number of Taq Gold was in use in the property crimes, homicide/sex crimes and high sensitivity sections of the laboratory at that time and PCR batch sheets with this lot number were stored and evaluated for the progress report. The evaluation yielded a cumulative total of 487 assignments in which one or more samples had been tested using the Taq Gold and that resulted in 124 profile uploads to CODIS and 49 matches.

On October 1st, 2009, a total of 2,179 assignments were considered to be "backlogged." Of these assignments, only 206 were received within this reporting period and not started before the end of this reporting period. 1,973 of these were considered to be backlogged assignments because they were not completed within the targeted 30 day turnaround time.

On December 31st, 2011, a total of 2,259 assignments were considered to be backlogged." Of these assignments, only 270 were received within this reporting period and not started before the end of this reporting period. 1,989 of these are considered to be backlogged assignments because they were not completed within the targeted 30 day turnaround time.

Personnel: The four Criminalists hired through this grant are entry level employees and are not signing any DNA reports. Based on guidance we received from NIJ earlier this year, these employees must be considered technicians and any casework contribution should not count as a "case worked by staff whose salaries were funded under this grant". Therefore the metrics in this section were marked N/A. Just for completeness, here is the status for these four employees: collectively, they examined evidence or performed DNA extractions in 403 cases for this reporting period.
Please note that for the two 2010 progress reports for the FY09 backlog award we had reported cases, CODIS profiles and CODIS hits for these employees. We are not including these previously reported numbers in our cumulative metrics.

Equipment and Travel to Scientific Meetings and Conferences:
No funding was applied to equipment and travel in this reporting period.

Final Report Narrative: Part of the main goals and objectives of this grant were to implement a screening assay that will reduce the volume of samples that need multiplex STR typing and hire additional personnel in order to reduce current backlogs and case turnaround times. The City Research Scientist Level II hired under this grant was tasked with working on both the DNA storage and the screening assay projects. Both projects are expected to increase our capacity in the near future.

Room Temperature Storage Project Status: Comprehensive long and short term studies of the stability of DNA extracts over a range of DNA template amounts (10 pg/µL, 100 pg/µL, and 500 pg/µL) were performed to identify viable mechanisms for room temperature storage. Extracts dried in a SpeedVac were stored with either Biomatrica LD buffer, GenTegra from Integenex, or an in house solution of 3% Trehalose. Samples were stored, exposed to the atmosphere or, in order to minimize the deleterious effect of atmospheric moisture, enclosed in a vacuum sealed

container, the DesiVac, or in economical vacuum sealed storage bags. To further reduce moisture, desiccant was included. Samples were stored for 60 weeks at room temperature or for up to 20 weeks at 50°C to simulate aging. All tests included a control group stored at -80°C. The accelerated aging studies with 10 pg/µL show that 3% Trehalose preserved the most DNA. Other studies are in progress and data will be presented at the 2012 AAFS meeting in Atlanta, GA. It is anticipated that the validation will be completed in 2012 and the department is in the process of reconfiguring space for room temperature storage shelves.

Screening Assay Project Status: Equipped with a plan for efficient extract storage, we investigated the feasibility to prescreen samples for mixtures. Using High Resolution Melting (HRM) curve technology, although samples with the same TH01 alleles show very similar HRM curve patterns, the different alleles were not differentiated. The 6, 7, 8, 9, and 9.3 alleles at TH01 were, however, distinguished with Hybeacon probes. We are currently optimizing the D18S51 and D8S1179 reactions as well as a multiplex. In conjunction with these studies, we developed a separate screening assay for male and total DNA which we consider superior to commercial assays since it employs two male specific markers and reaches a higher sensitivity. With the multiply copy TSPY locus, we can reliably detect male DNA to 0.72 pg/µL. Using multiple primer sets for the single copy SRY locus, and with the Alu locus, we can accurately determine the ratio of male to total DNA in a sample to 18 pg/µL across races. This assay which is considerably more sensitive that currently available commercial kits will be presented at the 2012 AAFS meeting in Atlanta, GA and will be brought on line in 2012.

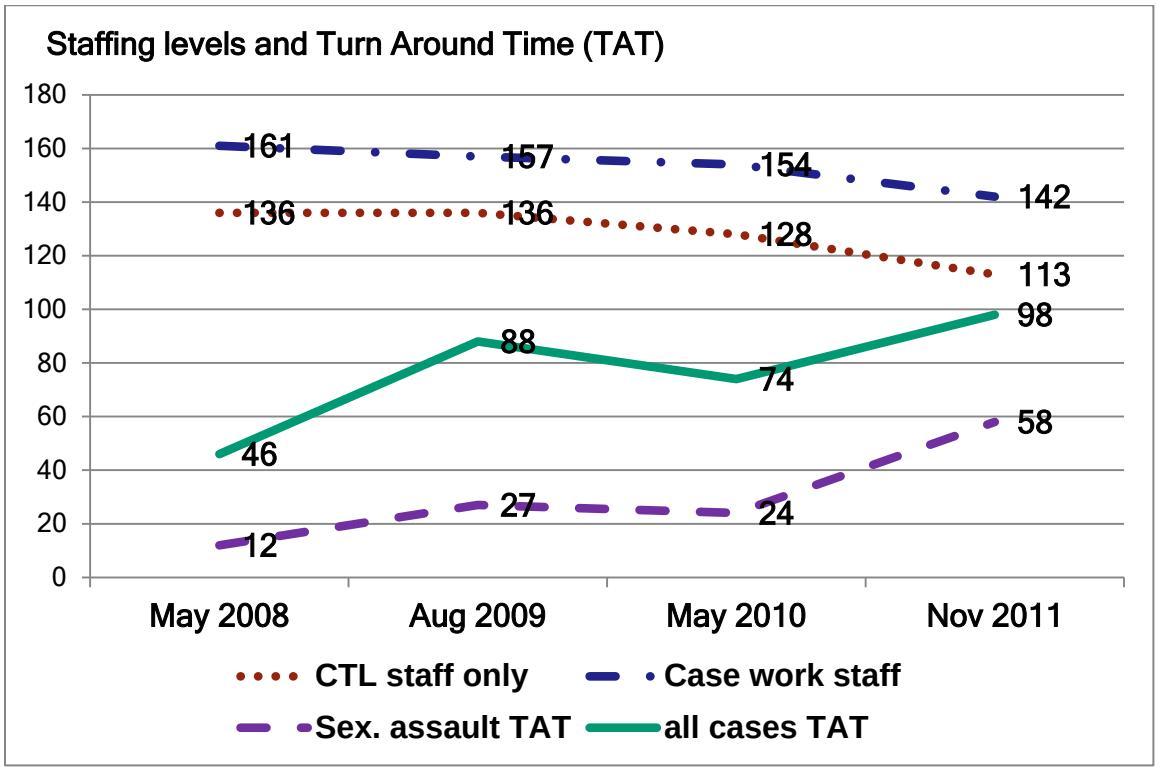
Cumulative list of Continuing Education through travel to Scientific Meetings: $29,794.17 in allocated travel and registration fee funding was utilized to send qualified DNA analysts to the following scientific meetings and conferences in order to provide them with their annual 8 hours of continuing education requirement:

- 2010 Promega International Symposium on Human Identification in San Antonio, Texas
- 2010 Mid-Atlantic Association of Forensic Scientists (MAAFS) Annual Meeting in State College, Pennsylvania
- 2010 Northeastern Association of Forensic Scientists (NEAFS) Annual Conference in Manchester, Vermont
- 2010 Bode Technology Group East Coast Meeting in Amelia Island, Florida
- 2010 NIJ Conference in Arlington, Virginia

Casework capacity and Backlog reduction: The time period between the start of this grant award (October 1, 2009) and the final reporting period (December 31, 2011) has been dominated by the Forensic Biology Department's struggle to maintain its capacity. During this time period, 33 non managerial scientific staff members left the department and could not be replaced due to budget cuts and hiring freezes. In October 2009, the department had 146 non managerial scientific staff members in the criminalist title which means the total attrition was 22% or approximate 11% per year. All of these vacancies were lost in an ongoing round of budget cuts.

The loss of head count was partially mitigated by use of NIJ backlog reduction funding. Forensic Biology management was able to hire a total of 16 Criminalists on either NIJ Backlog Reduction

solicitations, Justice Assistance grant money, NIJ's "Use of DNA to identify the Missing" grants, or specialized City funding for the WTC victim identification project. Of these 16, five are only working WTC or Missing Person's cases, while 11 are assigned to casework. Of these 11, three did not start until December 2011 and have not yet completed their training.
Many time consuming steps in the DNA testing process cannot be automated (for example evidence exam, report writing, report review, court testimony) and as the figure below illustrates, the loss in head count could be correlated to an increase in average or median turnaround times.



Please note that CTL stands for City Tax Levy and that "casework staff" includes both, CTL and grant funded, managerial and non-managerial scientific casework staff.

Throughout the October 2009 to December 2011 time period, the Department of Forensic Biology issued an average of 930 reports. Nevertheless TAT values vary from month to month, and the overall average for all crime types reported to NIJ as part of our progress reports ranged from 74 to 87. The fact that the loss of head count has not resulted in a more dramatic turnaround time increase shows that the Forensic Biology Department continues to seek efficiencies.

During the duration of this grant, the overall backlog numbers, defined as cases that are older than 30 days, initially increased from 2179 on October 1, 2009 to 2619 on December 31, 2010. This number was since then reduced to a number only slightly higher than the starting level (2259). There were several projects that contributed to this backlog reduction.

Database clean-up: it was recognized that each month a number of records accumulated in the case log book that were not closed put properly and thus were still counted as open cases. The majority of these records were duplicates that had been started by mistake and were not updated, since the assigned analysts and reviewers only dealt with the original record.

Targeted case review project: with an emphasis on active investigations and CODIS profiles, as well as cases going to trial, many technical reviewers tend to accumulate a subset of files that always get de-prioritized and thus will not get reviewed. In December 2010 Forensic Biology management generated a list of these old open cases and asked each supervisor to phase these cases back into the current case review process.

Technical review process changes: the Forensic Biology SOP requires two levels of technical review for cases with mixtures that were deconvoluted into individual contributor components and it was mandatory that the second level review was performed by a managerial forensic scientist. In 2010, the SOP was changed to allow for peer review and authorize Criminalist Level IV staff to perform the second level review as well. This removed a major bottle neck in case reporting.

The department is also pursuing caseload reduction strategies and working with stakeholder agencies (NYPD and District Attorney offices) to improve case triaging and notifications on cases, where laboratory testing is not required anymore. One case type where a change in triaging has resulted in a drop of evidence submission is the Criminal Possession of a Weapon category. Guns submitted in CPW cases are not eligible for CODIS entry and DNA results obtained from an individual gun must be compared to a suspect sample to be meaningful. While the evidence was automatically being submitted to the laboratory, only a small percentage of cases were actually being followed up with a suspect sample. The new workflow requires the parallel submission of a draft motion to the court that a suspect sample is required. This has resulted in a significant drop in evidence submissions and frees up remaining casework capacity.

FY09 Recipient Name: County of Erie
Award Number: 2009-DN-BX-K110
Award Amount: $376,670
Final Report:

Goal #1-Purchase maintenance contract for 3130 Genetic Analyzer.

Progress: Contract purchased and implemented. Goal completed.

Goal #2-Purchase maintenance contract for 7500 RT-PCR instrument.

Progress: Contract purchased and implemented. Goal completed.

Goal #3-Purchase replacement computers and monitors for DNA analysts.

Progress: Computers and monitors have been purchased and installed. DNA analysts are using them to perform CODIS related work. This has decreased the downtime that was experienced when using the old computers and has also improved efficiency. Goal completed.

Goal #4-Purchase necessary supplies for DNA analysis.

Progress: The DNA supplies have been ordered and are being used for backlogged qualifying casework. The purchase of DNA supplies was critical to enable the lab to fund these increased costs for the cases that were analyzed using overtime from this grant. Goal completed.

Goal #5-Analyze 327 backlogged DNA cases using overtime.

Progress: 411 backlogged cases have been analyzed to date using overtime funding from this grant. We have exceeded the original goal of 327 backlogged cases. This has allowed us to process almost all backlogged cases prior to 2010. This resulted in a 13% decrease in the number of backlogged DNA cases. Of the 411 backlogged cases analyzed, we uploaded 103 Forensic Unknown DNA profiles to CODIS. This resulted in 31 hits that provided investigative information. 54% of the cases analyzed were property crimes (burglary). The use of overtime allowed the DNA analysts to increase the number of samples processed per analyst per month by 25% (29 vs. 38.8). Goal completed.

Goal #6-Hire a DNA analyst.

Progress: The position has been filled and the DNA analyst is currently in training. Goal completed.

Goal #7-Purchase new CODIS Server.

Progress: The new CODIS Server has been purchased and installed. It is being used daily for DNA casework and will enable us to proceed with the upcoming CODIS software update. Goal completed.

Goal #8-Purchase Adobe Acrobat Pro.

Progress: Software has been purchased and installed. It is being used to complete Adobe based DNA Grant applications. Goal completed.

Goal #9-Purchase Zebra networkable barcode printer.

Progress: The printer has been purchased and installed to enable DNA analysts to print item barcodes from the LIMS. This allows the analysts to print barcode labels directly from their workstations instead of having to go to a separate computer, resulting in improved efficiency. Goal completed.

Goal #10-Purchase replacement microcentrifuges.

Progress: The microcentrifuges have been purchased, received and installed. They are being used to process DNA casework samples. These replaced older and failing microcentrifuges. This has provided an extra centrifuge for some analysts and serves to improve the overall efficiency of the extraction process by providing more centrifuge space and allowing them to process more samples in a batch. Goal completed.

Goal #11-Purchase replacement hotplates.

Progress: The replacement hotplates have been purchased, received and installed. They are being used to process DNA casework samples. These replaced older and failing hotplates. Goal completed.

FY09 Recipient Name: County of Westchester

Award Number: 2009-DN-BX-K106
Award Amount: $257,283
Final Report: This grant has been very beneficial toward the goal of reducing our DNA backlog and reducing turnaround on DNA cases. In the past year we have experienced a large increase in the number of submissions of property related crimes such burglaries. Because of training given to the police agencies we serve, more samples are being collected at crime scenes and subsequently submitted to the laboratory. Because most are in a swab format, combined with the automation of many of our DNA technologies, more samples can be more quickly examined, analyzed and placed into CODIS.

In the past six months alone the laboratory has obtained 14 convicted offender hits. Several of which were with convicted offender data bases outside our state. Two of these were against the Federal convicted offender base. These hits, and successes with numerous case-to-case hits have encouraged our agencies to collect DNA in more types of cases than they had in the past. Funding from this grant has enabled us to address many issues that contribute to the CODIS successes we have achieved. The technicians hired under this grant assist analysts in the examination of evidence and also perform many of the day-to-day set-up operations needed throughout the entire DNA analysis protocol. This frees analysts to work on the interpretation of their case samples and production of timely reports. Given the fact that many samples the laboratory receives are low level "touch" DNA mixtures the interpretation of these samples can be very time consuming requiring an analyst to devote a good portion of their day to preparing a report. The maintenance agreements purchased for our DNA equipment permits the laboratory to have factory trained technicians maintain, calibrate, and repair these items, freeing up laboratory personnel from these responsibilities. Training funds in this grant have not only provided our technical leader and her DNA staff the opportunity to learn about new approaches to DNA analysis but have also allowed for the opportunity for our staff to discuss with others in the field, different approaches to handling DNA backlogs and turnaround time. These meetings have led to our staff bringing back new ways to improve efficiency of our operation.

Another important aspect to this grant was personnel money provided for overtime. With the ever increasing submissions for DNA analysis, the time to devote to the different facets of DNA cases diminishes. More submissions require more lengthily examinations, more sample set-ups, and more reports to be generated. The overtime has added additional hourly capacity for our DNA staff to keep up with the ever growing requests for DNA analysis.

Equipment purchased on this grant will allow us to more quickly extract and prepare DNA samples for further testing. This equipment enhances and overall automated scheme of analysis beginning with extraction and ending with data interpretation. Software purchases provided in this grant have allowed us to more quickly and to better interpret complex DNA mixture.

We thank the NIJ for their continued support of our laboratory in the goal to reduce DNA Backlog and turnaround time over the course of the last decade. The NIJ has provided our laboratory with a number of resources to help us address the needs of the law enforcement community we serve. The NIJ has allowed the laboratory to completely automate the process of

DNA analysis through the purchase of automated DNA equipment, has helped us maintain these instruments, and through the use of both overtime monies and temporary DNA technicians has given us the flexibility to direct our resources to meet the ever changing demands of our users. The NIJ has also given our staff the opportunity to attend important training sessions that we otherwise would not have the funding to cover. Attendance at many of these training seminars have allowed our analysts to bring back useful ideas that have contributed to increases in our efficiency and productivity. We greatly appreciate the cooperative relationship we have established with the NIJ and hope to continue it into the future. Thank you

During this reporting period we have attempted to address our goals and objectives of reducing our backlog in several ways.

1. Providing overtime monies to reduce backlog cases.
During this grant period analysts were provided with overtime monies to perform analysis and to both technically and administratively review reports so as to complete and provide them to investigating agencies in a timely manner.

2. Training and related travel to assist us with tools to address the DNA backlog
During this reporting period training monies were used to send DNA analysts to DNA conferences. Topics were discussed that cover new instrumentation and technologies that that laboratory is about to purchase or is currently validating.

3. Purchase and validate equipment to help reduce backlog
The laboratory purchased several licenses for GeneMapper-IDX and has completed its validation of this software The software is currently being used to process cases. A Real Time PCR System that was purchased in the last reporting period has been validated and has been put on line.

4. Use of temporary DNA technicians to assist analysts in reducing the DNA backlog
A program approval was given to the laboratory to hire an additional temporary DNA laboratory technician. These DNA technicians continue to assist analysts in the DNA section in the maintenance of DNA equipment, preparation of reagents, data recovery and evidence examination. All of these tasks have assisted our DNA staff in its goal to address the reduction of our DNA case backlog.

5. All instrument maintenance plans have been obtained for laboratory DNA equipment listed in this solicitation.

FY09 Recipient Name: Monroe County
Award Number: 2009-DN-BX-K109
Award Amount: $318,365
Final Report: The following goals and objectives were set for this project:

- Goal 1: Provide continuing education for existing DNA analysts.

  - Progress (October 2009-December 2009): No progress during this report period.
  - Progress (January 2010-June 2010): Two existing DNA analysts traveled to the AAFS meeting in Seattle, WA in February. One existing DNA analyst traveled to the Bode conference in Amelia Island, FL in May.
  - Progress (July 2010-December 2010): Two existing DNA analysts traveled to the Human Identification Symposium in San Antonio, TX in October.
  - Progress (January 2011-June 2011): Two existing DNA analysts traveled to the AAFS meeting in Chicago, Illinois in February.
  - The goal set for travel associated with this grant proposal was met.

- Goal 2: Maintain accreditation by providing maintenance agreements for critical equipment.
  - Progress (October 2009-December 2009): No progress during this report period.
  - Progress (January 2010-June 2010): No progress during this report period.
  - Progress (July 2010-December 2010): A maintenance agreement covering the Mideo system was obtained.
  - Progress (January 2011-June 2011): Maintenance agreements covering three genetic analyzers, two real-time PCR systems, extraction and quantification robots, biosafety cabinets and two water purification systems were obtained.
  - The goal set for acquisition of maintenance agreements associated with this grant proposal was met.
- Goal 3: Upgrade equipment to meet current standards and specifications. Purchase equipment to furnish the new laboratory facility.
  - Progress (October 2009-December 2009): No progress during this report period.
  - Progress (January 2010-June 2010): A freezer for evidence storage was ordered in June.
  - Progress (July 2010-December 2010): A thermomixer was received in December.
  - Progress (January 2011-June 2011): Eleven biological safety hoods, four ultraviolet crosslinkers, pipettors, vortexers, mini-centrifuges, a Mini-Crimescope, the Rainin RFID starter kit, a Driftcon temperature control and drift monitoring system, the QIAgility liquid handling system, thermomixers and the Milli-Q integral System were all purchased and installed in the new forensic facility.
  - The goal set to purchase and upgrade equipment for the new forensic facility associated with this grant proposal was met.

- Goal 4: Reduce the time spent contacting police agencies for information by providing standardized crime scene evidence collection kits.
  - Progress (October 2009-December 2009): No progress during this report period.
  - Progress (January 2010-June 2010): No progress during this report period.
  - Progress (July 2010-December 2010): No progress during this report period.
  - Progress (January 2011-June 2011): The goal was modified to bring Lean Six Sigma concepts to the Forensic Biology section to decrease section turn-around times.
  - The goal to bring Lean Six Sigma concepts to the Forensic Biology section was met.

- Goal 5: Purchase supplies for improving the laboratory's methods for collection of "touch DNA" samples. Several methods will be compared as a part of the validation project.
    - Progress (October 2009-December 2009): No progress during this report period.
    - Progress (January 2010-June 2010): No progress during this report period.
    - Progress (July 2010-December 2010): No progress during this report period.
    - Progress (January 2011-June 2011): Capillary arrays, sample tubes and plates, pipette tips, scalpels, gloves, QIAgility system and maintenance items and Mini-Crimescopes were purchased
    - The goal set for purchasing supplies associated with this grant proposal was met.

FY09 Recipient Name: Nassau County
Award Number: 2009-DN-BX-K144
Award Amount: $289,860
Final Report:
Project Objective, Tasks and Performance Measure:
Objective: 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

Final Statements: Within this reporting period funds were utilized to purchase the next generation ABI capillary electrophoresis system (3500 Genetic Analyzer). The instrument has been installed, training received and Identifiler Plus validation has commenced.

Continued research is being performed on instrumentation purchased during past quarters to completely automate the sperm searching procedure utilizing the Niche Vision Sperm Finder. This system once implemented is expected to reduce the time allocated to searching for sperm positive sexual assault evidence collection kits and to improve its efficiency. The proposed system will automate the search of all slides within a single kit during one simultaneous run, reducing the number of PSA detection assays required and ultimately preserving kit swabs for DNA testing. In addition, the Gel image station with Dell laptop and GENI thermo printer is in the process of configuration and validation for use in fluorescent image capture of DNA fragments for continued research in fluid and species determination.

On the administrative end, the Visioneer Strobe XP document scanner was purchased to reduce the backlog at the current scanning station for worksheet archiving into the LIMS system. Hand written evidence examination notes are uploaded into the LIMS through the Visioneer scanner. In addition a new LABSEND PC workstation was purchased to replace the non-functioning PC. LABSEND is the laboratory's WebPortal system which disseminates case information, including reports, to the laboratory's user agencies. This workstation has been configured and is operable. Lastly, to digitize case records (past and future), the Cannon DR-9050C was implemented. The laboratory has archived case records from Pre-2003 (serology records from the previous lab system) to 2007 enabling the search and dissemination of case records (e.g. discovery packages) in an electronic fashion utilizing the iCenter application which has greatly reduced administrative

backlogs.

Continued financial support for supplies and reagents has enabled the laboratory to minimize the backlog of property crime cases which were responsible for 62% (560 cases) of cases analyzed, 60% (223 profiles) of the profiles entered into CODIS and 66% (162 hits) of the hits returned within the full grant period. Overtime funds to support the technical and administrative review of case files has reduced the number of backlogged cases awaiting dissemination to requesting agencies by 50% and ultimately reducing case turnaround.

Performance Measure: With the continued aid of NIJ DNA Backlog Reduction funding the laboratory was able to reduce its case turnaround by a total of 51 days (154 days down to 103 days) bringing the laboratory close to its goal of a 90 day turnaround.

CODIS Highlights (this reporting period):

July 2011 (FG10-0421) Unknown male tries to rob victim in November of 2010. The victim grabs a pipe and chases after the suspect. The suspect tripped while running and spit onto the sidewalk. The male profile from the saliva matched in July 2011 to NYS offender Miguel Castillo.

July 2011 (FG11-0147) Blood left behind at scene of commercial burglary in May 2011. Offender hit in July of 2011 to NYS offender Danfield Bourne.

July 2011 (FG11-0167) Suspect browses in jewelry store, and takes off with 2 engagement rings. The storeowner gives chase, and suspect removes his shirt and hat. Incident occurs in May, 2011. The DNA profile from the shirt matched to NYS offender Jerry Torres in July 2011.

FY09 Recipient Name: New York State Police
Award Number: 2009-DN-BX-K118
Award Amount: $1,000,000
Final Report:
The NYSP has stated three goals for the lab's Bioscience Section in its application for the 2009 Forensic DNA Backlog Reduction Grant: 1) Reduction in turnaround times, 2) Increased throughput, and 3) Elimination of backlogs.

Goal 1 – Reduction in turnaround times
*Progress July – Dec 2010:*We are still struggling to make any significant impact upon turnaround times. At the start of the award period, the NYSP had a three month average turnaround time for DNA cases of 104 days, as calculated from July – September 2009; a six month average DNA case turnaround time of 130 days was calculated from July – December 2010. Turnaround times are calculated from the time a case was submitted to the lab to the time of report and, unfortunately, includes cases submitted from years past that remain in the backlog due to the fact that many cases are low priority such as burglary cases with "touch" items

submitted for DNA testing. Our laboratory will triage the cases and prioritize based upon various factors such as level of violence, threat to public safety, trial dates, etc. If the performance metric was altered to refer to the turnaround time from the time a DNA case was *assigned to a DNA analyst* to the time of DNA report, then this would more accurately reflect how the program funding was specifically affecting the DNA turnaround times.

Progress January – June 2011: Our goal to decrease turnaround times for DNA cases continues to be a challenge for our lab. The average turnaround over this six month reporting period was 126 days, only slightly improved over the 130 days reported for the previous six months. This figure reflects the turnaround of all cases, including those deemed low priority and those that are awaiting analyses by other laboratory sections, such as latents, prior to examination by the Bioscience DNA section. It is not unheard of, unfortunately, to have a DNA "on hold" for months pending a latents exam prior to the time when the Bioscience section may examine it for serology/DNA.
Although the turnaround continues to be lengthy, the *number* of DNA items processed during this reporting period has increased over the previous time frame (11,667 DNA items January – June 2011 as compared to 10,590 DNA items July – December 2010).
It may be important to note that the reported turnaround time of 126 days refers to data derived from a LIMS query and only refers to the turnaround time for DNA assignments. We do not have any LIMS management report that is able to query data to include cases that involve both serology and DNA assignments. A separate LIMS query was performed that provided a turnaround time of 57 days for serology assignments during the same reporting period of January – June 2011.

Progress July – Dec 2011: We have not achieved our goal of reducing DNA case turnaround times (TAT) for this reporting period. In fact, the turnaround has increased from 126 days for January – June 2011 to 158 days for July – December 2011. The numbers of DNA items tested, however, has remained approximately the same (11,667 items January – June 2011 vs. 10,210 items July – December 2011). The number of approved DNA reports also has remained about the same (1,141 reports in the first half of 2011 vs. 1,125 reports in the second half of 2011). Several factors may be responsible for this increase in TAT. These include: (1) Case turnaround is calculated by our LIMS from the time of submission to the time that the report is issued and the assignment in closed. Turnaround time, therefore, includes low priority cases and large cases with many items analyzed and sometimes very complex mixture interpretations required for data analyses. Some low priority cases will require work to be completed by other lab sections before DNA analysis. Hence, low priority cases that require latents work, for example, will sometimes add months (or years) onto the overall turnaround times. (2) Our casework section still has 3 supervisory, 5 Forensic Scientist, and 11 Senior Laboratory Technician open positions that will not be filled in the foreseeable future due to budgetary constraints in New York State. As it is, all of our existing Senior Laboratory Technicians have been assigned clerical tasks in addition to technical responsibilities since our section has lost all clerical support staff. These clerical tasks include report distribution/mailing, filing, court exhibit preparation (posters), outsourcing clerical work, data entry, and Rosario/Discovery case file copying. All of these non-technical tasks could easily remove a technician from the bench for 1 week every month.

Progress Jan - March 2012: (FINAL) We have not achieved our goal of reducing TAT in the last three months of this award. In fact, the TAT has increased dramatically to 247 days. This is mostly due to the assignment *and* completion of very old, low priority cases during these three months. Completion of these outlying cases means the inclusion of their TAT's in the overall TAT calculation, thereby increasing the value. We expect that the TAT should decrease in the next quarter since many of these older cases have now been completed or administratively closed. In fact, the data indicate that the TAT is currently down from 247 to 185 days as calculated from April 1, 2012 – May 29, 2012. Interestingly, the *number* of DNA reports approved during the last three months of this award period is very similar to the number of reports generated during the last three months of 2011, despite the long TAT time.

Goal 2 – Increased throughput
Progress July – Dec 2010: During the last six months of 2010, the NYSP has continued to make tremendous strides to achieve our goal of increasing productivity / capacity. The overall capacity of the lab has increased as seen by a dramatic increase in the number of DNA reports approved and the numbers of DNA items processed per analyst per month. The number of DNA items/analyst/month went from 40.5 to 53.5 since the beginning of the award period. Our lab is now capable of processing over 10,000 DNA items in a 6 month period.
Currently, our lab has begun training three additional technicians and three more forensic scientists. The six staff members have transferred from our NYS DNA Databank to the casework part of the Bioscience Section. Using a mentoring program, three of our existing Forensic Scientists will be very actively involved in training the newcomers. This will, unfortunately, may lead to a decrease in productivity as the training draws down the three fully trained mentors.

Progress January – June 2011: During this reporting period, our average number of DNA items processed per analyst per month was 44.2. However, this calculation includes 12 of our supervisors and CODIS personnel who have processed only the required Proficiency Test DNA samples. The adjusted tally, excluding these 12 individuals and their proficiency samples, is 60.5 DNA items/analyst/month. This is a tremendous increase in throughput as compared to the 40.5 DNA items per analyst per month reported at the start of the award period.
During the first half of 2011, we have completely trained three additional technicians who will be able to process the extraction, quantitation, and amplification of DNA. Training for three additional DNA analysts will be completed in the next few weeks. Since the training program for these new staffers is nearly complete, the analysts working as the trainers/mentors will have more time to complete casework rather than dividing their time between training and casework. Within the next few months, we anticipate cross-training three of our serologists in DNA analysis.

*Progress July – Dec 2011:*The average number of DNA items processed per analyst has decreased during this reporting period. We may now be seeing the effects of decreased staff and assignment of non-technical tasks to technical staff during this time period.

An additional contributing factor to this decrease in capacity is that there has been quite a bit of training during this reporting time frame, especially during the months of September and November. We have implemented a comprehensive new protocol on mixture interpretation that required a number of training sessions in the month of November along with a "competency" test on the new interpretation methods. All of this required each DNA analyst and supervisor to spend a number of days familiarizing themselves with the new protocol, attending the training sessions, working practice data sets with emphasis on interpretation, and taking the competency test(s). Each case now assigned to the analyst requires much more comprehensive documentation of thought processes for interpretation, taking longer to complete a case and to perform a technical review on each case.

Progress Jan - March 2012: (FINAL) As mentioned above, a new and quite involved mixture interpretation protocol was instituted in our lab late in 2011 which contributed to a noticeable decrease in the number of items/analyst. However, with several months of working cases with this new protocol, analysts have become more comfortable with the additional documentation required and this is reflected in this throughput metric. The number of items/analyst/month has increased from 36.2 reported for July – Dec 2011 to 47.4 in the Jan – March 2012 time frame. The number of DNA items processed in the casework section has increased over the lifetime of this award. There were 20,394 DNA items processed in 2010 and 21,877 items in 2011. With 5,547 items process in the first quarter of 2012, we are well on our way to continue this positive trend.

As of this date, none of the 20 open positions in the Bioscience Section have been filled or are expected to be filled. However, since the New York State legislature has expanded the Databank Law by becoming the first state in the nation to pass an "All Crimes Bill" which requires DNA samples be collected from anyone convicted of a felony or penal law misdemeanor, the Section (casework + databank) was approved to hire 5 Senior Laboratory Technicians, 6 Forensic Scientists, 1 Supervisor, 1 CODIS Custodian and 3 Keyboard Specialists (clerical positions) as a direct result of this expansion. Interviews will be commencing next month. Initially this hiring and training will be a drawdown on existing staff but these new hires will ultimately assist both the casework and databank sections of the Bioscience unit with the anticipated increase in workload.

Goal 3 – Elimination of Backlogs

Progress July – Dec 2010: The open case backlog in the Bioscience section continues to grow with the greatest increase occurring in the property crimes category. The backlog is calculated as one sum total of cases that consist of both serology and DNA cases. The total backlog has grown slightly from 1,826 at the beginning of the award period on September 30, 2009 to 1,902 at the end of 2010.

Although the backlog has increased slightly by the end of 2010, we have focused much energy during the past year on decreasing the backlog of the most violent, personal crimes and we have succeeded in dropping the number of homicides and sexual assault cases in the backlog by 51% and 57%, respectively.

This grant does include funding for outsourcing. However, no cases were outsourced yet as a result of this award since we were still processing cases outsourced on the 2008 award. As soon

as 90% of the 2008 award is drawn down, we will request a lift of the special condition hold on the 2009 grant and begin outsourcing property crimes again.

Progress January – June 2011: The current section backlog of serology + DNA cases was 1,725 as of June 30, 2011. This is down 9% from the previous reporting period of 1,902 and down 5% from the backlog at the start of this award (1,826 cases). We have worked diligently over the past year to decrease the number of violent, personal crimes and currently have 39 open homicides and 125 open sexual assault cases, as compared with 110 homicides and 339 sex assaults at the beginning of the award period. Since we have cross-trained our DNA analysts in serology, the *type* of analysis required has shifted from "*pending serology screening"* to "*pending DNA"* analysis.
Outsourcing was resumed in this reporting period with a total of 120 property crime cases sent to vendor for DNA analysis. Eighty of these cases were reviewed in-house after receipt from the vendor by the end of June. The in-house review process includes a modified technical review, a "second read" review, and an administrative review. Ten CODIS hits resulted from the 33 total profiles entered from outsourced cases.

Progress July – Dec 2011: The current section backlog of serology + DNA cases was 1,707 as of December 30, 2011. This is down by 6.5% from the start of this award. Although not a dramatic decrease, the backlog is at least, not getting larger.
A noteworthy consideration in regards to the backlog is the fact that we continue to make strides in decreasing the backlog of violent, personal crimes. As compared with the backlog at the beginning of this award, the number of homicides has decreased by 62%, sexual assaults by 47%, assaults by 12%, and robberies by 19%. Unfortunately, incoming property crime cases keep the overall backlog relatively constant.
Outsourcing continued throughout the second half of 2011 with 72 cases being outsourced from this grant to Fairfax Identity Laboratory in Richmond, VA. There were 37 profiles developed from outsourced cases during this reporting period which resulted in 12 CODIS hits. We continue to depend on outsourcing for the DNA analysis of many of our property crimes, especially burglaries. The burglary case category continues to be the largest contributor to our backlog.

Progress Jan - March 2012: (FINAL) The overall backlog of cases has dropped by 14% from the start of this award (1,826 cases to 1,572 cases). Although not a tremendous drop in backlog, the most impressive change is a result of our diligent efforts to decrease the number of violent, personal crimes that exist in the backlog. The number of homicides has dropped 79%, sexual assaults have dropped by 48%, and assaults have dropped by 52%. Unfortunately, we have experienced an increase of 23% in the number of burglary cases in the backlog. Thanks to funds provided by this award, 192 cases (mostly burglaries) have been outsourced to a vendor laboratory.

Additional Progress Updates:

Progress July – December 2010: DLIMS - This grant has included funding for the DNA Databank portion of the Bioscience Section. Funding for the implementation of Databank LIMS (DLIMS) has been included in the budget in the "Consultants/Contracts" category. This Progress Report will provide an update on the status of the DLIMS project.

The DLIMS Phase II project is divided into 8 software deliveries; #1 Laboratory Asset Manager (LAM) Setup, #2 Enhancement to Inventory, Plate Map, and Punch Process, #3 Extraction, #4 Quantitation, Pre-Amp Set-Up and Amplification, #5 Analysis, Reque, and Genotyping Software, #6 CODIS and Outsourcing, #7 Reporting, #8 Training, Purchasing, Invoicing, and Sample Disposition. The DNA Databank and NYSP Information Services group are currently working on Software deliveries 1 and 2 with the Porter Lee Corporation (PLC). Software delivery #1 focuses on the development of the Laboratory Asset Manager (LAM) module which provides an efficient method for organizing the purchase and receipt of all equipment, instruments, supplies, reagents, and chemicals. A barcode system will be developed for identifying the reagents, chemicals, and critical instruments used in the Databank workflow. LAM will also include invaluable Quality Assurance measures for monitoring the use of chemical and reagents as well as critical instruments. For example, LAM will record and store expiration dates and important quality testing dates to alert the user when reagents have expired or when instruments are in need of certifications or performance testing. Information on reagents, chemicals, and instruments will also be automatically retrieved and entered into analytical worksheets from LAM to minimize keyboard entry of information like chemical names, expiration dates, quality testing dates, and preparation dates. PLC provided a web based demonstration on January 13, 2011 for the new LAM module designed for the NYS DNA Databank. Based on feedback from our development team, PLC is currently working on finalizing the coding for the LAM module and expects to deliver to the DNA Databank in February 2011 for further user testing.

PLC is also working on Software delivery 2 in parallel with Software delivery #1. Software delivery 2 is currently in the early stages of development. Software delivery 2 will streamline the sample punch process and will establish the code and mechanism that will be used for tracking samples and plates throughout the entire analytical process.

On a final note, the progress of software delivery 1 and 2 was delayed approximately two months due to issues encountered with the development of a DLIMS application upgrade from version 5.7 to 6.1. This application upgrade is essential and will provide the foundation for the development of the eight software deliveries listed above. The application upgrade recently met with some delays due to several defects that were identified during testing. These defects have since been corrected by PLC and we are currently in the final stages of testing for this application upgrade. We are optimistic that the DLIMS application upgrade will be ready for implementation in March 2011.

Validation Services –This grant has included funding for an outside agency to provide various validation services. Any validation service provided will need to be awarded to an outside vendor through a competitive bid process. Currently the section has formed a working group to

produce a Request for Proposals for the validation of the Identifiler Plus amplification kit as used with the 3500xL Genetic Analyzer and GeneMapper ID-X software. It is anticipated that it may take up to six months to progress through all the necessary steps to be able to award the validation project to a bidder using the competitive bid process and to actually schedule a vendor to come on-site. Validation will include preparation of training modules, training for the instrument operators, staff training for data interpretation, and final technical leader approval of all work.

Progress January – June 2011: DLIMS - The DNA Databank is currently working on two software deliveries for the DLIMS Phase II project. Software delivery 1 includes the development of a chemical inventory system called the Laboratory Asset Manager. This module provides an efficient way to organize reagent and chemical inventories, reference collections, and other assets such as computers, instrumentation, and consumables. Laboratory Asset Manager also contains functionality for creating and tracking purchase orders. Porter Lee Corporation completed a first round of programming and released the program to the Databank for user testing and customization. User testing was performed by Databank staff and several changes to the program have been requested in order to customize the program for inventory control in the DNA Databank. Laboratory Asset Manager have several interfaces (windows) that need to be re-designed to accommodate the necessary information for reagents, instruments, equipment, and consumable in the DNA Databank. Changes to the purchase order interfaces were also requested to capture pertinent ordering importation. Porter Lee Corporation is currently coding to address these changes and we expect to receive an updated version of Laboratory Asset Manager in late August of 2011. A second module, Software delivery 2 includes fixes to the DLIMS 6.1 upgrade rolled out to users during March 2011, a lab ware tracking and querying component, an upgrade to the CODIS Update utility, and new system functions to allow proficiency tests to be entered into DLIMS. Defined requirements for Software delivery 2 were completed and an initial version of the software was delivered. User testing has started and defects are being identified and fixed by Porter Lee Corporation. Software delivery 2 should be completed during December 2011.

Validation Services – Work is progressing on the preparation of a Request for Proposals for the validation of the Identifiler Plus amplification kit as used with the 3500xL Genetic Analyzer and GeneMapper ID-X software. The RFP will soon be presented to the State Comptrollers Office for approval and advertisement. The process of awarding the work to an outside vendor via competitive bid is a lengthy one, requiring not only input from scientific staff but also involves the NYSP Finance Department and the NYS Comptrollers Office.

Casework Metrics – There are several additional Casework metrics that can be reported relating to cases worked utilizing overtime funds provided by this award and the resultant CODIS entries and hits. Our laboratory does not have personnel completely funded by this grant, but it does include funding for our existing staff to work overtime. Cases are worked by both Senior Laboratory Technicians and Forensic Scientists (examiners) with each performing certain aspects of the analysis. Overtime is approved for work performed on any aspect of the analysis, and thus, many cases are included on this metric since each case may have a had a small component

of it worked during overtime. Information for this metric is gathered from an Access database which includes case number, when the overtime occurred, and which cases had a CODIS entry or CODIS hit. For this 2009 grant, overtime was worked on 133 cases during the time period of January – June 2011. Of these there were 60 profiles entered into CODIS and 21 CODIS hits.

Progress July – Dec 2011:
DLIMS – There has been a Budget Modification GAN approved in January 2012, which reallocated all funding for the DLIMS Phase II project from the 2009 DNA Reduction Grant (2009-DN-BX-K118) to the 2011 DNA Backlog Reduction Grant (2011-DN-BX-K453). Funding was reallocated due to the continued delays caused by extended coding and testing times. During the last six months the Porter Lee Corporation (LIMS vendor) has been trying to finalize the coding for Software delivery 2 for the DLIMS Phase II project, but the DNA Databank and NYSP Information Services continue to find show stopping defects with the application. For Software Delivery 1, the DNA databank is in the final stages of testing and the application appears to have no major defects.

Software Delivery 1 is the development of the Laboratory Asset Manager (LAM) module, which provides an efficient method for organizing the purchase and receipt of all equipment, instruments, supplies, reagents, and chemicals. Testing for Software Delivery 1 is close to being completed. In June of 2011, the DNA Databank finalized their initial user-testing and provided Porter Lee with several requests for changes to the application. Porter Lee completed the coding for these changes and sent the revised application in August of 2011. The DNA Databank is currently finalizing user-testing for Software Delivery 1 and preparing feedback to provide the Porter Lee Corporation. Expected completion for final delivery of Software Delivery 1 is April 2012.

Software delivery 2 will streamline the sample punch process and will establish the code and mechanism that will be used for tracking samples and plates throughout the entire analytical process. Software delivery 2 is now in the late stages of development. The DNA Databank has performed several rounds of quality testing for several versions of Software Delivery 2, but continues to find coding problems and defects with the application. In December of 2011, Porter Lee Corporation provided yet another demo of software delivery 2, but again failed to meet testing requirements. Although the coding for Software delivery 2 is close to being completed, we don't anticipate a finalized application until April 2012. Porter Lee Corporation will be providing a demo of the finalized application on January 30, 2012 and we expect to receive the final version of Software Delivery 2 in February, which will then require extensive in-house testing by the DNA Databank staff and NYSP Information Services group.

Validation Services – The Request for Proposals for validation services for the use of the 3500xL, GeneMapper ID-X, and Identifiler Plus amplification kit has been competitively bid with the winning vendor just recently being announced. The other bidders will require notification and will be allowed a grievance period. After that, the information will be forwarded to our Comptrollers Office which may take up to 90 days to provide the final documentation of a finalized contract.

Due to this very lengthy process (initial meetings regarding this began January 2011) and to the March 2012 expiration of this 2009 award, we have requested (and have been approved for) a reallocation of this validation budget item to our 2011 award. Even though we now have successful bid for this project, we anticipate that we will not be able to employ the vendor's validation services until after the expiration of this 2009 award.

Casework Metrics – As mentioned above, funding from this award provided the opportunity for outsourcing to continue during this reporting period. However, funding budgeted for overtime was completely expended before the start of the reporting period. Please refer to the 2010 Progress Report for data regarding overtime, CODIS entries, and CODIS hits that resulted from cases worked on overtime.
With Program Manager approval, we were able to provide some basic funding for supplies and sequencing kits for two interns to begin some fundamental validation work on mitochondrial DNA testing. It is our hope to be able to use the results of this work done last summer and early fall to resume the validation again at some later point.

Progress Jan - March 2012: (FINAL) DLIMS - The DNA Databank Laboratory has been working with the Porter Lee Corporation on two software deliveries to enhance the Databank LIMS application. Software Delivery 1 is focused on the development of the Laboratory Asset Manager (LAM) module, which provides an efficient method for organizing the purchase and receipt of all equipment, instruments, supplies, reagents, and chemicals. Software delivery 2 is designed to enhance and streamline the sample punch process and increase the efficiency for tracking samples and plates. Software Delivery 2 will also provide the ability to accession and track proficiency test samples, validation samples, and reference standards.

Due to extensive coding and testing delays caused by the vendor, all funding for the DLIMS Phase II project was reallocated from the 2009 DNA Reduction Grant (2009-DN-BX-K118) to the 2011 DNA Backlog Reduction Grant (2011-DN-BX-K453). The Budget Modification GAN for this change was approved in January 2012. During the last six months the Porter Lee Corporation (LIMS vendor) has been trying to finalize the coding for Software delivery 1 and 2 for the DLIMS Phase II project, but the DNA Databank and NYSP Information Services continue to find show stopping defects with the application. Due to the need to focus, identify, and repair the extensive issues with Software delivery 2, coding and testing for Software delivery 1 was postponed until the issues with Software delivery 2 have been resolved.

Software delivery 2 will establish the code and mechanism used for tracking samples, containers, and projects throughout the entire analytical process. The new application will also allow for entry and processing of Databank proficiency tests within the application. In December of 2011, the NYSP conducted user testing on a version of the application delivered by the Porter Lee Corporation. It was determined at the conclusion of the user testing that too many issues and defects were continuously identified and that additional measures needed to be put into place by the vendor to ensure future progress. Since February 2012, approximately five web demos have been conducted between NYSP and the Porter Lee Corporation. Issues and defects were identified and documented during these demos and the NYSP did not accept delivery of that

version of application. In April 2012 due to the perpetual identification of show-stopping defects during the web demos, the Porter Lee Corporation added more resources on their end to the DLIMS project in terms of developers, testers, and project management support. Around this time the Porter Lee Corporation also incorporated the NYSP DLIMS project into their QA testing unit. The Porter Lee Corporation was provided with NYSP DLIMS test scripts to use for their testing. In May 2012, two web demos were conducted and no show-stopping defects were identified. NYSP accepted delivery of the application for user testing and it was installed at NYSP on May 29th, 2012. User testing is currently underway. Expected completion for final delivery of Software Delivery 2 is July 2012. The NYSP is currently preparing to provide feedback to the Porter Lee Corporation, in an effort to pick up and continue the development of Software Delivery 1. Expected completion for final delivery of Software Delivery 1 is September 2012.

Validation Services – We have completed the competitive bid process for the validation of the 3500xL, GeneMapper ID-X and Identifiler Plus and the contract has been awarded to Sorenson Forensics. Despite the lengthy time frame needed to write the Request for Proposals, perform the competitive bid process and to award the contract to the winning bidder, the vendor (Sorenson Forensics) will begin the project in June, 2012. Since the bid process is so lengthy and would not have been completed by the expiration of the award, this budget item was switched from the 2009 to the 2011 award.

Casework Metrics – All funds budgeted for outsourcing have been expended for DNA analysis on 192 cases which included 129 burglaries, 32 grand larcenies, 21 criminal mischief, 1 fire investigation, 1 miscellaneous, and 8 quality control cases. Our lab has come to depend on outsourcing funds to provide for the analysis of lower priority property crime cases, thereby allowing our staff time to work on the more violent, more comprehensive cases.
Casework metrics track success in the areas of outsourcing and overtime. As recorded above, the outsourcing project for the 2009 grant has resulted in 192 cases analyzed, 73 CODIS entries, and 24 hits. There were 978 cases worked, in part, on overtime that resulted in 425 CODIS entries and 218 CODIS hits (forensic and convicted offender).

FY09 Recipient Name: Onondaga, County of
Award Number: 2009-DN-BX-K120
Award Amount: $207,139
Final Report: During the award period of October 1, 2009 to September 30, 2011, the Onondaga County Forensic Laboratories utilized grant funds to purchase equipment to enhance the DNA analysis process. A color laser printer was purchased to allow for a more expedient printing of data, dry block heaters were purchased to allow for a shorter start-up time during DNA extractions, a robotic extraction unit was purchased to allow for samples to be processed with less hands-on time, freeing up analyst time for data interpretation. In addition, a UV-cross linker was purchased to enable the laboratory to better control DNA contamination.

The DNA section also utilized funds to provide training to staff on Y-STR analysis and interpretation. This training enabled the section to start Y-STR analysis on casework in March of 2011. Y-STR analysis has proven to be a valuable asset in a number of sexual assault and homicide cases in 2011. The section utilized grant funds to provide validation services and training for GeneMapper ID-X, the Identifiler Plus amplification kit, and the Plexor HY quantification kit. These validations were completed in 2011 and the test methods will be put into place to be utilized in casework in early 2012. It is anticipated that the use of the PlexorHY kit for dual quantitation of human and male DNA and the use of GeneMapper ID-X for data analysis will lead to a decrease in case processing time to be realized in 2012.

Additionally, the DNA section utilized grant funds for overtime to perform analysis on backlogged cases. The laboratory proposed to complete 40 cases above and beyond its normal capacity using overtime funds. The section was able to complete 37 cases using overtime including 10 homicides, 14 sexual assaults, and 10 burglaries. The section was able to generate probative DNA profiles in 57% of the cases and obtained CODIS hits leading to investigative leads in 32% of the cases. At the end of the reporting period, the section was able to demonstrate an increase in the average number of samples analyzed per analyst per month from 13 to 18. Unfortunately, the average turn around time increased from 13 weeks to 15 weeks and the backlog increased by 59 cases. It should be noted however that the submissions in 2010 increased 13 % from 2009 and the section lost a qualified analyst in August of 2010. The replacement analyst had not completed his DNA training by the end of the award period in 2011. It is anticipated that once the laboratory is fully staffed and the new methods are put into place, there will be a decrease in both the turn around time and the backlog.

Note: There were two errors on the report for the period of July 1, 2010 to December 31, 2010. The performance measure for profiles entered into CODIS should have read 11 rather than 12. The performance measure for CODIS hits should have read 5 rather than 4. This final report correctly reflects the cumulative totals for both performance measures.

FY09 Recipient Name: Suffolk County
Award Number: 2009-DN-BX-K072
Award Amount: $372,598
Final Report:

This project is still in progress

FY09 Recipient Name: City of Columbus
Award Number: 2009-DN-BX-K121
Award Amount: $215,461
Final Report:

The following objectives were set for this award:
Objective 1: Decrease the average number of days between submission of a sample and delivery of test results to requesting officer by 5 days.

Progress through Dec 10: During the last quarter, the average number of days between submission of a sample and delivery of test results to the requesting officer was 66 days. This is a decrease of 24 days from the beginning of the grant period (90 days.)
Progress Jan-Jun 11: During the last month, the average number of days between submission of a sample and delivery of test results to the requesting officer was 77 days. This is a decrease of 13 days from the beginning of the grant period (90 days.)
Progress Jul-Dec 11: During the last month, the average number of days between submission of a sample and delivery of test results to the requesting officer was 133 days. This is an increase of 43 days from the beginning of the grant period (90 days.)
Final Report. Rather than decreasing, the average number of days between submission of a sample and delivery of test results increased by 43 days from the beginning of the grant period primarily due to unexpected personnel loses. At the beginning of the grant period, 3 analysts were performing both biological screening and DNA analysis. Through most of the grant period, there were only 2 analysts performing this testing thereby having a detrimental effect on the turnaround of casework.
Objective 2: Increase the DNA analysis throughput for the laboratory by 5 samples per month.
Progress through Dec 10: During the last quarter, DNA analysts analyzed 68 samples per month. This is an increase of 32 samples from the beginning of the grant period (36 samples per analyst per month.)
Progress Jan-Jun 11: During the last month, DNA analysts analyzed 67 samples per month. This is an increase of 31 samples from the beginning of the grant period (36 samples per analyst per month.)
Progress Jul-Dec 11: During the last month, DNA analysts analyzed 78 samples per month. This is an increase of 42 samples from the beginning of the grant period (36 samples per analyst per month.)
Final Report. A 42 sample per month per analyst increase in throughput was observed from the beginning of the grant period. This greatly exceeded the objective of 5 samples per month per analyst. Even though there were fewer analysts analyzing DNA cases, the capacity has increased.

Objective 3: Decrease the backlogged DNA casework awaiting analysis by 34%.
Progress through Dec 10: At the end of the last quarter, 529 cases were awaiting analysis. This is a decrease of 117 or 18% from the beginning of the grant period (646 cases.)
Progress Jan-Jun 11: At the end of the last quarter, 404 cases were awaiting analysis. This is a decrease of 242 or 37% from the beginning of the grant period (646 cases.)
Progress Jul-Dec 11: At the end of the last quarter, 583 cases were awaiting analysis. This is a decrease of 63 or 10% from the beginning of the grant period (646 cases.)
Final Report. A 10% decrease in backlogged casework was achieved from the beginning of the grant period. Although this is less than the 34% decrease that was anticipated, it is hoped that the backlog will continue to decrease in the next few years.
In addition to the objectives stated in the grant, the following activities were planned:

1. Hire new Forensic Scientist for DNA analysis.
Progress: A new Forensic Scientist began employment on January 10, 1010.

Final Report. One Forensic Scientist was hired with funding from this grant. Without this funding, the analyst would not have been able to have been hired. The grant provided a year of funding and in January 2011, this agency was able to sustain employment without requiring additional grant funds.

2. Attendance at training courses.
Progress July-Dec 10: Two new Forensic Scientists attended both a DNA symposium and an expert witness testimony course. As well other training courses will be attended by new Forensic Scientists in the upcoming months.
Progress Jan-Jun 2011: One new analyst and one qualified analyst attended DNA training courses during the reporting period.
Final Report. Four Forensic Scientists were able to attend training with funding from this grant. Without this funding, the analysts would not have been able to attend training and receive the opportunity to learn of new DNA processes and technologies that enhanced capacities.

3. Purchase of Supplies and analysis of casework.
Progress July-Dec 10: Supplies for analysis of casework have been purchased and used to analyze 460 cases. 255 cases were entered into CODIS resulting in 66 hits. Additional supplies for completion of backlogged casework will be purchased in the upcoming months. Due to delays in procurement, a no cost extension will be required to complete purchase of these supplies.
Progress Jan-Jun 2011: Supplies for analysis of casework have been purchased and used to analyze 457 cases. 286 cases were entered into CODIS resulting in 110 hits. Analysts worked 183.3 hours of overtime funded under award 2010-DN-BX-K056 to analyze backlogged cases. All performance metrics are reported in the progress report for this award. Additional supplies for completion of backlogged casework will be purchased in the upcoming months.
Progress Jul-Dec 2011: Supplies for analysis of casework have been purchased and used to analyze 427 cases. 268 cases were entered into CODIS resulting in 97 hits. Analysts worked 118.5 hours of overtime funded under award 2010-DN-BX-K056 to analyze backlogged cases. All performance metrics are reported in the progress report for this award.
Final Report. Throughout the entire grant period, supplies purchased with these funds were used to analyze 1376 cases. A total of 832 cases were entered into CODIS resulting in 274 hits. Analysts worked 212.9 hours of overtime funded under this award to analyze backlogged cases. In addition, analysts worked 423.3 hours of overtime funded under award 2010-DN-BX-K056 to analyze backlogged cases using supplies purchased with this grant. Without this funding, supplies would have been very difficult if not impossible to purchase and overtime would not have been funded thereby delaying DNA analysis and preventing timely resolution of investigations.

4. Train new Forensic Scientist
Progress July-Dec 10: One new Forensic Scientist has begun casework analysis for screening for biological fluids. DNA training is proceeding. It is expected that this training will be completed by mid-year.

Progress Jan-Jun 2011: DNA training of the Forensic Scientist is proceeding while she continues performing casework analysis for screening for biological fluids. It is expected that this training will be completed by year end.
Progress Jul-Dec 2011: Due to performance issues, the DNA training of the Forensic Scientist hired with funding from this grant was suspended pending administrative action.
Final Report. One Forensic Scientist completed training for biological screening at which time she performed casework analysis for biological fluids.

FY09 Recipient Name: City of Mansfield
Award Number: 2009-DN-BX-K146
Award Amount: $163,718
Final Report: The following goals and objectives were set for this award:
The utilize grant funding for a DNA analyst overtime costs, renovations and the purchase of a ABI 3500 Genetic Analyzer. Grant funding will also be used to purchase DNA analysis supplies to assist the Columbus Division of Police to reduce their DNA case backlog.

Progress for January – June 2011

Overtime funding from this award was completed at the end of the last quarter. This overtime funding assisted in the analysis and review of a total of 213 cases during the award period.
This goal as outlined in the proposal is completed.

Renovation (structural) of the new space has been completed. The Biology section has moved in the area and is processing case work. This goal as outlined in the proposal is completed.

The equipment purchase of the 3500 ABI Genetic Analyzer was completed. The instrument has been received is installed and is currently undergoing validation.
This goal as outlined in the proposal is completed.

A total of 88 Mansfield Division of Police cases were processed with the assistance of overtime funding. 51 DNA profiles were entered in CODIS resulting in 21 CODIS related hits.

The Columbus Division of Police backlog project resulted in the analysis of 125 Columbus cases and a total of 304 samples. Overtime funding for was used for analysis and review of Columbus cases as well as the purchase of supplies for analysis.

Of the submitted samples 99% were processed beyond quantitation for amplification and analysis. A total of 140 DNA profiles from the Columbus cases were uploaded to SDIS.

The cases were primarily gun crimes from homicides, felonious assaults, aggravated robbery, robbery, weapons under disability and CCW's. The majority of these profiles are maintained in the suspect index at SDIS, the Columbus cases resulted in 3 CODIS related hits.

The average cost of each case was $800.00 with an average turn-around time of 23 days.

This goal as outlined in the proposal is completed.

Progress for July – December 2010

Overtime funding during this period was used for analysis and review of approximately 168 Mansfield Division of Police and Columbus PD Backlogged cases.

Renovation (structural) of the new space has been completed. Architectural design, walls, floors, ceilings, doors, electrical, HVAC and painting of the new biology exam area is done. The biology section will move to the new space during the first quarter of 2011. This goal as outlined in the proposal is completed.

All identified supplies have been purchased for the analysis of the identified backlog cases. This goal as outlined in the proposal is completed.

The Columbus Division of Police has provided 80 backlog cases for laboratory analysis.

A GAN for a 3 month extension will be submitted in order to allow the Columbus Division of Police to submit the targeted amount of cases.

Progress for January – June 2010

The Mansfield Division of Police Forensic Science Laboratory has initiated approved spending at this time.

The DNA analyst is currently funded by the 2008 DNA Backlog award scheduled to transfer to this award was transferred to the Byrne Memorial Award received by the Mansfield Division of Police Laboratory. The laboratory will be preparing budget GAN during the next period to address this change.

Overtime funding during this period was used for analysis and review of approximately 50 Mansfield Division of Police and Columbus PD Backlogged cases.

Removal of the adjacent jail facility for DNA expansion has been completed. Renovation of the new space has been initiated. A dividing wall and additional security doors have been installed. This project has been delayed as a result of the fire-bombing of our facility in December of 2009.

The Columbus Division of Police Gun Project which started under the 2008 award has been completed. Funds have been spent from this award to continue to assist the Columbus Division of Police in reducing its backlog as targeted.

The Mansfield Division of Police Laboratory received notification that the completed environmental assessment in order to purchase supplies for the Columbus project was approved by NIJ.

Progress for October –December 2009

The Mansfield Division of Police Forensic Science Laboratory has not initiated approved spending at this time. The DNA analyst is currently funded by the 2008 DNA Backlog award and is scheduled to transfer to this award during the next reporting period. Overtime funding of DNA analysis is also currently under the 2008 award.

Removal of the adjacent jail facility for DNA expansion is in progress. Renovation of the new space is scheduled to begin during the next reporting period.

The Columbus Division of Police Project has also started under the 2008 award. Once this portion of the project is completed the program will continue under the approved funding of this award.

The Mansfield Division of Police Laboratory did complete the required environmental assessment required in order to purchase supplies for the Columbus project. The EA has been published and is currently pending NIJ approval.

FY09 Recipient Name: Cuyahoga County Coroner's Office
Award Number: 2009-DN-BX-K149
Award Amount: $63,718
Final Report: Narrative pertaining to the goals for the 2009 Backlog- BX-K149 Cuyahoga County Coroner's Office grant closeout report.

Goal 1: Reduce forensic DNA sample turnaround time.
There has been a reduction in turnaround time for processing samples. There prior turnaround time was 6-8 months now the turnaround time is 4-5 months.
Goal 2: Increase the throughput of the public DNA laboratory.
The throughput totals remained the same per analysts.
Goal 3: Reduce the DNA forensic casework backlog.
There was a reduction in the total DNA forensic casework backlog.

For this reporting period there all supplies were ordered and received and payments made to vendors. The supplies purchased and received are to continue DNA sample processing. A new DNA forensic scientist started in January of 2011. There have been no issues in regards to the new DNA reports issued to partnering agencies.

From January to March the number of case working analysts was two and a half for analysts and one supervisor to review all the cases. During the last report it was stated that new were being trained, since then, one of the staff did not pass competency testing. In January 2011, a new DNA analyst was hired and training has been ongoing.

The DNA unit was evaluated for productivity on March 7, 2011 by federal contractors. In addition, the laboratory continued to prepare for transition from ASCLD/LAB legacy towards ISO 17025 accreditation. The ISO audit will take place the week of May 9, 2011. There has been many staff hours designated to preparations and making sure that the laboratory has all the documents, policies and procedures to comply with ISO 17025 guidelines. In addition there are several other maintenance and calibrations tasks which need to be performed to continually comply with the FBI QAS and ASCLD/LAB accreditation requirements. All these things have to be accomplished with the limited staff of only three people in DNA unit on top of casework analysis, review and time away from lab for court testimony.

The DNA unit began taking nonfatal cases such as rapes, burglaries, robberies and gun cases from partner agencies within our region. However, the majority of the cases are homicides.

The Cuyahoga County Regional Forensic Science Laboratory DNA unit has had many success stories during this grant. There are a few highlights attached in regards to CODIS hits.

FY09 Recipient Name: Hamilton County
Award Number: 2009-DN-BX-K157
Award Amount: $95,000
Final Report: The following goals and objectives were set for this award:

Objective 1: As the "Capacity Enhancement" component of the grant, this objective is to improve the effectiveness of each analyst and the laboratory's general capability to process casework.

Progress Oct. 1, 2009- Dec. 31, 2009:

The grant award was accepted. A pagination system was purchased to save analyst's time labeling report pages in case jackets.

Progress Jan. 1, 2010- Jun. 30, 2010:

During this period (in April) one of the DNA analysts quit and she was replaced with an experienced analyst who will start in August 2010. Also, the liquid handling robot was installed but not validated. The robot was part of a previous grant project. Additionally, a new CODIS server was purchased to be ready for the next version of CODIS software. Unfortunately solving software problems required time away from casework. On the other hand, grant funds permitted routine instrument maintenance so there were no significant equipment problems or delays during the period. Pipette recalibrations and maintenance of the LIMS also insured that operations continued smoothly. The

laboratory was able to undergo an ASCLD/LAB *International* ISO assessment in late April that included an external DNA audit.

Progress Jul. 1, 2010 – Dec. 31, 2010:

During this period, the laboratory was able to upgrade several small equipment items used daily by analysts such as new heating blocks, NIST traceable thermometers, and repeating-pipetters. Additionally, we were able to make use of new technology by acquiring a plate spinner to help reduce analysis time. Training at workshops attended as part of the annual MAFS and Promega conferences also improved the effectiveness of the two analysts who participated. On the other hand, pressing caseloads, dealing with ISO accreditation, and training a new analyst have required the attention of the analysts rather than validating the Qiagility liquid handling robot. Also, there have been major software compatibility problems with the new CODIS server. We are still in the process of sorting out those issues.

Progress Jan. 1, 2011-Mar. 30, 2011

With assistance from the FBI/SAIC CODIS network administrator at the end of March, we were able to make significant progress towards sorting out the hardware and software incompatibilities of our new CODIS server. This required reformatting the hard drive and starting from zero. After the completion of the software installations, we will migrate the old data to the new server. This process will continue into the first part of the next grant cycle.

Also during March 2011, the laboratory underwent a Grants Progress Assessment (GPA) and External DNA audit from NFSTC. The earlier external DNA Audit in April 2010 was part of the ISO assessment. The GPA findings pointed out that our primary objectives for this grant included introducing robotics and validating the "Trigger ID" collection system in out laboratory. A "Qiagility" liquid handling robot was purchased but not validated during this time period. Casework and other administrative problems required the attention of the analysts. Note that during this time the regional financial recession continued to have a severe impact on laboratory operations. As we enter a new grant funding cycle, the analysts are making plans to complete the validation studies needed to use the "Qiagility" for casework. For similar reasons, the "Trigger ID' validation was not done. Higher priority work, such hiring and training a new DNA analyst took precedence. We simply ran out of time before the validations could be completed. The GPA team pointed out that the laboratory should have requested a GAN because of our inability to complete those validations. That was wholly an oversight on my part because I did not realize GANs were necessary for deletions of objectives not just additions.

Objective 2: As the "Backlog Reduction" component of the grant, this objective is to process 16 backlogged cases using supplies purchased from grant funds.

Progress Oct. 1, 2009-Dec. 31, 2009:

Plans were established to collect the necessary data to track applicable cases. Because Hamilton County was closing out their accounts at the end of the year, there was not sufficient time to permit actually placing orders for supplies.

Progress Jan. 1, 2010- Jun. 30, 2010:

During this period, supplies were ordered and 16 cases were processed using grant funds. Eleven (11) of those 16 cases produced profiles suitable for CODIS. Six (6) of those CODIS entries produced hits.
This objective has been met.

Performance Metric Comments:
The increase in DNA submissions continues unabated. During the 12 months of 2009, the backlog increased from 274 to 430 cases. This was aggravated by quality problems at ABI with Identifiler DNA kits. Consequently, we were not able to complete the processing of casework for about 3 weeks in December. Of course, during that time preparatory work continued on cases that caused a bottleneck at the analytical phase. That bottleneck has now been eliminated with replacement kits that work properly. We are reviewing the results of 2009 DNA cases from property crimes to determine the types of evidence that are most (and least) likely to yield usable DNA results. This information will be provided to the submitting agencies with the expectation that they will self-limit the submission of ineffective samples.
In fact, in 2010, the study of touch DNA cases was completed and that information has been distributed widely to police investigators. Plans are to repeat the study in early 2011 for 2010 cases. The backlog has continued to increase because of the lack of an analyst, vacations, and increased submissions. One of the analysts participates in the COPS program of DNA training to investigators. Consequently, the investigators of the 43 agencies we serve are finding new ways to apply DNA technology to solve crimes.

During the second half of 2010 the backlog continued to increase. Although most of that backlog increase was due to a greater level of submissions, internal laboratory problems affected our ability to increase productivity. One analyst quit in April. It was necessary to give preferential instrument time to the departing analyst to complete her cases before leaving. She was quickly replaced by an experienced analyst but the new analyst had to be trained in local administrative procedures and technical practices. Undergoing an ISO assessment and external DNA audit also required time and attention. The ISO Assessment and External DNA Audit in April required remediation so that ASCLD/LAB granted ISO accreditation in Nov. 2010. In December, the DNA Technical Leader discovered that our inventory of extraction robot reagent kits was due to expire at the end of the year. All four analysts focused on extractions for cases so the cost of those kits would not be wasted. Consequently, our backlog increased as many cases were started but few were finished. Although it did not have a direct impact on the backlog, during the last quarter of 2010 the Coroner quit and was replaced. This required a review of our policies regarding evidence submission. The new Coroner is concerned about the backlog and has indicated a willingness to address the issue with the police chiefs in the region. We have always done property crimes and “touch” DNA. Our experience, however, is that some types of evidence are more productive than others. It is our intention to impose restrictions on submissions so that we can focus on the most productive types of evidence. As was pointed out at the DNA Summit, backlogs are a measure of inputs not productivity. Hence, we will be taking steps to address the inputs issue as well as the productivity issues.

In fact, in the first quarter of 2011, the laboratory director and the Coroner addressed a meeting of Hamilton County Police Chiefs and explained our need to implement restrictions on case submissions. We are now limiting most "Touch DNA" type submissions to objects brought to the crime scene by the suspect. We are rejecting general swabs of window frames, steering wheels, DVD cables and doorknobs etc. This policy has been promulgated by various means to the investigators we serve. There is evidence that this policy is effective. The backlog has fallen from a level of about 583 cases at the first of 2011 to a current level of about 399 cases (April 2011). In spite of this trend, we did not meet our objective during this grant funding cycle of reducing our turnaround time to less than 83 days.

FY09 Recipient Name: Montgomery County
Award Number: 2009-DN-BX-K156
Award Amount: $297,478
Final Report: The goals of this grant are as follows:

1. Automation of DNA analysis and data analysis - Funds for validation costs were expended during the award period. On-site work by the vendors using funds from this grant has ceased, but validation and collaboration continues as we move toward automation of all processes. At the end of the award period, the quantitation and CE set up validation studies have been completed by the vendor. The extraction validation studies will be completed by the vendor in mid-July. The section analysts are ready to proceed with in-house validations and competencies when these studies have been compiled.

2. Decrease turnaround time to 30 days - The turnaround time at the end of the award period is 33 days, putting us within 3 days of the goal. Since turnaround time can vary depending on case load and staffing, we feel this is acceptable at this time. We hope to improve upon this time as set up and extraction protocols are approved for casework. These activities will assist us in meeting this goal.

3. Increase the number of samples that can be worked by each analyst to 50 - The number of samples processed was 34 per analyst per month at the end of the award period. We did not reach the goal set at the beginning of the period. This goal was set in anticipation of quantitation and CE set up protocols being implemented in casework protocols. The inability to implement them contributed to not meeting this goal.

During the final quarter of the award, expenditures were made for the following:

~STaCS enhancements for continued use and implementation of this software with the section and automation of DNA procedures
~Software was installed on the DNA server to improve the efficiency for the analysts when documenting evidence and analysis procedures for the case file.
~Two Enviro-Genies were purchased for integration into the automated workstation decks
~Electrical service was upgraded in the lab to accommodate the wireless and paperless

procedures in the lab
~A freezer was purchased and installed for long term storage of DNA samples

Training - All six DNA analysts received training during the award period. Three of them attended the Green Mountain DNA Conference in Vermont, one attended an ISO training course and one attended the Bode East Coast meeting. Funds from this grant were essential to ensuring that all analysts received continuing education as required.

While all goals were not met during the award period, each of these purchases contribute to the improved efficiency of the analysts, individually, and the section as a whole.

The Final Budget Detail Worksheet attached to this report captures all expenditures during the award period. The unused balance of the award funds ($1,216.70) is reflected at the end of the sheet. This amount is in conflict with the amount as listed on the final financial report. The amount on the final financial report is incorrect, due to an error in the reporting of registration for a continuing education. This money was actually reported in two quarters. The money ($725.00) will be returned to the program. I have attached a copy of the email documenting the resolution for this error.

FY09 Recipient Name: State of Ohio Office of the Attorney General
Award Number: 2009-DN-BX-K151
Award Amount: $962,807
Final Report: The following objectives were stated in the original grant application submitted by the Office of the Ohio Attorney General – Bureau of Criminal Identification and Investigation (BCI&I) for the FY 2009 Forensic Backlog Reduction Program award 2009-DN-BX-K151. The bureau's progress in meeting each objective is stated below.
Objective 1: To increase DNA analysis capacity by reducing the average number of days between the submission of DNA samples to the laboratory and return to the requesting agency.

Progress for reporting period October 1, 2009 through December 31, 2009: No awarded funds were expended or obligated during the reporting period, and no activities took place as a result of this grant award.

Progress for reporting period January 1, 2010 through June 30, 2010: BCI&I reduced the average number of days between the submission of a sample to the laboratory and delivery of test results to a requesting agency from 129.5 days at the beginning of the award period (October 1, 2009) to 51.4 days by the end of the reporting period (June 30, 2010). The laboratory currently has 407 open DNA assignments and 82 percent (334) of the assignments are less than 90 days old. Only eight assignments are greater than six months old.

Progress for reporting period July 1, 2010 through December 31, 2010: BCI&I reduced the average number of days between the submission of a sample to the laboratory and delivery of test results to a requesting agency from 129.5 days at the beginning of the award period (October 1, 2009) to 55.3 days by the end of the reporting period (December 31, 2010). The

laboratory currently has 687 open DNA assignments and 79 percent (544) of the assignments are less than 90 days old. No assignments are greater than six months old.

*Progress for reporting period January 1, 2011 through June 30, 2011:*BCI&I reduced the average number of days between the submission of a sample to the laboratory and delivery of test results to a requesting agency from 129.5 days at the beginning of the award period (October 1, 2009) to 64.4 days by the end of the reporting period (June 30, 2011). The laboratory currently has 659 open DNA assignments and 85 percent (562) of the assignments are less than 90 days old. No assignments are greater than six months old.

Objective 1 is complete.

Objective 2: To outsource casework and establish an overtime fund to reduce the number of backlogged DNA samples.

Progress for reporting period October 1, 2009 through December 31, 2009: No awarded funds were expended or obligated during the reporting period, and no activities took place as a result of this grant award.

Progress for reporting period January 1, 2010 through June 30, 2010: BCI&I has not yet used any grant funds for overtime as the need for scientist overtime hours has been less than originally anticipated. BCI&I laboratory directors will evaluate the need for overtime during the next quarter and either a budget adjustment request will be submitted to NIJ to repurpose the funds budgeted for overtime, or BCI&I scientists will begin utilizing the overtime funds to complete project objectives.

During the project period, 303 cases were returned by the bureau's outsourcing laboratory. Once BCI&I receives the cases, each case is reviewed by BCI&I personnel before profiles are entered into CODIS. At the end of the reporting period, even though 303 case files had been returned to BCI&I, most had not been reviewed. The delay between the return of the results and the completion of the reviews resulted in only eight profiles being entered into CODIS. Additionally, 45 of the 303 cases returned to the bureau during the reporting period requested Y-STR testing, which are not able to be uploaded to CODIS.

BCI&I is currently reviewing the remainder of the returned cases and is actively uploading profiles, so the number of cases entered into CODIS will continue to increase in future reporting periods.

Progress for reporting period July 1, 2010 through December 31, 2010: During the reporting period, 388 cases were returned by the bureau's outsourcing laboratory. Once BCI&I receives the cases, each case is reviewed by BCI&I personnel before profiles are entered into CODIS. At the end of the reporting period, a total of 272 profiles had been entered into CODIS and produced 86 CODIS hits.

BCI&I repurposed the funds previously budgeted for personnel overtime via a budget GAN approved on 09-03-2010. The funds were repurposed for the purchase of equipment, to fund staff trainings including travel expenses, and for additional outsourcing of DNA samples. The forensic light source equipment budgeted in the grant was ordered and received by the laboratory and BCI&I scientists attended trainings including the 2010 Midwestern Association of Forensic Scientists Annual Meeting and 21st International Symposium on Human Identification.

Progress for reporting period January 1, 2011 through June 30, 2011: During the reporting period, nine cases were returned by the bureau's outsourcing laboratory, five of which were for Y-STR analysis. Once BCI&I receives the cases, each case is reviewed by BCI&I personnel before profiles are entered into CODIS. At the end of the reporting period, one profile had been entered into CODIS from these nine cases. No CODIS hits have occurred to this sample.

Objective 2 is complete.

Objective 3: To provide training to ensure full implementation of robotics technology funded under previous backlog reduction grants.

Progress for reporting period October 1, 2009 through December 31, 2009: No awarded funds were expended or obligated during the reporting period, and no activities took place as a result of this grant award.

Progress for reporting period January 1, 2010 through June 30, 2010: Four scientists completed the US Tecan EVOware Standard and Liquid Handling Workshop. The course information and training has allowed BCI&I staff to perform repairs and troubleshooting on laboratory Tecan equipment.

Progress for reporting period July 1, 2010 through December 31, 2010: As it was detailed in the original application, Objective 3 was achieved during the last reporting period. Objective 3 is complete.

FY09 Recipient Name: City Of Tulsa
Award Number: 2009-DN-BX-K090
Award Amount: $207,905
Final Report:

Goal 1 – To provide forensic expertise through DNA analysis to multiple agencies in Northeast Oklahoma.

- Progress October 2009 - December 2009 – In this reporting period the lab sent out requests for quotes on the genetic analyzer and purification robot that were requested in

our budget. The quote for the purification robot has been received. The FONSI has been obtained for the Tulsa Police Department Forensic Laboratory which was required before chemicals could be purchased. The laboratory is awaiting approval from the City Council and accounts to be created by the Finance Department before funds can be released and ready for purchasing.

- Progress January 2010 – June 2010- In this reporting period the laboratory has purchased, internally validated and currently using the purification robot in casework. The purchase order for the genetic analyzer was obtained and submitted to the supplier. The laboratory is awaiting shipment of the genetic analyzer. The purchase orders for the chemicals were obtained, but the laboratory is waiting until the internal validation of the genetic analyzer is complete before chemicals are purchased for casework. Requests for DNA analysis from outside agencies across Northeast Oklahoma has increased.

- Progress July 2010 – December 2010- In this reporting period the laboratory is still using the purification robot in casework. The genetic analyzer was purchased, internally validated and is currently being used in casework. The chemicals were obtained and are being used in casework. The DNA section successfully completed an external audit by NFSTC and an external audit during the Laboratories ASCLD/LAB *International* Assessment using the current Quality Assurance Standards for Forensic DNA Testing Laboratories. Requests for DNA analysis from outside agencies across Northeast Oklahoma has increased. Goal Completed.

- Final Report – There were 9 outside agency submissions for the Biology Section of the Tulsa Police Department Forensic Lab in 2008. The number of outside agency submissions increased to 20 during this grant period.

Goal 2 – Increase the efficiency of the DNA testing process.

- Progress October 2009 - December 2009 – In this reporting period the lab sent out requests for quotes on the genetic analyzer and purification robot that were requested in our budget. The quote for the purification robot has been received. The FONSI has been obtained for the Tulsa Police Department Forensic Laboratory which was required before chemicals could be purchased. The laboratory is awaiting approval from the City Council and accounts to be created by the Finance Department before funds can be released and ready for purchasing.

- Progress January 2010 – June 2010- In this reporting period the laboratory has purchased, internally validated and currently using the purification robot in casework. The purchase order for the genetic analyzer was obtained and submitted to the supplier. The laboratory is awaiting shipment of the genetic analyzer. The purchase orders for the chemicals were obtained, but the laboratory is waiting until the internal validation of the genetic analyzer is complete before chemicals are purchased for casework. The average number of days

between submission of a sample to the laboratory and the delivery of test results has decreased from 428 days to 221 days (48% decline). The average number of samples analyzed per analyst per month has increased from 17 to 58 (241% increase). The number of backlogged forensic DNA cases has decrease from 122 to 85 (30% decrease).

- Progress July 2010 – December 2010- In this reporting period the laboratory is still using the purification robot in casework. The genetic analyzer was purchased, internally validated and is currently being used in casework. The chemicals were obtained and are being used in casework. The average number of days between submission of a sample to the laboratory and the delivery of test results has decreased from 428 days to 169 days (61% decline). The average number of samples analyzed per analyst per month has increased from 17 to 68 (300% increase). The number of backlogged forensic DNA cases has decrease from 122 to 86 (30% decrease). Thirteen profiles were entered into CODIS as a result of funding provided under this award. Out of the 13 profiles entered into CODIS, 7 CODIS hits attributable to analyses funded under this award were recorded (54%).

- Final Report – The average number of days between submission of a sample to the laboratory and the delivery of test results decreased from 428 days to 162 days (62% decline). The average number of samples analyzed per analyst per month has increased from 17 to 47 (276% increase). The number of backlogged forensic DNA cases has decrease from 122 to 101 (17% decrease). Forty-four profiles were entered into CODIS as a result of funding provided under this award. Out of the 44 profiles entered into CODIS, 15 CODIS hits attributable to analyses funded under this award were recorded (34%).

FY09 Recipient Name: Oklahoma State Bureau of Investigation
Award Number: 2009-DN-BX-K063
Award Amount: $617,724
Final Report:
*NOTE – Cases worked directly under this award were completed December 31, 2010. Beginning in January 2011, funding for casework is being tracked on the 2010 grant.

GOALS - At the beginning of the grant period the goal of the project was as follows:

1. Purchase laboratory equipment and software that would reduce the processing time and/or increase the number of samples processed, contract for the implementation of DNA process-improvements through a strategic plan, pay overtime salaries and benefits for existing employees to process additional cases, purchase convicted offender DNA collection kits, and extend three technician positions to aid in processing DNA casework and offender samples.

During November 2009, a budget GAN was requested and approved which added the following:

2. An additional technician was added to increase the assistance that can be provided by these individuals. Additional equipment (electronic pipettors, chill blocks and lighting) was added to also reduce the processing time and/or increase the number of samples processed. Finally, a subscription was added for a journal used by this laboratory for literature review purposes.

During March 2010, a budget GAN was requested and approved which changed the following:

3. Overtime was adjusted to allow more time for both casework and DNA training of the remaining analysts. Additional equipment (sample blocks, thermal cycler, computers, microcentrifuges, and a DNA/QA storage server) was added to accomplish quick fixes associated with the strategic plan also paid with this grant.

During April 2010, a budget and change of scope GAN were requested and approved for the following:

4. During this period, it became clear that budget shortfalls within the agency might hinder the progress and analysis of DNA cases. A change of scope and budget were requested to fund the purchase of all DNA amplification and quatification kits. Some of the funding was cut from the overtime budget and the microscope budget. Additionally, funding was added for training associated with continuing education of the DNA analysts, and for project management software to help prioritize and manage projects and validations.

During November 2010, a budget GAN was requested and approved which changed the following:

5. Changes were made to the equipment costs to reflect actual costs of items. In addition, a video conferencing system was requested for the Tahlequah laboratory. The purpose was to allow analysts to conduct reviews and attend meeting without the added travel time associated with meeting at the Forensic Science Center. Changes were also made to the supplies to reflect a change in STR kits used by the OSBI.

During February 2010, a budget GAN was requested and approved which changed the following:

6. The personnel and fringe benefits category was adjusted to reflect the actual amount of funds dispersed through December 31, 2010. Funds were added to the travel and other categories to send the OSBI technical manager to the BODE conference. Additional equipment was added to the grant (centrifuge, document scanners, DNA speed-vacs, AB 7500, and a new CODIS 7.0 server). Funding was also requested and approved in the Contracts category to fund two presenters at an OSBI funded DNA Conference.

During September 2011, a final budget GAN was requested and approved which changed the following:

7. All total were adjusted to equal amounts actual expended on the items. The remaining funds were reallocated to fund multiple equipment purchases, registration for a meeting and reference material.

PROGRESS – During the first grant period (October 1, 2009 to December 31, 2009), the following was accomplished:

1. Funds began to be expended for two technician salaries and overtime for existing employees. Interviews have been conducted for the additional two technicians.
2. The bid for the strategic planning has been awarded, and this is set to begin early in 2010. No funds have been expended for this project during this period.
3. A request for information is being written for the microscopes. Once this is completed, a vendor for the microscopes will be determined. Because the cost for these microscopes is uncertain, other equipment and software listed on the grant is not being purchased at this time.

During the second grant period (January 1, 2010 through June 30, 2010), the following was accomplished:

1. Funds continue to be expended for the two previous technician's salaries and overtime for existing employees. Two additional technicians were hired by the CODIS unit, and funding has been expended for their salaries.
2. All equipment has been purchased with the exception of the microscopes and search room lighting. Some items are still pending delivery.
3. The offender DNA collection kits were ordered.
4. The supply line budget for kits is budgeted and contracts have been requested; however, the contract is pending approval at the State of Oklahoma's Department of Central Services.
5. The Forensic Science International journal was ordered during this period. The project management software is still pending

During the third grant period (July 1, 2010 through December 31, 2010), the following was accomplished:

1. The final funds were encumbered for the four technician's salaries and overtime for existing employees. Salaries and overtime will be paid from the 2010 grant beginning January 2011.
2. Offers to bid on the microscopes were put out to vendors and two vendors responded with bids that were evaluated. One bid was approved and the bid was awarded to the vendor. Shipment of the microscopes is expected to occur sometime in late January 2011.
3. The remaining equipment has been purchased or the money has been encumbered.

4. Supplies are being purchased. A final purchase of supplies is expected to occur in late January or early February.
5. The project management software has been ordered and delivered.

During the fourth grant period (January 1, 2011 through June 30, 2011), the following was accomplished:

1. The final funds were expended for the technician's salaries and overtime for existing employees. Salaries and overtime are being paid from the 2010 grant beginning January 2011.
2. The Microscopes have been purchased delivered and installed. These new systems have greatly enhanced the analyst's ability to search slides.
3. The CODIS server has been quoted, and the DNA speed-vacs have been purchased.
4. A final purchase of supplies has occurred, and new supplies are being purchased on the 2010 grant.
5. Approximately $60,000 remains to be spent on this grant. The items have been identified, and progress is being made on expending these funds.

During the final grant period (July 1, 2011 through September 30, 2011), the following was accomplished:

1. Final purchases were made on equipment and other costs.
2. One item being purchased for the CODIS unit was quoted and a purchase order issued. After the grant had reached September 30, 2011, the vendor informed the OSBI that the item was on indefinite back-order. After some research, it was discovered that the item is a proprietary item and the vendor is in a legal dispute with the manufacturer. This resulted in the item not being purchased. As a result, the OSBI has an unobligated balance of federal funds equaling $289.33. Every reasonable attempt was made to expend these funds; however, issue beyond our control resulted in this small amount of funding not being expended.

In summary, this grant funding resulted in the following impact to casework at the OSBI. The OSBI's turnaround time dropped 136 days or 72%. The average number of items analyzed per analyst increased by ~10 per month. The OSBI was also able to reduce the number of backlogged forensic cases from 527 cases to 282 cases. This is a reduction of 245 cases or 46%. This funding resulted in the OSBI employing three technicians to assist with various aspects of casework and ultimately reducing the amount of miscellaneous and QC work required by analysts. This translates to more time in case work. This grant also allowed for additional cases to be worked through overtime funding. Four analysts were funded to attend external training while all analysts attended a two and a half day DNA symposium directly funded from this award. Various and numerous pieces of equipment were purchased which has increased the throughput and the efficiency of the unit. Supplies were purchased which allowed the OSBI to continue performing DNA casework when otherwise budget constraints would have reduced or eliminated the agency's ability. Funding was also utilized for process mapping to increase efficiency and for various references used within the unit.

In conclusion, the OSBI has made tremendous strides through the course of this grant period due to the funding opportunity provided through this grant. In a time of budget crisis in the State of Oklahoma, this funding was also crucial in allowing the OSBI to continue moving forward with DNA casework and, in fact, reducing the overall backlog and turnaround. Without this funding, the OSBI would not be in the position it is today.

FY09 Recipient Name: Oregon State Police
Award Number: 2009-DN-BX-K139
Award Amount: $492,353
Final Report: The 2009 Forensic DNA Backlog Reduction Program Grant (Award Number 2009-DNBX-K139) was awarded to the Oregon Department of State Police Forensic Services Division on September 22, 2009 for the budget period of October 1, 2009 through March 31, 2011. This report will detail progress made toward achieving the objectives as outlined in the project titled: *Enhanced Capacity of DNA screening, processing and Analysis, Reduction in Backlogged DNA Casework Samples & reintroduction of CODIS analysis in-house.*
The following objectives or goals set for this award 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.

Report 1: October 1, 2009 through December 31, 2009

- Objective 1: to provide support for one DNA Forensic Scientist position and overtime to process and analyze incoming and backlogged DNA cases respectively During October through December 2009, we used 124.25 hours working DNA backlogged cases. Approximately, 16 cases were processed and analyzed. Of these cases, 15 profiles were uploaded into CODIS which resulted in 6 hit. We reviewed applications and performed interviews at the end of 2009. However, at this time we have not selected a DNA forensic scientist to fill this full time position. We are planning to make this selection in February 2010.
- Objective 2: to complete an ongoing renovation project to enhance the DNA unit's capacity to analyze CODIS samples in-house. We have made progress towards the renovation of the mezzanine of the Portland Metro laboratory. However, no monies from this grant have been contributed toward this renovation.
- Objective 3: to purchase equipment and supplies for the analysis of DNA database and casework samples to improve efficiency and decrease the backlog We purchased various supplies (e.g., size standard kits, capillary array, EZ1 investigator kits, 3130 POP) for the processing and analysis of DNA backlogged samples.

Objective 4: to purchase equipment for the Bend laboratory's biology processing unit to enhance the capacity of screening and processing of biological evidence. No progress has been made toward this goal.

Objective 5: to provide training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency. To date, monies from this grant have not contributed to training or continuing education opportunities.

Report 2: January 1, 2010 through June 30, 2010

Objective 1: to provide support for one DNA Forensic Scientist position and overtime to process and analyze incoming and backlogged DNA cases respectively. During January through June 2010, we used 884.75 hours of overtime to work DNA backlogged cases. Approximately, 184 cases were processed and analyzed. Of these cases, 177 profiles were uploaded into CODIS which resulted in 96 hits. Currently, the DNA unit is at capacity and cannot accommodate additional personnel. We were able to fill two vacant DNA forensic scientist positions supported on state general funds and at this time do not have a need to hire an additional DNA forensic scientist. As such, we will be submitting a budget adjustment GAN to transfer funds from personnel & benefits to consultants.

Objective 2: to complete an ongoing renovation project to enhance the DNA unit's capacity to analyze CODIS samples in-house. We have made progress towards the renovation of the mezzanine of the Portland Metro laboratory. However, no monies from this grant have contributed to this renovation project during this reporting period.

Objective 3: to purchase equipment and supplies for the analysis of DNA database and casework samples to improve efficiency and decrease the backlog. We purchased various supplies for the processing and analysis of DNA backlogged samples. The supplies included EZ1 DNA extraction kits and flip tubes, FTA reagent, AmpFLSTR ID kits, 3130 POP, Capillary array, genetic analyzer septa strips, quantifiler DNA quant kits, and Genescan-500 size standard kits. Two Advanced XL EZ1 DNA extraction BioRobots were purchased during this reporting period; one was purchased using funds from this grant. In addition, six pipettors were purchased and a micro-centrifuge.

Objective 4: to purchase equipment for the Bend laboratory's biology processing unit to enhance the capacity of screening and processing of biological evidence. The Bend laboratory moved into their new facility July 1st and should be in a position to begin procurement of the biology processing equipment during the next quarter.

Objective 5: to provide training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency. Eight forensic scientists attended training during this reporting period. Four (3 biology processing analysts and one DNA analyst) attended the American Academy of Forensic Sciences in February, two DNA analysts attended the BODE advanced DNA workshop in March, two attended the CAC seminar in April.

Report 3: July 1, 2010 through December 31, 2010

As of October 31, 2010, grant funds for overtime were expended. Thus, numbers reflected below are for those cases that were worked using overtime supported by funds from this grant.

Objective 1: to provide overtime to process and analyze incoming and backlogged DNA cases respectively. A budget grant adjustment notice (GAN) was submitted August 6,

2010 to move monies from personnel and benefits to the contracts category. We determined that we were not in a position to hire an additional DNA forensic scientist. The GAN was approved 8/25/10 and the money to support this position was moved to the contract category.

From July 1, 2010 to October 31, 2010, we used 484.50 hours of overtime to work DNA backlogged cases. Approximately, 111 DNA cases were analyzed to develop 97 DNA profiles for entry into CODIS. There were 58 hits to the profiles entered. See table below for a cumulative summary for all cases worked, profiles entered and hits obtained during the grant award.

Summary of Cases Worked, Profiles Entered and Hits Obtained			
Project Period	**Cases Worked**	**Profiles Entered**	**Hits Obtained**
10/1/09 – 12/31/09	16	15	6
1/1/10 – 6/30/10	184	177	96
7/1/10 – 10/31/10	111	97	58
Total grant period 10/1/09 – 10/31/10	311	289	160

Objective 2: to complete an ongoing renovation project to enhance the DNA unit's capacity to analyze CODIS samples in-house In September 2010 the remodel of the Portland lab was completed. However, we are still working with the contractor to fix an HVAC issue. Thus, final payment has not been made. The new lab space has enhanced the DNA unit's capacity and currently all CODIS samples are being analyzed in-house. See attached pictures.

Objective 3: to purchase equipment and supplies for the analysis of DNA database and casework samples to improve efficiency and decrease the backlog CODIS collection kit supplies were purchased to assembly approximately 13,500 kits. The Portland abilitation Center (PHC) has received the supplies and assembled the kits and will distribute them to the various correction facilities. Two PCR workstations were purchased for the new CODIS section. The workstations will be used for washing the FTA punches and for manual extraction of CODIS samples. Four Thermomixers were purchased for the DNA extraction process. These are critical to both the manual extraction of the CODIS samples and for the analysis of backlogged DNA samples. In addition, we purchased EZ1 DNA extraction kits to process DNA backlog samples.

Reporting Period	DNA Backlog	# samples per analyst per month
September 31, 2009	1278	40.4
10/1/09 to 12/31/09	1336	45
1/1/10 to 6/30/10	1220	48.2
7/1/10 to 10/31/10	1141	36.7*
1/1/11 to 3/31/11	885	48

*Number does not accurately reflect the number of samples per analyst per month that can be worked as we discontinued using overtime during the month of October. Thus, some analyst did not have the full month to work overtime.

We have increased our efficiency or the number of samples analyzed per month per analyst by approximately 7.8 samples. In addition, we were effectively able to reduce the DNA backlog by 137 when compared to the beginning of the project period.

Objective 4: to purchase equipment for the Bend laboratory's biology processing unit to enhance the capacity of screening and processing of biological evidence. In August 2010 we purchased several biology screening examination tables for the new Bend Laboratory. These tables will provide sufficient space for the screening of evidence for DNA. We also purchased two tablet PCs with accessories and the Dragon Naturally Speaking software for the analysts to initiate digital note taking to minimize potential contamination to evidence when screening for biological fluids.

Objective 5: to provide training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency In July 2010, one DNA analyst attended the Green Mountain DNA Conference that was sponsored by the Vermont Department of Public Safety, in Burlington, Vermont. It was an enlightening conference dedicated to DNA, with about 100 attendees. The session topics were appropriate and timely, with a pleasant mix of pure science, forward-looking applications, and issue-oriented themes. The physical venue encouraged questions from participants, and ample time to further discuss was provided.

In September 2010, the Northwest Association of Forensic Scientists meeting was held in Portland, Oregon. We were able to use funding from this grant to cover the cost of registration for 13 of the Portland DNA analysts and three Portland biology processing analysts to attend workshops and/or the general session presentations. In addition, funds also support registration and per diem costs for three additional biology processing analysts from other OSP Forensic laboratories.

In October 2010, two DNA analysts attended the 21st International Symposium on Human Identification. There were able to find lodging close by so that they did not charge the symposium rate for their lodging. Grant funds were also used for airfare to send an analyst to the ABI Advanced HID Troubleshooting course in San Francisco in October.

All three of these events met our objective of providing training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency.

Final Progress Report #4 - Jan 1, 2011 through March 31, 2011 (All funds have been expended)

Objective 1: to provide overtime to process and analyze incoming and backlogged DNA cases respectively. No overtime was conducted or cases worked during this reporting

period. All overtime funds were expended by October 31, 2010. Final cumulative numbers for cases worked, profiles entered and hits obtained were reported on the last progress report.

Objective 2: to complete an ongoing renovation project to enhance the DNA unit's capacity to analyze CODIS samples in-house. The renovation was completed during the last reporting period. All CODIS samples are being processed in-house. The HVAC system is working and all invoices paid and funds expended. During this reporting period, CODIS kits were compiled through a contract lab and distributed where needed to local agencies.

Objective 3: to purchase equipment and supplies for the analysis of DNA database and casework samples to improve efficiency and decrease the backlog. No additional equipment or supplies were purchased during this reporting period. All funds for equipment and supplies have been expended.

Objective 4: to purchase equipment for the Bend laboratory's biology processing unit to enhance the capacity of screening and processing of biological evidence. No additional equipment using funds from this grant occurred during this reporting period.

Objective 5: to provide training and continuing education opportunities to analysts to either assist with obtaining competency or maintaining proficiency No training or continuing education opportunities funded by this grant occurred during this reporting period.

FY09 Recipient Name: Allegheny County Pennsylvania
Award Number: 2009-DN-BX-K125
Award Amount: $283,882
Final Report:

This project is still in progress

FY09 Recipient Name: City of Philadelphia
Award Number: 2009-DN-BX-K142
Award Amount: $993,589
Final Report:
NARRATIVE:
The following goals and objectives were set for this award:

GOAL 1:
To provide overtime for approximately 24 forensic scientists to dedicate an additional 10% of their time to the screening, analysis and technical review of cases for DNA and to technically review the outsourced cases, prepare reports and upload the probative results to CODIS. It was expected that 242 backlogged cases would be analyzed during the course of this grant.

- PROGRESS Jan 2010 to June 2010:

During this reporting period approximately 3710 overtime hours were utilized by the laboratory staff for the screening and analysis of cases resulting in approximately 996 cases processed in house in some manner on overtime. This resulted in an upload of 84 forensic samples and 118 suspect reference samples in to the local CODIS database over this reporting period. These uploads resulted in a total of 88 investigations aided. The total amount of overtime utilized to date for this grant is 5460 hours. To date, approximately 1385 cases were processed in house in some manner on overtime utilizing funds from this grant, resulting in a total of 95 investigations aided.

- PROGRESS July 2010 to December 2010:
  During this reporting period approximately 4335 overtime hours were utilized by the laboratory staff for the screening and analysis of cases resulting in approximately 1213 cases processed in house in some manner on overtime. This resulted in an upload of 248 samples (118 forensic samples and 130 suspect reference samples) into the local CODIS database over this reporting period. The uploads resulted in a total of 20 hits with 19 investigations aided. The total amount of overtime utilized to date for this grant is 9795 hours. To date, approximately 2598 cases were processed in house in some manner on overtime utilizing funds from this grant, resulting in a total of 114 investigations aided.

- PROGRESS January 2011 to March 2011:
  Overtime funds from this grant were not used during this final quarter of the grant. All overtime funds were consumed by the end of December 2010. Twelve additional hits (4 Forensic LDIS hits and 8 Offender SDIS hits) were made from January to March 31, 2011 from those cases completed on overtime.

  Goals were exceeded. The goal was to analyze an additional 242 cases. However, by consolidating cases and using batch processing methods, the laboratory was able to process approximately 2598 cases in some manner on overtime utilizing funds from this grant. This resulted in a total of 114 investigations aided over the entire grant period.

GOAL 2: To hire six (6) additional forensic scientists for screening and analysis of DNA cases.

- PROGRESS Jan 2010 to June 2010:
  This goal has been meet. The six individuals Forensic Scientists were hired between March 2010 and April 2010. Three were assigned to the DNA Laboratory and three were assigned to biological prescreening in the Trace/Serology Laboratory. All six of these individuals are approximately mid-way in their training. They have all received formal lectures and are completing the analysis of assigned training samples.

- PROGRESS July 2010 to December 2010:
  All six completed training and were qualified for case work. At the end of September 2010, one of the individuals resigned. A request to replace this individual was submitted October 12, 2010. The test to fill this position was announced on January 10, 2011.

- PROGRESS January 2011 to March 2011:
  The laboratory will be conducting testing for four Biologist Trainee positions on April 5, 2011. These positions will be split between biology prescreening and DNA analysis.

  The goal was met. However, one of the hired individuals resigned in September of 2010. The hiring of his replacement is part of the effort to hire four Biologist Trainees. The test for the position was announced in January 2011 and was administered on April 5, 2011. Interviews were conducted May 16-18, 2011. It is expected that the successful candidates will start work in July 2011.
  Update: The one analyst of the six hired under this grant who resigned in September of 2010 has decided to return to work at the Philadelphia Forensic Science Bureau. He started work on June 6, 2011.

GOAL 3: To increase capacity of the DNA lab by purchase of automated equipment and additional equipment needed for routine analysis.

- PROGRESS Jan 2010 to June 2010:

  In this reporting period the lab has received the following items at the end of June 2010:
  - 3 x EZ1 Advanced XL Liquid Handling Systems,
  - 1 x Qiagility System HEPA/UV
  - 1 x Roto-Gene Q 5 Plex Real Time Thermal Cycler

  The first EZ1 system was received in May 2010 and purchased through 2007 grant funds. Validation on this instrument began shortly after receipt and is mid-way through validation. The performance checks on the 3 EZ1s purchased under this grant will be conducted concurrently with the validation studies. It is expected that validation and performance checks will be completed by October 2010. Upon the completion of the EZ1 Advanced XL Liquid Handling Systems validation, the Qiagility and Roto-Gene validations will begin.

- PROGRESS July 2010 to December 2010:
  The validation of the EZ1 Advanced XL Liquid Handling Systems has been completed. The cross training of the personnel to operate the equipment is in progress. The major portion of the Qiagility and the Roto-Gene validations were completed in January 2011. The validation data is being evaluated and compiled. It is expected that this should be completed by the end of February 2011.

- PROGRESS January 2011 to March 2011:
  The validation continues on the Qiagility Liquid Handling System and the Roto-Gene Real Time PCR Thermal Cycler. Progress on these systems is slower than expected due to case demands and consistency of data issues. All of the issues have been resolved. The laboratory expects to complete the validation by the end of April.

Cross Training on the EZ1 Advanced XL Liquid Handling Systems extraction system continues. Case demands have also slowed the progress of the cross training.

In this reporting period a GAN was submitted to purchase several additional thermal mixers, thermal cyclers and centrifuges with remaining funds to help streamline productivity. The thermal mixers and centrifuge were ordered and received. These were placed into the analysis process to increase throughput. In addition, three ABI 9700 thermal cyclers were ordered from funds remaining on the grant. These are to be delivered in April.

Goal has been met. All of the equipment on the original application was ordered, received and placed into operation. Validations were completed on the EZ1 Advanced XL Liquid Handling System extraction system and 90% complete on the Qiagility Liquid Handling System and the Roto-Gene Real Time PCR thermal cycler. Three additional thermal cyclers were ordered under a GAN approved in January. These require only performance checks as these instruments have already been validated in the laboratory.

GOAL 4: To contract C. S. Tomsey Forensic Consulting to conduct on-site and off-site peer reviews of the Department's Criminalistics and DNA sections as well as assess the staffing of the sections. The consultant will provide lectures to newly hired forensic scientists and police officers. In addition, the consultant will assist in grant management and development.

- PROGRESS Jan 2010 to June 2010:
  The contract to C. S. Tomsey Forensic Consulting was awarded at the end of January 2010. To date, four site visits have been conducted. The consultant has provided a formal lecture series to the Forensic Scientists hired under this grant. These lectures are part of a Masters Level Degree university curriculum and consist of the theory and applications of forensic science procedures utilized in the analysis of forensic biological evidence. The consultant assisted in grant management and continues to evaluate case management procedures and validation progress.

- PROGRESS July 2010 to December 2010:
  To date, nine site visits have been conducted. The consultant continues to assist in grant management functions, evaluation of validation data, training and case management procedures.

- PROGRESS January 2011 to March 2011:
  The consultant has conducted 2 site visits that included off site reviews and evaluation. These site visits included grant management functions and validation progress review.

  Goal was met. A total of eleven on-site visits and several off site data reviews were conducted by the consultant to review validation progress, evaluate data, lecture new employees and provide grant management functions. The consultant designed and

presented a lecture series that patterns a university master's degree forensic DNA analysis course.

The goal was to bring the Philadelphia Laboratory to a current status with grant reporting, management and timeline. The laboratory has met all grant reporting requirements on time, closed all prior grant awards and has not requested any grant extensions on this grant. At the completion of this grant, the laboratory will only have one open grant that does not expire until March of 2012. Spreadsheets were developed to track expenses and performance metrics.

The consultant also conducted peer reviews of validation data and training data on new extraction methods (EZ1 Advanced XL Liquid Handling Systems Qiagen Extraction System), quantitation methods (Plexor HY and Roto-Gene), amplification kits (Power Plex 16), detection formats (ABI 3130XL) and automation (EZ1 Advanced XL Liquid Handling Systems Qiagen System and Qiagility Liquid Handling System). Validation and training was continually monitored and data was reviewed within two weeks of receipt.

GOAL 5: To contract BODE Technology Group to analyze prescreened and screened backlogged cases.

- PROGRESS Jan 2010 to June 2010: The contract to BODE Technology Group was renewed in December 2010. Technical specifications have been formalized and approved by the DNA Technical Leader. Due to funding issues, the required site visit to the vendor laboratory could not be scheduled until August 17, 2010.Cases have already been selected and packaged. These cases will be delivered to the vendor during the initial site visit.

- PROGRESS July 2010 to December 2010: Eighty eight (88) cases were sent to Bode Technology on 8/17/2010. The results on all cases were received mid December 2010. The technical reviews on these cases will begin January 2011.

- PROGRESS January 2011 to March 2011: All of the cases were returned from the vendor laboratory and are currently under review. Approximately 75% of the technical reviews are completed on these cases. It is anticipated that the remaining technical reviews and subsequent uploads to CODIS will be completed by the end of April 2011.

  Goal is 90% completed. The goal was to outsource 105 cases. Due to price increases and case complexity, only 88 cases (235 items) were able to be outsourced under the budget allotment. All cases were analyzed by the vendor and the data returned in December. Technical reviews were 75% complete by March 31, 2011.
  Update: All Technical reviews are completed and reports issued to investigators as of June 23, 2011. Of the 88 cases outsourced, there were 80 profiles entered into CODIS which resulted in 8 CODIS hits.

PROJECT DELAYS:

Contract delays occurred with the vendor chosen to analyze cases. The final contract was not signed until August of 2010. This was largely due to the city contract process and the need for the technical leader to review and approve detailed analytical specifications.

A delay in the technical review of the outsourced cases was due to a need to devote manpower to the analysis and review of a violent serial case that involved three rape/homicides and one attempted rape/homicide and the analysis of 272 reference samples. This case spanned through the fall of 2010 and was solved in January 2011 via a CODIS hit. In February 2011, resources were again devoted to the technical review of the outsourced cases.

Implementation of a new LIMS system (The BEAST developed by Porter Lee) also impacted case productivity. While the LIMS was put on line in mid 2009, a variety of software problems continued pulling scientists from casework duties.

ACCOMPLISHMENTS:

Major accomplishments have occurred over the course of the grant. Complete implementation of new technologies into casework has occurred. The laboratory converted from the ABI Quantifiler kit to the Promega Plexor HY kit to simultaneously quantitate human DNA and Y DNA to increase productivity. The laboratory also converted from the FMBio STR detection format to the ABI 3130xl Genetic Analyzer capillary electrophoresis format. This involved validating the Power Plex 16 amplification kit. The laboratory also completed validation and training of Y STR's and placed this technology on line in the fall of 2010.

Six new employees were hired, trained and qualified during the grant period. These employees analyzed 131 cases using grant funds, resulting in the upload of 318 profiles and 24 CODIS hits. A training lecture series and tests were also developed for use in the Criminalistics and DNA sections training programs.

In order to increase throughput of cases, the laboratory purchased several automation instruments. Automation of the extraction process was validated using the EZ1 Advanced XL Liquid Handling Systems and cross training is in progress. The laboratory also purchased the Qiagility System HEPA/UV Liquid Handling System to automate the PCR and Real Time PCR set-up process and the Roto-Gene Q 5 Plex Real Time Thermal Cycler. The validations of these two instruments are nearing completion. Delays in Qiagen support personnel signing off on validation runs using Plexor HY have kept the Roto-Gene from being used in casework. Validations are projected to be completed by the end of June 2011. Cross training of analysts will begin July of 2011.

Over 2,598 cases were processed in some manner using overtime from this grant. Of these cases, 629 profiles were entered into CODIS. Of the profiles uploaded, there were approximately 114 hits that are attributable to funds from this grant.

The use of the overtime also allowed the laboratory to maintain a current backlog status while devoting a major portion of their resources to solving the serial cases known as the "Kensington Strangler" rape/homicides. The use of overtime resulted in a hit to CODIS. This case was solved entirely through the analysis of DNA evidence and CODIS.

The current grant was completed within the award period with no extensions requested. Spreadsheets were developed to track expenses and all reports were submitted on time. A GAN was submitted during this last quarter to rearrange budget category funding to better meet the needs of the laboratory with the remaining funds. This GAN also involved a change of scope to include the purchase of additional thermal cyclers, thermal mixers and centrifuges

PERFORMANCE METRICS:

At the beginning of the award period an analyst averaged 20 samples per month. At the end of the grant award period, this average increased to 45 samples per month. This increase is largely due to the conversion of casework analysis from the FM Bio detection format to the 3130 Genetic analyzer format.

PERFORMANCE METRICS FOR TURNAROUND TIME:

Utilizing the newly implemented LIMS, the turnaround time for the beginning of the grant was determined to be 45 days. Prior to the implementation of the LIMS system, accurately capturing the performance metrics was difficult. With development of a new management reporting module in the LIMS, the laboratory can now calculate the approximate "Turn Around Time" between when the cases are assigned for biological analysis until a report is generated.

All cases are first submitted to the laboratory by Philadelphia Police investigators for assignment to a Unit for analysis and storage. The police department does not have a central evidence storage facility. Once it is determined that the evidence needs processed, it is assigned in the LIMS to the Trace Laboratory where the evidence is screened for biological material suitable for DNA analysis. Cases analyzed in the Trace Laboratory that require DNA analysis are transferred to the DNA Laboratory after screening.

At the completion of this grant award, the LIM System calculated the "Turn Around Time" as 36 days for DNA cases "received and completed". The average "Turn Around Time" in the Trace Laboratory is 26 days. Prior to the end of 2010, the "Turn Around Time" in the Criminalistics Unit (Trace and DNA) could not be determined.

The total turn around time for a case from submission to the Trace Laboratory where cases are screened for biological material, to a DNA report issued by the DNA Laboratory was a total of 62 days by the end of the grant.

OPTIONAL PERFORMANCE METRICS:

131 cases were analyzed by scientists hired under the grant. They were all forwarded to DNA analysis. These cases have not been included in the required performance metrics.

Of the 131 cases, 82 Suspect Profiles were entered into LDIS, 40 Forensic Profiles were entered into LDIS and 196 Elimination Profiles were entered into LDIS. The 196 Elimination Profiles includes one serial/murder case that had several hundred Elimination references submitted on it.

Out of the 40 Forensic Profiles entered into LDIS, 28 were uploaded into SDIS/NDIS. Out of the 28 uploaded into SDIS/NDIS, there were 24 hits. Of the 24 hits, there were 2 Suspect Hits, 1 Local Forensic Hit, 9 State Offender Hits and 12 Investigations Aided.

FY09 Recipient Name: Pennsylvania State Police
Award Number: 2009-DN-BX-K133
Award Amount: $1,088,216
Final Report:

GOAL 1 – To increase capacity of the DNA lab by the purchase of equipment

Report 1 – July ’09 to December ‘09

- Progress – In this reporting period, the lab sent out requests for bids and prepared agency requisitions to purchase equipment totaling $49,778.11 (from the $137,326.00) that was requested in our budget.

Report 2 – January ’10 to June ‘10

- Progress – In this reporting period, the lab sent out requests for bids and prepared agency requisitions to purchase equipment for the $137,326.00 that was requested in our budget. This goal is still in progress.

Report 3 – July ’10 to December ‘10

- Progress – In this reporting period, the lab sent out requests for bids and prepared agency requisitions, received purchase orders and equipment. We have $39,454.00 remaining in this category out of the total amount requested in our budget. We anticipate expending these funds in this next period. This goal is still in progress.

Report 4 – January ’11 to June ‘11

- Progress – In this reporting period, the laboratory received purchase orders for the equipment requested. All equipment is installed. We have expended the amount requested in our budget in this category. This goal is complete.

Equipment purchased under this award included;

10 Dell OptiPlex 760 Minitower Computer On-line
27 Dell OptiPlex 760 Desktop Computers On-line January 2012*
5 Dell Latitude E5400 Laptop On-line
2 HP Laser Jet P4015x Printer (#CB511A#ABA) On-line

3 HP LaserJet P2035n Printers (#CE462A#ABA) On-line
2 Servers On-line January 2012*
1 Grainger Portable Humidifier, Console, 2700 Sq Ft (#2PYF7) On-line
1 VWR Eppendorf Vacufuge Concentrator (#53512-624) On-line
5 Fisher Scientific PCR Work Station (#FB-PCR2) On-line
8 VWR Knobs Centrifuge 5424 On-line
2 VWR Spectroline XL 1500 Crosslinker On-line
2 VWR Analog Vortex Mixers On-line
6 VWR 0.5-10ul Eppendorf Single Channel PipettesOn-line
6 VWR 2-20ul Eppendorf Single Channel Pipettes On-line
6 VWR 10-100ul Eppendorf Single Channel Pipettes On-line
6 VWR 50-200ul Eppendorf Single Channel Pipettes On-line
6 VWR 100-1000ul Eppendorf Single Channel Pipettes On-line
1 Grainger Dehumidifier 65 Pints 115 (#1DGX6) On-line
1 Pen Records Lektriever On-line
3 Micro incinerators On-line
1 7500 Real Time Instrument On-line
2 Perkin Elmer Mini Liquid Handling Systems**

*The servers and CODIS workstations have been configured with the required software for the new version of CODIS being released. These items are ready for use. These items have been waiting for CODIS to schedule the upgrade to place them into use. This laboratory is scheduled for its new version of CODIS in January 2012 and these items will then be on-line.

** Validation was begun on these two mini liquid handling systems but was placed on hold due to the demands of other validation projects and the time necessary to train the twelve new individuals hired during 2010. Significant time was required by the supervisor in charge of validation and automation to assist in training the large increase in staffing hired throughout 2010. This reduced the amount of time that could be devoted to this project. Another factor contributing to the delay is placing this instrument on-line were performance issues with another model liquid handling system manufactured by the same vendor. The full size platform required numerous visits and significant additional work before the performance check could be found satisfactory. Since the software found on the mini liquid handling platforms was similar to the version found on the full size model, work was halted until the software bugs were found and corrected.. These software issues have been resolved and it is expected that the programs on the mini platforms will be ready for use in early 2012.

GOAL 2 – To increase capacity of the DNA lab by the purchase of supplies to process casework samples

Report 1 – July ’09 to December ‘09

- Progress – In this reporting period, the lab sent out requests for quotes to purchase supplies totaling $147,500.00 (from $387,580.00) that was requested in our budget.

Report 2 – January ’10 to June ‘10

- Progress – In this reporting period, the lab sent out requests for quotes to purchase supplies totaling an additional $101,081.85 (from $387,580.00) that was requested in our budget. This goal is still in progress.

Report 3 – July ’10 to December ‘10

- Progress – In this reporting period, the lab sent out requests for bids and prepared agency requisitions to purchase supplies. We anticipate expending these funds in this next period. This goal is still in progress.

Report 4 – January ’11 to June ‘11

- Progress – In this reporting period, the laboratory received purchase orders for supplies. All supplies have been received. The laboratory expended the requested funds in this category. This goal is complete.

GOAL 3 – To ensure annual training of analysts in the DNA lab is accomplished by attendance at conferences, meetings and workshops

Report 1 – July ’09 to December ‘09

- Progress - In this reporting period, out service training requests were prepared and forwarded for approval. One individual is being requested to attend the AAFS meeting in Seattle, WA and 16 individuals are being requested to attend the MAAFS meeting or workshop in State College, PA.

Report 2 – January ’10 to June ‘10

- Progress –12 individuals attended the 2010 MAAFS meeting/workshop in State College, PA. Since funds still remain in this category, other training opportunities will be requested for approval such as the International Symposium on Human Identification held in October 2010 to ensure all qualified analysts receive annual training.

Report 3 – July ’10 to December ‘10

- Progress –One individual attended the International Symposium on Human Identification held in October 2010 to receive annual training. This goal is complete.

GOAL 4 – To increase analyst productivity and decrease turnaround time of the DNA lab through the use of overtime for serology screening and DNA analysis

Report 1 – July ’09 to December ‘09

- Progress - In this reporting period, this goal is still pending. Due to funds still available in the 2008 DNA Backlog award (2008-DN-BX-K078), we have not yet begun to utilize these funds. Once the 2008 DNA Backlog award (2008-DN-BX-K078) is expended, we anticipate using these funds.

Report 2 – January ’10 to June ‘10

- Progress - In this reporting period, this goal was started. Due to funds still available in the 2008 DNA Backlog award (2008-DN-BX-K078), we did not begin to utilize these

funds until April 2010. Of the amount allotted for overtime, the laboratory utilized $19,488.79 during this reporting period. This goal will continue into the next reporting period.

Report 3 – July ’10 to December ‘10

- Progress - In this reporting period, this goal was started. Due to funds still available in the 2008 DNA Backlog award (2008-DN-BX-K078), we did not begin to utilize these funds until April 2010. This goal will continue into the next reporting period. Due to a limited number of qualified analysts, there remains a significant amount of overtime funds still available. A request to extend the project period through GMS via the GAN process. It is anticipated that by extending the project period by six months will expend all the allotted funds in this category.

Report 4 – January ’11 to June ‘11

- Progress - In this reporting period, progress towards this goal continued. Due to funds still available in the 2008 DNA Backlog award (2008-DN-BX-K078), we did not begin to utilize these funds until April 2010. Due to a limited number of qualified analysts, a significant amount of overtime funds were available at the start of 2011. A request to extend the project period through GMS via the GAN process was previously approved. By extending the project period by six months till September 30, 2011, all the allotted funds in the overtime category should be expended. This goal will continue into the next reporting period.

Final Report – July ’11 to September ‘11

At the start of this award, the laboratory’s aim was to reduce the current and anticipated backlogs by 569 cases in serology and 2,308 cases in DNA. Although the laboratory did not meet its goal by reducing the anticipated backlogs, it made significant progress towards keeping the backlog from increasing to an even greater number than is reported now. Without this award, the DNA laboratory would have cases remaining unanalyzed for years. Another factor in the increase in backlog was also complicated by an increase in case submissions.

At the start of this award, a goal was to reduce the turnaround time in both the serology section and DNA Laboratory. To help address the large backlog in casework, a case prioritization system was implemented. Cases involving violent crimes were processed ahead of property crime cases due to court dates, requests for expedited status, and the need for investigative information. This resulted in many property crime cases sitting for extended periods of time before analysis. Thus, some cases had long turnaround times due to the length of time they remained unassigned. As a result of having a limited number of casework qualified analysts, these analysts were also responsible for training twelve new forensic scientists hired during 2010. This training required significant time and resources from the qualified analysts and reduced the number of hours devoted strictly to casework analysis. This slowed analysis times and contributed to the increase in turnaround time. However, this award was invaluable at providing these analysts with overtime to complete more cases and samples than if no overtime had been available. This

would have resulted in fewer reports and results being released to investigating agencies and an even longer turnaround time.

At the start of this award, the DNA laboratory had set its productivity goal per forensic scientist to reduce turnaround time per case. At the start of this award, each DNA laboratory analyst typically completed 12 cases per month and took approximately 100 days from receipt into the DNA laboratory to completion. At the end of this award, each analyst typically completed 12 cases per month and took approximately 200 days from receipt into the DNA laboratory to completion. At the end of this award, several individuals hired during 2010 were able to perform casework analysis and it is expected that improvement will be seen in backlog, and productivity.

Funds from this award were also used to provide annual training and continuing education for analysts in accordance with the FBI Quality Assurance Standards. During 2010, fifteen (15) analysts attended a mixture interpretation workshop hosted in conjunction with the Mid-Atlantic Association of Forensic Scientists (MAAFS) annual meeting. This two day workshop was held in State College, PA. Also during 2010, additional funds were allocated for the Technical Leader to attend the International Symposium on Human Identification held in Texas. This training provided information essential to keeping the Technical Leader abreast of recent developments in the field of forensic DNA. Training for the alternate CODIS administrator was also provided under this award by funding this individuals' attendance at the 2010 CODIS Conference. During 2011, the annual training and continuing education requirement was met for twenty-five (25) analysts. An expert on forensic statistics presented various statistical methods and their interpretation at the laboratory for two days.

All goals and objectives set for this award have been met. This award is ready to be closed out.

All profiles generated by sample analysis from this award were reviewed via funds from this award.

FY09 Recipient Name: Instituto de Ciencias Forenses
Award Number: 2009-DN-BX-K170
Award Amount: $408,520
Final Report: The main goal of this award is to continue reducing turnaround time, increasing throughput, reducing casework backlog. The average number of days for the award period between the submission of a sample and the delivery of test results to the requesting agency was 388 days 8% less than the beginning of the award period. However, once the evidence arrives to the lab number of days between the submission of a sample and the delivery of test results to the requesting agency was 129 days. This is significantly difference ($p<0.05$) when compared when the evidence first arrive at the Institute. In addition, regarding the backlogged cases, this summer 2011 we formed a specialized sexual assault kit team that is solving backlogged cases as well as, recent high priority sexual assault cases. Since Puerto Rico Justice System has a Statute of Limitation of five (5) years, we are analyzing sexual assault cases from 2006, which have

impacted or even doubled the turnaround time (814 days) between the submission of a sample from our laboratory and the delivery of test results to the requesting agency.

The analysts and technicians contracted for this award period 2009-2011 have been of great help in the performance of the laboratory. Under this backlog proposal K170, a 64% of the total criminal cases received at the lab were completed by the three (3) forensic serologists and three (3) forensic technicians. However, since October 2009, we have experienced a 52% increase in backlogged cases.

The contract of CODIS consultant has also provided guidance for a fully operational CODIS operation for DNA casework and for the DNA CO operations.

This award has also provided the opportunity for our analysts to participate and to create networking among peers overseas. Four of our lab analysts participated in Mid-Atlantic Association of Forensic Science Annual Meeting and for the Annual Advanced DNA Technical Workshop. These activities contributed to the continuing education and establishment of networking relationships with member of the forensic community, thus fostering cooperation and professional growth for the personnel.

Success story: a metropolitan area rapist was finally brought to justice with DNA evidence found on the victims. The first evidence of rape for this case was submitted at the Institute since 2010. An effort accomplishment for vary analysts/technicians but mainly for those under the award and overtime hours dedicated to this case made the conviction possible. They found that more than one person was involved in the crimes. Although the main perpetrator is in jail, this case still under investigation.

Initially, the LIMS DNA Database Module was included in this award; however, it was eliminated since overtime time was increased for each analyst over the 90 hrs budgeted originally, as was documented in GAN#2. Moreover, with state funds a new version of StarLims was acquired. Also, funds for long distance education were included in this award; however, it was eliminated since overtime time was increased for each analyst over the 90 hrs budgeted originally, as was documented in GAN#2.
Also, funds were used for acquisition of supplies with which carried out the proposed backlog-reduction and verification efforts.

FY09 Recipient Name: Rhode Island Public Safety Grant Administration Office
Award Number: 2009-DN-BX-K143
Award Amount: $109,744
Final Report: The Rhode Island Department of Health's Forensic Biology Laboratory was awarded $109,744 supported under FY09 (NIJ-COPS DNA/Forensics Pub. L No. 111-8, 123 Stat. 569, 583; 28 USC 530C. The effective start date was October 1, 2009. The goals stated in the FY 2009 Forensic DNA Backlog Reduction Project Narrative focused on four major areas: 1) outsource backlogged DNA casework; 2) provide analysts with continuing education and training as required by the FBI's Quality

Assurance Standards; 3) update the Laboratory's LIMS system; and 4) purchase an automated case file paginator to streamline processes.

Due to the fact that we had multiple awards open, we did not begin to draw down any funds on this award until February, 2011. With the guidance of our Program Manager, we re-worked the 2008, 2009, and 2010 award budgets so that the drawdowns would occur in a more timely fashion. This included a budget modification GAN, filed in December, 2010, which included the addition of personnel ($17,492 salary and $10,422 fringe) ; a decrease in travel (-$3971); and equipment ($3000); contractual (-$25,016); other ($4943). A change of project period GAN was filed at the same time to extend the award period to March 30, 2012. A second budget revision GAN was filed in August, 2011, with some necessary adjustments due to increased expenses for our Forensic Scientist Associate, and our contractual services.

After the revisions, our backlog reduction strategies produced the following new goals:

1) Hire a Forensic Scientist Associate to perform DNA casework; 2) maintain our instruments in good working condition in accordance with required standards; 3) outsource the validation of the laboratory's 3130 Genetic Analyzer; 4) hire a contract employee as a Forensic Biology Technician; 5) provide well equipped and efficient office space.

The new Forensic Scientist Associate was hired in February, 2011. We were fortunate to fill the position with an individual who had previously served as an intern, therefore the learning curve was relatively short. She completed the bulk of her training by May, and she was performing unsupervised casework by October, at which time she was funded by the 2010 Backlog Reduction award. She analyzed 29 cases; 25 profiles were uploaded to CODIS, and 2 hits resulted from this Forensic Scientists' work.

In order to continue compliance with the FBI's Quality Assurance Standards for the preventative maintenance and repairs of our two Qiagen EZ-1 extraction robots and CAS1200 liquid handler, we procured a maintenance agreement with Qiagen. All instruments are in good working order and in compliance with the standards.

We were having difficulty carrying out the validation of our 3130 Genetic Analyzer due to time constraints, so we decided that it would be best to outsource our validation to an outside company. Funds for this project were drawn from 2008 and 2010 awards as well. We evaluated proposals from several vendors, and chose Applied Biosystems. A validation team member came on-site for a week in July, 2011. The validation studies have been provided to the Technical Leader, and she is in the process of reviewing them. We are waiting for the 'teach-back' portion of the contract. Initially, the vendor had indicated that this remaining portion would occur in October; however, there were some availability problems, but they are scheduled this March.

Our technician, contracted through ADIL Business Systems, was hired in January, 2011, but resigned to fill a full-time opening in the Laboratory. The second contract employee was hired in May, and continues to assist with Biology/DNA evidence control, convicted offender collection when necessary, and sample processing. This has had a positive effect on the cataloging, maintenance, and release of evidence, and has

taken a large burden off of the DNA analysts. We are hoping to hire the technician as a permanent full-time state employee using funds from another DNA award.

The Forensic Biology office space was poorly designed and cramped, and was not an efficient setting for report preparation and data review. The State has a contract with the RI Correctional Industries. A representative evaluated the current layout and provided plans and a quote. The work was completed in May, 2011. The staff, highly satisfied with the new layout of the office, now have a more private space where they can concentrate on their work.

While our turnaround time increased when compared with the beginning of the award, we had significant obstacles to overcome with staffing, especially in the area of technical review. We had lost our most experienced DNA analyst, and had two trainees. This left the Supervisor/Technical Leader and the CODIS Manager as the only two qualified DNA analysts in the section. The Chief of Forensics assisted with reviews when necessary. One trainee is doing independent DNA casework, and the other is nearly at that stage, therefore, we anticipate a much smoother casework review process, and decreased turnaround times.

Our throughput, samples per DNA analyst per month, was also was affected by our personnel shortage. Our experienced analyst went out on medical leave in December of 2010, and the throughput diminished rapidly. We anticipate a steady increase now that our analysts are fully trained. We are waiting to backfill the position vacated by our analyst who did not return to work after medical leave.

While the backlog is essentially the same from the first progress report to the last, a lot of cases that were backlogged were in case review. The outsourcing at Fairfax Identify Labs from the 2007 and 2008 Backlog Reduction awards was complete; however, in-house technical and administrative reviews needed to be conducted. We anticipate that the backlog will be reduced significantly with our newly trained staff and a backfilled position.

We were satisfied with all goods and deliverables purchased under this award, and our Program Manager provided invaluable assistance with budgetary changes so that we could spend down this award in a more timely fashion and take a longer range approach to our backlog by hiring additional personnel.

FY09 Recipient Name: Richland County Government
Award Number: 2009-DN-BX-K068
Award Amount: $104,767
Final Report: The sub grantee has maintained communications with the Program Manager and has received grant guidance and assistance.

The sub grantee has maintained communications with the Program Manager and has received grant guidance and assistance.

Broadly it is the overall goal of the RCSD to improve DNA analysis capacity and to reduce backlogged DNA casework. Please note that the RCSD Forensic Lab calculates the backlog

when the Lab takes custody of the case, not when it is logged into evidence. Note that funds were not used for casework purposes, only capacity.

Objective: Increased DNA analysis will be achieved by the continuation of a full-time DNA analyst and DNA specialist.

Narrative: Since the beginning of the grant period, the DNA specialist has continued in her role of DNA evidence and casework. She conducts quality assurance/quality control functions, evidence processing, evidence transfers, administrative functions, data archiving, and immunological, and biochemical analyses on evidence submitted. She handles all cases through extraction for the two non grant-funded analysts. The RCSD DNA Analyst is fully trained. She conducts physical, microscopic, immunological, and biochemical analyses on evidence submitted, provides testimony in federal, state and local courts, processes crime scenes, provides forensic training or instruction to law enforcement officers, other representatives of the criminal justice community and other individuals as requested and she assists in the development and validation of new or improved DNA methodologies, Her casework output has resulted in the number of samples analyzed to increase to approximately 59 per analyst per month. During the award period, 651 profiles were uploaded to CODIS, with 94 hits. There were 1,111 cases analyzed by the RCSD Forensic Lab. **Note that 2009 funds were accessed beginning February 1, 2010 and were fully expended by January 31, 2011.

Objective: Reduce backlogged DNA casework.

Narrative: At the beginning of the award period the number of backlogged cases was 38. At the end of the reporting period the number was at 17.

Optional Metric: During the award period, the grant funded analyst processed 413 cases, 108 profiles were entered into CODIS and 35 CODIS hits were made.

**Please note that during the grant period Richland County Forensic Laboratory has revised their definition of number of samples per case from two to the current number of four samples per case. Numbers reported in the Performance Metrics reflect this change.

FY09 Recipient Name: South Carolina Law Enforcement Division
Award Number: 2009-DN-BX-K101
Award Amount: $1,482,621
Final Report:

This project is still in progress

FY09 Recipient Name: Office of the Attorney General, South Dakota
Award Number: 2009-DN-BX-K145

Award Amount: $100,000
Final Report: Funds from this grant were not used until March 2011, as funds from the 2008 DNA Backlog Reduction Grant were still being used. Funds from the 2009 DNA Backlog Reduction Grant were expended before the end of September, 2011.

The number of backlogged forensic DNA cases at the beginning of the award period was an overall backlog number and the number of backlogged cases pending completion 30 days after submission was not available. The number of backlogged forensic DNA cases for the September 30, 2011, reporting date is only counting those cases pending completion 30 days after submission.

The following goals and objectives were set for this award:

Goal 1 – To maintain capacity by purchasing supplies needed to analyze DNA evidence so eligible DNA profiles can be entered into CODIS, to ensure required continuing education for DNA examiners, and to purchase a dehumidifier and freezer to optimize storage of biological evidence for DNA testing.

Progress January – June 2011 – Supplies including Quantifiler kits, Identifiler Plus kits, polymer, capillaries, buffer, size standard, tubes and septa were ordered and received. These supplies are used to perform DNA analysis of evidence so that eligible DNA profiles can be entered into CODIS.
Microconcentrators were ordered and received – these items are used for the concentration and purification of DNA during DNA extraction. Pipette tips were ordered and received – these supplies are used to transfer DNA and reagents during the testing process. Additional supplies ordered and received during this reporting period include graduated cylinders to measure reagents, transfer pipettes to transfer chemicals, kimwipes to clean work area, and digital thermometers for freezers to ensure evidence is stored at proper temperatures to prevent degradation.

One DNA examiner attended the spring Bode DNA meeting for continuing education as required by the DNA Quality Assurance Standards.

One dehumidifier was ordered and received to keep the humidity in the evidence storage room low to help preserve biological evidence. One freezer was ordered and received to store biological evidence to prevent degradation.

Progress July – September 2011 – Ordered and received chemicals used for DNA analysis – phenol:chloroform:isoamylalcohol, EDTA, and proteinase K.

Goal completed.

Goal 2 – To purchase DNA database collection kits for qualifying arrested felons so the samples can be collected, typed, and entered into CODIS.

Progress January – June 2011 – DNA database collection kit supplies (including foam applicators, envelopes, integrity seals, and FTA cards) were ordered and received. These kits are used to collect samples from qualifying arrested felons so that their DNA profiles can be entered into CODIS.

Goal completed.

Discussion
One of the two serology screeners employed at the SDFL was being trained in hair analysis from May through September, 2011, therefore the DNA analysts were required to screen biology cases as well as perform DNA analysis. This reduced the number of DNA exams the DNA analysts were able to complete during this time period.

Due to an increase in the number of qualified examiners performing casework in the first quarter of 2011, and a resulting increase in the number of reports written, the DNA Technical Leader is required to spend more time reviewing reports and is unable to complete as many DNA cases as she did previously.

There was a significant increase in the number of cases submitted and biology examinations assigned in the third quarter of 2011. There were 140 biology examinations assigned in the third quarter of 2011, compared to 119 biology examinations assigned in the third quarter of 2010 and 108 biology examinations assigned in the second quarter of 2011.

There were 133 biology reports written in the third quarter of 2011, compared to 94 biology reports written in the third quarter of 2010 and 92 biology reports written in the second quarter of 2011. There were 83 DNA reports written in the third quarter of 2011, compared to 67 DNA reports in the third quarter of 2010 and 69 DNA reports written in the second quarter of 2011. Because of the increase in the number of cases submitted and biology examinations assigned, the overall backlog (all cases still waiting to be completed) was not reduced (79 overall backlogged cases at the end of September, 2011), even though more cases were completed than in the previous quarter.

One notable CODIS hit was the identification of a casino robber who was coming across a state line to rob South Dakota casinos. This individual was not a suspect in the local law enforcement investigation of the crimes.

FY09 Recipient Name: State of Tennessee
Award Number: 2009-DN-BX-K077
Award Amount: $465,570

Final Report:

The following goals were set for this award:

1. Grant funding will be used to maintain our current instrumentation by way of maintenance contracts. Maintenance contracts will include 15 genetic analyzers and 6 real time PCR quantitation instruments, a document control system, and a video conference system.
2. 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.
3. Grant funds will be used to purchase a second 3130 genetic analyzer for the Memphis lab and a third for the Nashville lab to increase throughput.
4. 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.
5. Grant funding for equipment will be used to purchase a TubeWriter workstation for each lab which will be used to automate the labeling of extraction, amplification, and other tubes to for storage and processing of DNA
6. Provide travel and training for DNA scientists to meet the mandatory training requirement.

Goal 1- Funds were used to pay for maintenance contracts and the document control system. (Goal completed as all funds in this category have been utilized)

Goals 2 – This goal was inadvertently reported as being removed in the previous semi-annual report. This goal was actually used to purchase a water filtration unit for the Nashville DNA lab. (Goal Completed)

Goal 3 – The 3130 Genetic Analyzers for the Memphis and Nashville labs have been installed and are currently awaiting Performance Checking to be brought into service.
(Goal completed)

Goal 4-5 – Both goals have been removed and the funds redistributed. (These funds were redistributed to fund performance checks for the 3130 purchased for the Memphis DNA lab)

Goal 6 – Mandatory DNA training has been accomplished by DNA analysts attending 8 hours of training. (Goal completed)

During this cumulative reporting period:

During this award period, the TBI Crime Laboratory system successfully underwent re-accreditation with ASCLD-LAB.

Funds under this award were used to purchase two Applied Biosystems 3130 Genetic Analyzers for use in the Nashville and Memphis DNA labs. Funds were also used to allow for the

performance checking of the instrument in the Memphis DNA lab, saving valuable time and effort on the overworked staff of that lab.

Due to a lack of funding for the TBI, this award has allowed for maintenance contracts to be continued for all DNA equipment in the Crime Laboratory system. This allowed not just for routine maintenance, but for necessary repair of more than one genetic analyzer to allow for the continuation of casework.

Funds from this award were used to aid scientists in all TBI DNA labs to meet, or exceed, the required yearly mandatory training, allowing the DNA sections to maintain accreditation. Funds under this award allowed for the repair and purchase of water filtration units in the Nashville DNA lab.

Funds under this award allowed for the repair of one of six DNA extraction robots in the Nashville DNA lab.

Also during this award period:

- Three scientists and two CODIS technicians were lost to competing agencies and one CODIS technician was promoted to scientist in the Nashville DNA lab. Two scientists were promoted to positions in administration in the Nashville DNA lab after the retirement of the existing Supervisor/Technical Leader (the job was split into two separate positions after his retirement). To fill scientist and CODIS technician vacancies, four new scientists and one technician have been hired in the Nashville DNA lab.
- One scientist in the Memphis DNA lab was lost to a competing agency and one scientist resigned for personal reasons. These vacancies have both been recently filled.
- One scientist in the Knoxville DNA lab resigned for personal reasons and this vacancy has recently been filled.

FY09 Recipient Name: City of Austin
Award Number: 2009-DN-BX-K056
Award Amount: $262,634
Final Report:

- Goal 1 – To increase capacity of the DNA lab by purchase of automated equipment (QIAcube and QIAgility).
    - Progress – The QIAcube and QIAgility are in validation and will be on-line in the near future.
- Goal 2 - To install a walk in freezer for storage of bulk DNA evidence
    - Progress – Completed and in use
- Goal 3 – To provide training for DNA analysts

  - Progress – The analysts have received their annual training by attending conferences to keep abreast of current technology.
- Goal 4 – To provide overtime funds for casework processing by current staff
  - Progress – The current staff worked157 cases using OT funds.
- Goal 5 – To purchase reagents for use on casework
  - Progress - Once the FONSI was approved, reagents were purchased using grant funds. Almost $26,000 was spent on kits for casework processing. To date, 591 samples have been processed with grant supply funds.

Additional Narrative Information: We had a DNA analyst resign in May 2010 and the position was filled in November 2010 with an analyst is currently screening (not trained in DNA). I also had another DNA analyst on maternity leave for 3 months in late 2010. For a staff of 4 analysts and 1 supervisor this certainly contributed to an increase in turnaround time and backlog.

The goal of this program was to solve violent crimes citywide. To accomplish this goal, program staff focused on three primary objectives: reducing forensic DNA sample turnaround time, increasing the throughput of the APD Crime Lab DNA Section, and reducing DNA forensic casework backlogs. Program objectives were linked to essential services with measurable outcomes.

Funding from the National Institute of Justice allowed the City of Austin Police Department Crime Laboratory to fully implement the City's FY2009 Forensic DNA Backlog Reduction Program. The laboratory purchased automated equipment to increase capacity of the DNA lab. The QIAcube and QIAgility are currently in validation and will be on-line in the very near future. A freezer necessary for the storage of bulk DNA evidence was purchased and is in use. The DNA analysts attended training conferences to increase their knowledge base and to remain abreast of current technology. Funding for DNA analyst overtime allowed for the completion of 157 DNA cases and, following the approval of a FONSI, the laboratory purchased consumable lab supplies for casework processing. To date, 591 samples have been processed with grant-funded supply.

FY09 Recipient Name: City of Houston
Award Number: 2009-DN-BX-K130
Award Amount: $1,311,800
Final Report:

This project is still in progress

FY09 Recipient Name: County of Bexar
Award Number: 2009-DN-BX-K095
Award Amount: $364,593
Final Report: Narrative:
The following goals and objectives were set for this award:

Goal 1 – To purchase the required LIMS equipment and software – Status: In Progress;
Goal 2 – To set-up and validate the LIMS equipment and software – Status: Pending completion of Goal 1;
Goal 3 – To incorporate the LIMS equipment and software into the regular workflow of the laboratory – Status: Pending completion of Goal 2
Progress Jul-Dec 09 – The process of purchasing equipment following Bexar County Purchasing regulations has been initiated.
Goal 1 – The Bexar County Information Services (BCIS) department is developing the Request for Proposals (RFP) to be issued as part of the competitive process to select a vendor for the commercial LIMS. An RPF should be approved and issued during the first calendar quarter of 2010.
Goal 2 – Pending
Goal 3 – Pending
Additional program activity: Funds for the digitizing of case records have been incorporated into a contract extension with the current vendor, according to County policy. The vendor has digitized two (2) years of case records since October 1, 2009.
Training: Two (2) analyst are scheduled to attend the Association of Forensic DNA Analysts and Administrators meeting in Austin, TX, January 28 – 29, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements.

Progress Jan-Jun 10 – The process of purchasing equipment following Bexar County Purchasing regulations has continued.
Goal 1 – The Bexar County Information Services (BCIS) department received vendor Request for Proposals (RFP), which were evaluated by a selection committee as part of the competitive process to select a vendor for the commercial LIMS. Vendors presented their proposals to the selection committee on May 26 and 27, 2010. The selection committee scored the proposals per the requirements of the Bexar County Purchasing Department. A vendor should be selected and awarded a contract in the third calendar quarter of 2010.
Goal 2 – Pending
Goal 3 – Pending [Please note: Given the length of time required to complete
Goal 1, we are currently anticipating the possibility of requesting an extension of the award period to complete Goal 3. We will assess the vendor timelines at the end of the calendar year and take the appropriate action at that point. Additional program activity: Funds for the digitizing of case records have been incorporated into a contract extension with the current vendor, according to County policy. During the current reporting period, the vendor has scanned 406,793 document pages from 43,825 indexed documents (case files), consuming $31,626 of the budgeted $40,000. In addition, a GAN was approved on June 29, 2010 to use $900 of these funds for document destruction.
Training: Two (2) analysts attended the Association of Forensic DNA Analysts and Administrators meeting in Austin, TX, January 28 – 29, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements.
Two (2) additional analysts are scheduled to attend the Association of Forensic DNA Analysts and Administrators meeting in Austin, TX, July 8 - 9, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements.

At least two (2) analysts are scheduled to attend the 21st International Symposium on Human Identification in San Antonio, TX, October 11 – 14, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements. Because this meeting is in San Antonio, Bexar County, Texas, Bexar County travel regulations do not permit lodging or per diem expenses to be paid to participants. Travel will be limited to local mileage requirements. The residual budgeted funds will be used to allow additional analysts to register for the symposium.

Progress Jul-Dec 10 – The process of purchasing equipment following Bexar County Purchasing regulations has continued.
Goal 1 – The Bexar County Information Technology (BCIT) began negotiations with the highest scoring vendor for the commercial LIMS for a final and best proposal. The negotiations took longer than expected, partially due to a change of director at the BCIT (note the department name change) and BCIT departmental reorganization. Negotiations and scope of project discussions with the vendor were not completed until November 2010. Contract development and approval were also delayed by the Legal Department. A contract in now not expected to be approved by the Commissioners Court (the Bexar County governing body) until the 3rd week of February. Anticipating these delays, we requested a six month GAN extension until September 30, 2011, which was approved on December 3, 2010.
Goal 2 – Pending
Goal 3 – Pending
Additional program activity: A replacement laser printer was purchased for the CODIS computer, from re-allocated funds per GAN #2 (see Training below). Funds for the digitizing of case records have been incorporated into a contract extension with the current vendor, according to County policy. During the current reporting period, the vendor has scanned 78,003 document pages from 32,775 indexed documents (case files), consuming $8,137.61 of the budgeted $40,035 (adjusted due to the approval of GAN #2). In addition, $900 of these funds were used for document destruction.
Training: Two (2) analysts attended the Association of Forensic DNA Analysts and Administrators meeting in Austin, TX, July 8 - 9, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements.
Five (5) analysts attended the 21st International Symposium on Human Identification in San Antonio, TX, October 11 – 14, 2010 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements. Because this meeting was in San Antonio, Bexar County, Texas, Bexar County travel regulations did not permit lodging or per diem expenses to be paid to participants. Travel was limited to local mileage requirements. The budgeted funds were used to allow additional analysts to register for the symposium. Two (2) other analysts also attended a one-day free workshop offered at this meeting. Residual funds were re-allocated to other line items as approved in GAN #2 (final approval, October 20, 2010).

Progress Jan-Jun 11 – The process of purchasing equipment following Bexar County Purchasing regulations has continued.
Goal 1 – The Bexar County Commissioners Court (the Bexar County governing body approved the contract to purchase the Forensic Advantage LIMS from The Computer Solution Company

on March 18, 2011. Staff representatives of FA came on-site to "kickoff" the project March 28 – 31, 2011. The installation is in conjunction with a Bexar County Information Technology (BCIT) project, so to meet the system requirements to run the FA software, BCIT has upgraded all the BCCIL analyst desktop computers to Windows 7 and Office 2010. By the end of the reporting period, FA had installed "Stage" software (for validation and training) on BCIT servers and begun work on customization designs. A total of $28,000 has been paid for meeting two (2) of the nine (9) project milestones. Two (2) or three (3) of the project milestones should be completed during July, with system training and validation to begin in late August. The customization process is scheduled to be completed by mid-August, with the project end date set at September 30, 2011.
Goal 2 – Pending (expected to begin late August)
Goal 3 – Pending (expected to begin in September)
Additional program activity: GAN #4 was approved March 17, 2011 to change the address of the Financial Point of Contact. (Note: Although approved July 1st in the next reporting period, GAN #5 was submitted June 29th to extend the project period to December 31, 2011.)
Training: Two (2) analysts attended the Association of Forensic DNA Analysts and Administrators meeting in Austin, TX, March 15 - 16, 2011 in order to meet *Quality Assurance Standards for Forensic DNA Testing Laboratories* continuing education requirements.

Progress Jul-Dec 11 – All the goals of the project were met during this final period.
Goal 1 – Anticipating difficulties completing the installation of the complete LIMS by September 30, 2011, we sought and received approval on July 1of GAN#5 to extend the project period to December 31, 2011. Customization of the "Stage" software continued through July and August with the design of "Worksheets" for each of the forensic sections. The worksheet designs were approved on August 16 and the vendor began the process of coding the design into the standard LIMS software package. The worksheets were incorporated into the "Stage" software on September 9 and the analysts were trained by vendor staff on the use of the LIMS on September 13 -15. Bar coding equipment was installed by September 12 and the appropriate bar code labels were developed and tested through the month of September. At this point, management decided to change the date for the cross-over to the "Production" database server to November 1.
The "Production" server software and clients were deployed on November 1 and installation was completed and tested on November 3. This ended Goal 1.
Goal 2 – With the installation of the "Production" LIMS, staff began the validation process by comparing the new LIMS with the now "Legacy" LIMS. Throughout this testing process, improvements and bug fixes were made by the vendor as necessary. Legacy data migration proved problematic and the one month validation period was extended until the end of December. During this time the paper files remained the official record for the Crime Lab and all LIMS records were also entered into the "Legacy" LIMS (i.e., double entry). Goal 2 was completed on December 30, 2011.
Goal 3 – This goal overlapped Goal 2, since the validation process allowed the forensic sections and management to determine how to incorporate the new LIMS into the laboratory workflow. Difficulties were addressed and several change orders were generated to be addressed as part of the prepaid maintenance of the system by the vendor after the end of the grant award period.

Goal 3 was completed on December 30, 2011. Based on the progress made with this goal, January 2 was announced as the day the work the "Legacy" system would cease and the new LIMS would become the record of note for work product generated by the Crime Lab.
All three goals have been met. The pre-purchased maintenance agreement contract will be used to handle any "bugs" or service requests that are identified going forward. Some elements of the LIMS were not implemented yet including the Web Portal features and the instrument integration; however, these are included in the software and will be rolled out over the next few months as management becomes better able to administer these features.
The final "Production" Forensic Advantage LIMS software is version 2.33.112.7. There was no grant funded travel or training during this reporting period. Two major factors affected the workload of the DNA section during this reporting period and a third factor affected the implementation of the LIMS: (1) A fully trained full-time employee left in June 2011 and, due to budget cuts, was not replaced. A previously approved FTE position was cut during budget negotiations. Both these events left the section understaffed. (2) Legislation passed by the Texas legislature (SB 1636) went into effect on September 1, 2011. SB 1636 requires that sexual assault evidence collected as part of an active criminal case be submitted to a "public accredited crime laboratory" within 30 days of collection. The effect of the law was to increase submissions to the DNA laboratory greatly from August through November 2011; September submissions more than doubled from July submissions. (3) A major influence on the delay of implementation of the LIMS was the need to incorporate communication with the Bexar County Financial system (Lawson). The Lawson implementation was delayed from August 1 to October 3. This delay removed Bexar County Information Technology personnel resources planned for use with the Crime Lab LIMS until December.

FY09 Recipient Name: Harris County
Award Number: 2009-DN-BX-K078
Award Amount: $729,354
Final Report:
Goal 1- To complete screening and reviewing of backlogged cases using overtime funds.
At this time, approximately $97,794.05 has been expended for overtime to review and screen backlogged cases.

Goal 2- To improve our ability to complete DNA analysis and store results more efficiently.

The following items/service has been purchased and are currently in use:
6- GeneMapper Software Licenses
1- Lektriever
1- Inventory Cart
1- Electronic Key System
6- Wireless Barcode Scanners
1- Network Drops
1- Computype Upgrade
1- Washable Keyboard

1- Washable Mouse
1- Refrigerator
1- Computer Drop
7- Barcode Scanners
9- Barcode Printers
13- C5 Tablet PCs
12- C5 Docking Stations
1- Computer Switch
30- Pipet Lite
4- Pipet Lite
7- Cameras
1- Wall Mounted Telephone
6- Tube Carriers
DNA Lab Renovations
3- Books
15- Card Readers
2- Computers
2- IQAS 30 Proficiency Tests
3- IQAS 60 Proficiency Tests
5- DNA Contract Workers
1- DNA System Analyst
1- DNA Analyst III
Supplies
10- Batteries
10- C5 battery Charger
3- PC Docking Stations
2- Vented Plastic Shelving
1- DNA Lab Technician
3- F5 Batteries

Goal 3- To complete serological processing for cases selected for outsourcing.

103 cases were outsourced, 181 cases were completed in-house utilizing overtime. Cumulative number of cases completed 284.

Goal 4- To provide training opportunities for DNA personnel through relevant meetings and expert evaluations.

5 Individuals attended the AFDAA Winter meeting held January 28-29, 2010 in Austin, Texas.
5 Individuals attended the AAFS meeting in Seattle Washington, February 2010
5 Individuals attended the AFDAA Summer meeting held July 8-9, 2010 in Austin, Texas.
6 Individuals attended the Promega Conference in San Antonio, Texas in October 2010.

Goal 5- To outsource and review backlogged cases.

103 cases were outsourced, 181 cases were completed in-house utilizing overtime. Cumulative number of cases completed 284.

FY09 Recipient Name: State of Texas
Award Number: 2009-DN-BX-K071
Award Amount: $2,097,729
Final Report: For this Forensic DNA Backlog Reduction Project, the Texas Department of Public Safety Crime Laboratories had an original goal to conduct forensic DNA testing on evidence in 1,200 cases. This work was to be accomplished by having our existing staff of some 70 DNA Analysts work overtime, and the grant would provide the overtime salary and benefits, plus provide the supplies required to complete this testing. Half way or more into the project, a grant adjustment was made to shift additional funds into the supply and salary categories with an expected increase in case output to 1,500 cases.

The projected was actually started on January 1, 2010, and the project ended on December 31, 2010, except for completing the acquisition of new equipment, which took until March 31, 2011.

By December 31, 2010, the funds provided for overtime salaries were depleted, and the funds used to purchase supplies were depleted earlier that month. State funds were then used to complete the supply needs while the last overtime work was performed. Payment of invoices for supplies and equipment continued into calendar year 2011.

We at the Texas DPS believe that the project was very much a success. Evidence in 1,356 cases was examined during the twelve month project by completion of the serology screening. Of this number, STR DNA testing was then completed on 949 cases for which the screening indicated the presence of DNA material. STR profiles were obtained in 691 of these cases which were uploaded into CODIS at either the state or national level. Profiles from 546 cases were uploaded to NDIS and profiles from an additional 157 cases were uploaded to SDIS. Our records indicate that hits were achieved on 76 of these cases. Note, however, that it has been our experience that CODIS hits often occur months after the DNA profiles are uploaded, so there is a potential for additional CODIS hits to be achieved on these cases.

An additional sign of the success of this project is that the average time required to complete and report results on forensic DNA cases was reduced from 259 days at the beginning of the project on October 1, 2009, to 142 days on June 30, 2011. This is a 45% reduction in the turnaround time, and this is both what the investigators and prosecuting attorneys have long desired, as well as being in line with the stated goals of the Texas DPS Crime Laboratories, to provide DNA services within 180 days or less.

Note that the Texas Department of Public Safety DNA laboratories, as a result of both the funding received from NIJ in this program, as well as from the financial support of the Texas Legislature, completed DNA testing on 5,630 DNA cases in calendar year 2010, and the Texas DPS laboratories, combined with six city and/or county crime labs, experienced 1,594 cold

CODIS hits during the year 2010. The state of Texas will have 600,000 offender DNA profiles in its CODIS database by September 2011, and around 200 cold hits are being achieved monthly.

In this project, capacity enhancement was achieved by both training DNA analysts and by the procurement of new capital equipment.

Equipment for this project was acquired as follows:

1) An upgrade of an Applied Biosytems 3100 Avant to a model 3130xl instrument for the Houston Laboratory to improve DNA sample throughput
2) Seven Forensic Crime-Lites for use in the Austin and El Paso Laboratories for screening evidence for semen and other biology stains
3) Two Qiagen EZ-1 robots for the Lubbock Laboratory and two Qiagen EZ-1 robots for the Garland Laboratory to automate the extraction of DNA from difficult forensic samples
4) A Tecan EVO 150 robot for the Austin DNA Lab. It has greatly enhanced the output of DNA cases in this lab.
5) A spermfinder microscope with automated sperm search feature for the DNA section of the Houston Lab. It has helped with the examination for spermatozoa on microscope slides in sexual assault cases.
6) High density shelving was installed into a warehouse facility at the Houston Laboratory, where sexual assault kits and other DNA evidence will be stored.

This equipment is impacting the productivity of the Texas DPS DNA analysts in a very positive way. Especially the robotics instruments now being used for the quantification of DNA in evidence samples, for the normalization of DNA samples, as well as for the extraction of DNA from samples, has all helped to increase sample throughput. As these processes are validated and employed by all eight DPS DNA laboratories, output is expected to increase even further. It is projected that a total of as many as 8,000 forensic DNA cases can be completed during calendar year 2011, further reducing the DNA backlogs.

As stated above, overall production of forensic DNA cases in the Texas DPS Labs is projected to increase during 2011 to as much as 30% over 2010 levels, mainly due to the use of automation in the new instruments acquired through this project and previous NIJ DNA grants, but also due to the completion of both training new personnel, and to the continuing education of existing DNA analysts. During this project, DNA analysts attended DNA training at annual conferences including the Promega symposium, the American Academy of Forensic Science annual meeting, and the Bode symposium on forensic DNA testing. As well, two DNA analysts continued their pursuit of Masters degrees in forensic DNA testing.

The successes of this program include the cold CODIS hits that provide investigators and prosecutors the information they need to achieve the solution of a crime and the bringing to justice the person who committed the crime. Success also includes the finding of a suspect's DNA among the evidence collected in an investigation, which implicates his association to the crime. One such case involved a serial rapist referred to by Texas media as the "twilight rapist," who was attacking elderly women who lived alone and in rural areas throughout a hundred mile

stretch of central Texas. He would enter their homes at night, assault them, and leave. DNA from around eight of these cases indicated that all were committed by the same assailant, but his DNA profile was not in the CODIS database. Finally early in 2011, he was caught in the act, and all eight sexual assault cases were solved when his DNA was analyzed and determined to match the evidence in all the cases.

Challenges remain for the Texas DPS Crime Laboratories. The state has provided funds for the construction of ten expanded or totally new crime lab facilities, to replace older ones that were too small. Our staffs have moved into five of the new facilities, including new and greatly expanded facilities in the Austin Lab (November 2010) and in the Houston Lab (May 2011). These facility expansions will also greatly enhance productivity and our staffs are expected to move into two more by the end of 2011. Construction of the last three is expected to commence in early 2012. These replacement facilities will provide three to four times as much space as was previously occupied, and enable expansion of the DNA programs in seven of the eight DPS DNA labs. One challenge is to complete the design and construction of these last five facilities, and move into them and re-establish the DNA testing.

Another challenge is that law enforcement agencies in Texas are holding evidence in thousands of sexual assault cases, and are expected to begin submitting those to DPS laboratories by the end of 2011, to comply with a new state law. Our current backlog of 3,158 DNA cases could increase by over 10,000 cases as a result of this legislation, and no state funds were provided for either the storage or analysis of this evidence.

While challenges remain, the funds provided by the National Institute of Justice to the state of Texas for forensic DNA backlog reduction, and for capacity enhancement, have proved invaluable. They have helped through 2010 and into 2011, and will continue to benefit the Texas DPS DNA laboratories through the remainder of this decade as the equipment will continue to be used for forensic DNA testing. Those persons committing crimes, where DNA is deposited, will receive more prompt and conclusive justice in this and coming years.

FY09 Recipient Name: Tarrant County
Award Number: 2009-DN-BX-K091
Award Amount: $235,309
Final Report: The Tarrant County Medical Examiner (TCME) Crime Laboratory applied for and was awarded grant 2009-DN-BX-K091 under the DNA Backlog Reduction grant program. The amount awarded was $235,309. The funds awarded were used to purchase equipment, supplies for validation, education, and additional evidence security for the DNA Laboratory. The main objective of the grant project was to improve DNA analysis capacity of the Tarrant County Medical Examiner's DNA laboratory.

The TCME Crime Laboratory had eight goals to achieve during the life of the grant that would allow the laboratory to eventually decrease the turn around time for cases, reduce backlog, and increase the number of samples worked. The lab was able to successfully achieve all of the goals

as far as the purchase and installation of equipment and software. Several items are still in the process of being validated at the close of the grant. List below are the goals and how each goal was achieved.

Goal #1: To purchase, install, and validate an ABI 3500 Genetic Analyzer which is an eight capillary instrument. Our current instrumentation includes a four capillary 3130 and two single capillary 310 instruments. With the increasing number of samples that we currently receive it is necessary that we increase our capability to type and analyze samples in a more timely manner. The instrument was purchased and received in November 2010 and installed in January 2011. The manufacturer supplied training on the 3500 in June 2011. This instrument is currently being validated for implementation into casework. Also, purchased with grant funds for use with the ABI 3500 include a Franek UPS and a printer.
Goal #2: To purchase an expert assistant system that would decrease the time utilized for data analysis. The laboratory purchased a full installation of Genemapper IDX software for this purpose. An analysis computer was also purchased on the grant that is compatible with the software. The computer was located in a central location so that all analysts can have access to and can perform data analysis. The software was purchased and received in November 2010 and installed in June 2011. In June, three analysts attended a three day training course on the software which is currently being validated in conjunction with the ABI 3500 Genetic Analyzer.
Goal #3: To purchase an automated DNA purification instrument. We purchased the Qiagen EZ1 Advanced XL which purifies 14 samples at a time. Qiagen came into the laboratory in January 2011 to assist in the validation of the instrument. We were able to purchase three additional instruments utilizing another grant. We currently use organic and chelex extraction methods for our samples. Moving to an automated system will allow us to decrease our time spent on the extraction procedure. The validation of the EZ1 Advanced XL is currently in progress.
Goal #4: To purchase, install, and implement an instrument that would help increase the amount of samples that could be amplified simultaneously. The laboratory purchased an ABI 9700 Thermal Cycler for 96 samples. A performance check of this instrument was performed and it has been implemented for use in casework.
Goal #5: To purchase additional equipment to be used for the examination of evidence. The lab purchased an alternative light source to utilize in an examination room and a microscope to examine slides for the presence of spermatozoa. These items were purchased and are ready to be utilized for casework. Prior to the purchase of this equipment, the laboratory only had access to on alternative light source and one microscope. This will enable two examiners to be able to perform the same task at the same time. A polilight clamp was also purchased using grant funds.
Goal #6: To purchase all the supplies and consumables needed for the validation of the new instruments. Also, additional bench top equipment was purchased that were needed for the validation of the instruments as well as for use in casework. The small items purchased were a microcentrifuge, two minifuges, a vortexer, two small incubators, and numerous pipettors. These have all been purchased and have been or are being used for the validations of the ABI 3500, Genemapper IDX, 9700 Thermal Cycler, and the Qiagen EZ1.
Goal #7: To purchase evidence storage units to ensure the integrity and security of the evidence while maintained in the TCME DNA laboratory. The laboratory purchased four locking cabinets

with drawers to use as long term evidence storage for evidence cuttings and FTA blood cards. These cabinets are currently in the laboratory. Also, purchased were plastic, stackable boxes for our evidence storage in freezers.

Goal #8: To provide education for four Forensic Biologists that include learning skills and knowledge related to the operation of the equipment, interpretation of data, and would satisfy the continuing education requirements set by the FBI's Quality Assurance Guidelines. The grant funding allowed several analysts to attend Association of Forensic DNA Analysts and Administrator meetings, one analyst to attend the American Academy of Forensic Science meeting, and three analysts to attend the Promega Conference. All analysts were able to fulfill their required continuing education requirements. Also, purchased were current books to expand the DNA library and an additional user license for Qualtrax, our data management system.

Performance Measures

The main objective of the grant project was to improve DNA analysis capacity of the Tarrant County Medical Examiner's DNA laboratory. In order to determine the success of the project, data was collected to show the average number of days between the submission of a DNA sample and the report release date and how many samples were analyzed per analyst per month. The information was submitted throughout the life of the grant in semi-annual progress reports. The final progress report data is shown below:

Capacity purposes – Purchase of equipment, software, continuing education training and associated travel, hiring new personnel, and overtime for existing staff.

At the beginning of the award period **(on October 1, 2009)**, what was the average number of days between the submission of a sample to your laboratory and the delivery of test results to the requesting agency? **~ 60 days**
At the end of this reporting period **(January 1, 2011 – June 30, 2011)**, what was the average number of days between the submission of a sample to your laboratory and the delivery of test results to the requesting agency? **~ 123 days**
At the beginning of the award period **(on October 1, 2009)** what was the average number of samples analyzed per analyst per month? **32.6 samples/analyst/month**
At the end of this reporting period **(January 1, 2011 – June 30, 2011)**, what was the average number of samples analyzed per analyst per month? **12.3 samples/analyst/month**

It is important to explain several factors that affected the final performance measures. Although, the TCME DNA Laboratory achieved all the goals during the life of the grant, the progress report shows an increase in the amount of turnaround time and a decrease in the number of samples analyzed per month. These final numbers are due to several factors. We have three Sr. Forensic Biologists who are all actively working on the validations. Not only do we have validation of instruments purchased on this grant occurring but we also have other instruments and procedures going through validation as well. With three individuals performing all of the validations along with all of the DNA casework, the turnaround time is certainly affected. Another factor that affects the turnaround time and the number of samples analyzed are the additional duties that the DNA analysts have which include Technical Leader duties, CODIS duties, Quality Manager duties, and training duties. The laboratory also had numerous internal and external audits, including an OIG audit during the life of the grant which took a substantial amount of the analysts' time. The final factor affecting our progress report is that the TCME

DNA Laboratory is getting prepared to move to our new building. We are trying to complete validations before the move which will then only require performance checks to get back online and resume casework. It is expected that our capacity, turnaround time, and number samples analyzed will greatly improve after complete setup in our new laboratory.

With the close of our FY2009 grant, there were numerous successes throughout the life of the grant. All the equipment was purchased and installed in a timely manner during the grant and all of the goals were achieved. The grant made it possible for the TCME to obtain equipment that the county would not have had funds to purchase and validate. Once validations are complete, the grant funding will allow us to provide the following services to our customers:

1. Provide DNA analysis on majority of cases in a timely manner.
2. Provide more DNA samples that can be uploaded into the local, state, and national DNA databases to potentially assist in the investigations of forensic cases.
3. Provide autosomal STR analysis and Y-STR analysis on additional cases using new procedures and current TCME policies as specified under applicable federal privacy regulations.

FY09 Recipient Name: University of North Texas Health Science Center at Fort Worth
Award Number: 2009-DN-BX-K058
Award Amount: $573,781
Final Report: The University of North Texas Center for Human Identification (UNTCHI) Laboratory continues to provide DNA analysis to law enforcement agencies within the State of Texas (See Appendix 1). The DNA analysis is primarily for sexual assaults, homicides, aggravated assaults, and property crime cases. In addition, UNTCHI has served as a local crime laboratory for the City of Fort Worth and the Tarrant County District Attorney's Office, performing DNA testing and providing expert testimony. UNTCHI has also performed testing and reviewed criminal cases within the state that required familial and/or kinship analysis. UNTCHI functions as an adjunct laboratory to the Texas Department of Public Safety State Crime Laboratory. Mitochondrial DNA cases, sexual assault cases involving products of conception, and kinship cases are automatically referred to UNTCHI by the Texas Department of Public Safety and other state agencies.
A variety of technologies are utilized, including autosomal STRs, mini autosomal STRs (MiniFiler™ System), Y chromosome STRs and mitochondrial DNA testing. Cases involving degraded samples or samples with low level male contributors that cannot be detected with traditional autosomal STR systems have benefited from these types of testing. UNTCHI has worked with both law enforcement and prosecuting agencies to select only the most probative samples for DNA testing. This not only provides a form of education to our submitting agencies, but also helps to improve laboratory productivity.

Project Goals & Objectives
The Project Goals of this grant were to:

1. Utilize the funding in order to eliminate the original backlog of criminal forensic DNA casework samples found at the beginning of this award period by increasing the number of cases completed for all Part 1 violent crimes.
2. To use the resources provided through this grant to reduce the number of days from the time a sample is received to the time a report is sent to the submitting agency.
The Objectives of this grant include:
1. Increase productivity by 20% with each analyst testing 56 samples per month.
2. Analyze a minimum of 574 cases based on an award of $573,781.00 (1 case per $1,000.00 awarded) with an upward goal of 650 cases to be processed during the 12 month period of this grant.
3. Reduce the turn-around time from 173 days to 120 days.
Funding will provide salaries for four (4) forensic analysts to perform the DNA analysis and one (1) forensic technologist dedicated to extraction, quantification, and amplification of backlogged forensic casework samples; purchase reagents, supplies and equipment, and provide training and continuing education. In order to achieve our objectives we must complete the tasks in each of the categories listed above.
The numbers provided for the requisite metrics found in this report have been generated from UNTCHI's Laboratory Information Management System (LIMS) and through manual tabulations. These metrics are generated quarterly, collated and submitted biannually. UNTCHI began utilizing funds from this award on
September 1, 2010 with and ending date of August 31, 2011.

1. Goal 1 – Increase the number of completed backlogged sexual assault, homicide, kidnapping cases and other Part 1 crime cases submitted to the University of North Texas Center for Human Identification (UNTCHI).

Progress September 1, 2010 – September 30, 2010 –During the initial month of this award, the number of cases completed was 38.

Progress October 1, 2010 – December 31, 2010 – There were 122 cases completed during this quarterly reporting period.

Progress January 1, 2011 – March 31, 2011 – There were 136 cases completed during this quarterly reporting period.

Progress April 1, 2011 – June 30, 2011 - There were 197 cases completed during this quarterly reporting period.

Progress July 1, 2011 – August 31, 2011 – There were 99 cases completed during the months of July and August 2011.

The total number of completed cases for this award was 592 cases. This is a 42% increase from the prior award in which 417 cases were completed.

2. Goal 2 – Reduce the number of days from the time a sample is received to the time a report is sent to the submitting agency.

Progress September 1, 2010 – September 30, 2010 – At the end of the initial month for this award, the average time from the receipt of a sample until a report was issued was 82 days.

Progress October 1, 2010 – December 31, 2010 – At the end of this quarterly reporting period, the average time from the receipt of a sample until a report was issued was 40 days.

Progress January 1, 2011 – March 31, 2011 – At the end of this quarterly reporting period, the average time from the receipt of a sample until a report was issued was 44 days.

Progress April 1, 2011 – June 30, 2011 - At the end of this quarterly reporting period, the average time from the receipt of a sample until a report was issued was 40 days.

July 1, 2011 – August 31, 2011- At the end of this award, the average time from the receipt of a sample until a report was issued was 39 days.

The average turn around time during this 12 month award was 49 days. This is a 43% reduction from the average turnaround time of 113 days during the 12 months of the previous award.

Objective 1 – Increase productivity by 20% with each analyst testing 56 samples per month

Progress September 1, 2010 – September 30, 2010 – During the initial month of this award period each analyst averaged 35.6 samples analyzed per month. A total of 125 samples were completed during this month.

Progress October 1, 2010 – December 31, 2010 – During this quarterly reporting period, each analyst averaged 36.1 samples per month. A total of 379 samples were completed during this quarter.

Progress January 1, 2011 – March 31, 2011 – During this quarterly reporting period, each analyst averaged 39.7 samples per month. A total of 417 samples were completed during this quarter.

Progress April 1, 2011 – June 30, 2011 – During this quarterly reporting period, each analyst averaged 59.0 samples per month. A total of 620 samples were completed during this quarter.

Progress July 1, 2011 – August 31, 2011- During the final two months of this award period each analyst averaged 41.2 samples per month. A total of 289 samples were completed.

During the previous 12 month award period the number of samples per analyst was ~37 per month. During this 12 month award period, the number of samples per analyst was ~42 per month. This is a 14% increase.

Objective 2 – To analyze a minimum of 574 cases with a maximum goal of 650 cases over the period of this grant.

Progress September 1, 2010 – September 30, 2010 – There were 38 cases completed during the initial month of the award.

Progress October 1, 2010 – December 31, 2010 – During this quarterly reporting period the number of cases completed was 122.

Progress January 1, 2011 – March 31, 2011 – During this quarterly reporting period the number of cases completed was 136.

Progress April 1, 2011 – June 30, 2011 – During this quarterly reporting period the number of cases completed was 197.

Progress July 1, 2011 – August 31, 2011 - During the last two months of this award, the number of cases completed was 99.

The total number of completed cases during this award period was 592.

Objective 3 – To reduce the turn-around times from 173 days to 120 days. *Turn-around time is defined as the average time to complete a case from the date it was received to the date that a report was issued.*

Progress September 1, 2010 – September 30, 2010 – At the end of this initial month of the award, the average time from the receipt of a sample until a report was issued was 82 days.

Progress October 1, 2010 – December 31, 2010 – At the end of this quarter, the average time from the receipt of a sample until a report was issued was 40 days.

Progress January 1, 2011 – March 31, 2011 – At the end of this quarter, the average time from the receipt of a sample until a report was issued was 44 days.

Progress April 1, 2011 – June 30, 2011 – At the end of this quarter, the average time from the receipt of a sample until a report was issued was 40 days.

Progress July 1, 2011 – August 2011 – At the end of this award, the average time from the receipt of a sample until a report was issued was 39 days.
The final average turn-around time at the end of this award period was 39 days. This is a 77% reduction from the 173 day turn-around time at the end of the previous award period and is well below the proposed 120 days. The cumulative average for turn-around time during the 12 months of the previous award was 113 days. At the end of this 12 month award period the cumulative average for turn-around time was 49 days. This is a 57% improvement for the cumulative average for turn-around time.

CODIS Entry:
There were a total of 420 DNA profiles sent to Texas Department of Public Safety (TXDPS) for review and possible upload to CODIS during this grant period. Of these 420 DNA profiles, the TXDPS confirmed that a total of 358 DNA profiles were eligible for upload to CODIS.
There were a total of 154 confirmed hits in the following categories:

- 97 Offender Hits
- 29 Investigative Information Hits
- 28 Forensic Hits

Expenditures During Award Period:
Personnel: UNTCHI had 4 full time qualified forensic analysts, one forensic technologist and a half-time evidence custodian working forensic cases funded through this award.
Equipment: 2 computers and an alternate light source were purchased with funds from this award.
Reagents and Supplies: The reagents and consumables needed to perform STR and mtDNA testing on forensic samples were ordered as needed. The reagents were ordered in a manner that ensured maximum efficiency and complete usage before expiration dates. All critical reagents underwent quality control testing before being placed into use.
Training: UNTCHI sent one Forensic Analyst to the American Academy of Forensic Sciences annual meeting held in Chicago, Illinois. The meeting began on February 21, 2011 and continued through February 26, 2011. Funds from this grant enabled one of our senior Forensic Analysts to attend this important training event.

Success Stories:

Warren Jeffs: On August 9, 2011, Warren Jeffs, the spiritual leader of the Fundamentalist Church of Latter Day Saints, was convicted of sexually assaulting two girls, ages 12 an 14, which he had "married" under spiritual guidelines. DNA evidence from children living at Jeffs' "Yearning for Zion" compound and testimony from a UNTCHI Forensic Analyst played a major role in the conviction. This conviction came several years after a raid at the compound in Eldorado, Texas which resulted in authorities taking custody of ~400 children. Charges were filed against several other members of the sect following the raid. Eight members of the Yearning for Zion Polygamist Sect Church have been convicted of similar charges.

Thomas Wayne Florence: Thomas Wayne Florence, 43, a four time felon, was found guilty for the sexual assault of a 16 year old Galveston girl on August 6, 2011. DNA evidence taken from the fetus of the 16 year old provided the evidence needed to help convict Thomas Florence. The jury took only an hour to determine Florence's guilt and sentenced him to 70 years in prison.

John Hummel: In Kennedale, Texas, during December, 2009, John Hummel attempted to poison his family by adding rat poison to the spaghetti dinner his wife, Joy Hummell, had prepared. When the meat turned green, Joy threw the spaghetti out and called her husband telling him that she had ordered pizza. On December 17, 2009, after the previous day's failed attempt to poison

his family, he beat his pregnant wife and then stabbed her to death with two swords and a dagger. He then methodically went from room to room with a baseball bat and fatally beat his 5 year-old daughter and his disabled father-in-law. He then set fire to the house. John Hummel was arrested on December 20, 2009 in California and confessed to the killings. During the 2011 trial that took place in Fort Worth, Texas, DNA evidence was used to help piece the case together. Several Forensic Analysts and Technologists from the University of North Texas Center for Human Identification were called to testify during the trial. Part of the testimony included confirming that the fetus Joy Hummell carried when she was brutally murdered belonged to John Hummel. On June 28, 2011, after only three hours of deliberation, John Hummel was convicted and sentenced to death by a Fort Worth jury. After the verdict, Joy's mother thanked everyone who had "the slightest participation" in helping to bring about justice.

Abel Dominguez: Forty-two year old Abel Dominquez was charged with the stabbing murder of his estranged wife, Alma Garcia. Crime scene evidence was sent to the UNTCHI forensic unit for DNA testing. Testimony from a UNTCHI Forensic Analyst helped a Tarrant County jury convict Dominguez of murder. He was sentenced to life without parole.

Summary: During this award we had four qualified forensic analysts and one forensic technologist dedicated to processing and analyzing forensic DNA cases. There were **592** cases completed during the 12 months of the award period. The backlogged forensic cases were reduced to a total of 71 at the end of August, 2011.
The average number of samples completed each month per analyst at the completion of this award was 41.2. This is approximately a 5% increase from the last award. At the beginning of the award period for this grant, the average turn-around time was 173 days. Our turn-around time was reduced to 39 days at the end of the award period. This was well below our projected goal of 120 days.
Throughout the award period, our Technical Leader worked on improving productivity. The Technical Leader triaged the cases in queue each month to identify the subset of samples needing to be processed for each case, to collect additional information from the submitting agency, and to group sample types. This effort significantly reduced the amount of time each analyst would routinely spend trying to sort through the queue to organize a new set of samples to process. Assignments were made on a monthly basis and were delineated by sample type for each analyst. Grouping similar sample types has been very successful, especially for the "low copy" samples. Each analyst processed their monthly assignment as a single batch or two smaller batches. The focus was to process all samples within the batch through each stage of testing as a "group". UNTCHI's forensic unit seeks to improve turn-around times and productivity by continually reviewing the entire DNA testing process from reception of a sample to delivery of results. Approximately 3-5% of the cases worked required mtDNA testing which is extremely time consuming and can affect turn-around times. During this award period the analysts and technologist were called upon to provide expert testimony for 28 different cases. Their time away from the laboratory to provide this service also affects productivity and turn-around times. The forensic unit anticipates that continued improvements will result in maintaining our record of accomplished goals for future grant awards.

FY09 Recipient Name: Utah Department of Public Safety
Award Number: 2009-DN-BX-K076
Award Amount: $283,707
Final Report:
Goal: Improve the DNA analytical and technological capabilities of the BFS biology/DNA section scientists
Objective #1: Maintain DNA case turnaround time

Progress Oct-Dec 2009

- The Utah Bureau of Forensic Services (UBFS) has arranged travel to the American Academy of Forensic Scientist Annual Scientific Meeting for two DNA analysts. This meeting is being held in Seattle, Washington on February 22-27, 2010. UBFS feels that by sending analysts to these venues it allows the analysts to stay current with fresh topics that are being discussed within the community. The knowledge and ideas that are gained at these meetings becomes very valuable to the laboratory. All travel arrangements and registration has been completed for two analysts.
- The laboratory has made contact with the departments IT staff to begin the purchasing of new laptop computers where all DNA analysis is performed. The current laptop computers are showing signs that they are getting old and not functioning as well as they should. The Department of Public Safety's IT staff is responsible for the purchasing of computers and computer related items. The IT staff is aware of the need and is working on this order.

Progress Jan - June 2010

- In February of 2010 the Utah Bureau of Forensic Services (UBFS) sent two DNA analysts to the American Academy of Forensic Scientist Annual Scientific Meeting. The meeting was held in Seattle, Washington on February 22-27, 2010. The two analysts reported back that the meeting brought up some interesting topics of collection of trace amounts of DNA and ideas for collection of trace DNA samples. Both analysts felt that meeting was well worth the time and money. AAFS training/travel is complete.
- The Department of Public Safety's IT staff has completed the task of purchasing and loading all necessary software on the laptop computers that are used for DNA analysis. The new laptops have replaced the old ones and all laptops are currently being used for DNA analysis. Having functional laptops to perform DNA analysis helps to maintain our case turnaround time by avoiding the delays that arose while using the old laptops. The new laptops are high quality and were definitely needed. Laptop purchasing and implementing for use is complete.
- The biology laboratory was recently offered more space to expand our laboratory space. The new space will become the serology section of the laboratory leaving the old space all for DNA work. A grant adjustment was needed in order to provide funds for the laboratory equipment. The grant adjustment was approved and the laboratory equipment has been purchased. We are currently waiting to have the equipment delivered so we can set up the new serology analysis area. This new area will give analysts more space to perform the screening of evidence, including an additional dark room that may be used

for screening with an ALS. Additionally, laboratory chairs and stools are needed for this new lab space. The chairs and stools have been purchased and BFS is waiting their delivery. BFS is waiting for laboratory equipment and chairs/stools to be delivered.

- As part of the grant adjustment UBFS requested to purchase two thermal cyclers. With the 2008 DNA grant UBFS replaced two older thermal cyclers, and it is our desire to have a total of 4 thermal cyclers. With this grant we were approved to purchase two additional thermal cyclers. Between the 2008 and 2009 grants our laboratory was able to trade in 3 old (one broken) thermal cyclers and replace them with 4 brand new ones. Set up, implementation, and performance checks have been completed on the thermal cyclers. Having 4 thermal cyclers alleviates any bottlenecks that existed due to six DNA analysts and two CODIS analysts trying to amplify their samples at the same time. Having 4 thermal cyclers is also a benefit now that we have three different amplification kits available for use Identifiler Plus, Yfiler, Minifiler). Purchase and implementation of thermal cyclers is complete.
- In the original grant request the laboratory had requested funds to contract a former employee to assist in training new analysts. The new analyst was subsequently trained by current employees, so this request was no longer needed. It was determined that a grant adjustment was necessary. The funds were put towards renewing the service contracts for four capillary electrophoresis instruments and for two real time quantitation instruments. This has been extremely beneficial in maintaining DNA case turnaround time because anytime an instrument is not functioning correctly and the problem cannot be fixed by a current analyst the laboratory can place a service call to the manufacturing company and have them come and fix the problem. The service contracts have been purchased and are in effect through March 2011.

Progress July – December 2010

- The new serology section of the laboratory is complete. Work benches, table tops, drawers, cabinets, fume hood, sink, stools and chairs have all been delivered, installed and put into use. The laboratory has moved all serological analysis to this new laboratory space. The laboratory now has separate space for serology and DNA, which may help in preventing contamination. This has allowed for the DNA analyst to have more space for their equipment and more space to move when working with samples. The serologists each have their own workspace as well as a shared trace evidence room, which can be used for large items of evidence. Purchasing/Installing/Implementing new laboratory equipment completed.
- In October 2010 UBFS was able to send four DNA analysts to the 21st International Symposium on Human Identification (Promega). This is one of the best training opportunities in the country. The analyst's that attended this meeting reported back that the conference was extremely useful. Topics such as using CODIS for familial searching and SWGDAM guidelines for mixture interpretation are extremely useful to the laboratory and the DNA staff. Promega travel and registration completed.
- The new extraction hoods just arrived! The DNA section had been extracting samples in dead air plastic extraction hoods that were starting to fall apart. With funds from this

grant new extraction hoods have been purchased. The new extraction hoods are hepa filtered, laminar airflow, and PCR cabinets. These cabinets are top of the line clean air cabinets that may help prevent any contamination of extracted DNA. Eight extraction areas have been set up using these new PCR extraction cabinets (along with three older cabinets for a total of eleven DNA work benches). Having eleven DNA workstations will prevent any contamination from shared extraction areas. The increased workspace for each analyst may also allow for better batching of similar type cases. The analyst's have more area to work, which allows for better batching of samples. Purchasing / Implementing PCR extraction hoods completed.

- Two new fridges have been purchased with this grant. One fridge for the storage of serological chemicals and reagents and one for the storage of serology evidence. The serology evidence storage fridge allows analyst to retain evidence in their possession in the laboratory and to keep that evidence refrigerated and secured (fridge locks) if necessary. Purchasing/Implementing refrigerators, completed.

Objective #2: Increase the throughput in the DNA laboratory

Progress Oct-Dec 2009

- The laboratory has made great strides in keeping up with recent technology. Over the past year many new amplification kits have been validated, including; Identifiler®, Quantifiler®, Yfiler®. The laboratory is currently validating Minifiler® and Identifiler Plus®. With the increase of technology available at the laboratory combined with the budget cuts that have taken place over the past year and a half, we have requested money to purchase these kits. The laboratory has had roughly ten YSTR type cases since its implementation in August 2009 and we expect this number to continue to grow. It is anticipated that by having the available kits validated the throughput of samples will continue to increase throughout the year. The laboratory has not purchased the available kits at this time.

Progress Jan – June 2010

- UBFS continues to stay current with the technology available for forensic DNA analysis. We strive to offer law enforcement agencies throughout the state of Utah with the most current, accurate, and sensitive analysis available. NIJ has afforded the laboratory to provide this high quality of service. UBFS currently has available the following amplification kits: Identifiler®, Yfiler®, Identifiler Plus® and Minifiler® (pending final validation report and TL approval). The laboratory also used Quantifiler® quantitation kits. As the economy and financial struggles continue throughout the state the laboratory has had to rely on the funding from NIJ to stay abreast with the new technology. The throughput of samples continues to increase as more and more Y STR cases are being tested. Identifiler Plus® has proven to be an excellent kit for trace amounts of DNA and we continue to receive more and more request for burglary/robbery type cases. The laboratory has purchased roughly 8 Identifiler/Identifiler Plus kits, and 2 Yfiler kits. The kits will continue to be purchased as necessary throughout the grant period.

Progress July – December 2010

- UBFS continues to purchase kits as needed. As of December 2010 a total of 8 Identifiler® Kits, 4 Yfiler® kits, and 4 Quant Duo® kits have been purchased. It was also determined that the Minifiler® kits were no longer needed due to the validation, implementation and sensitivity of the Identifiler Plus® amplification kit. The funds requested for the Minifiler® Kits have been reallocated for the purchasing of more Quant Duo® kits.

Progress January - June 2011

- UBFS has completed the purchase of all kits associated with this grant. All DNA analysis completed in this period were processed with kits purchased with the 2009 DNA Backlog Reduction Grant. For the grant cycle, UBFS has processed ~~315~~ 276 cases that contained evidence suitable for DNA analysis. With these case UBFS has processed over ~~1300~~ 1239 samples, resulting in ~~145~~ 130 samples (63 from this reporting period) uploaded to CODIS as forensic unknowns. Purchase of all kits complete. ****NOTE****There were errors with these numbers in the last report. The Performance Measures were corrected, but the narrative in this paragraph was not changed to reflect the accurate numbers. This was an error in the last reporting period the numbers have been corrected to reflect the accurate reporting (for last reporting period).

Progress July - September 2011

All kits were purchased during the last reporting period. The kits have been consumed in casework. UBFS completed 27 cases during this period (303 cases for entire grant). UBFS was able to upload an additional 19 samples as forensic unknowns (149 for entire grant). This completes this grant. See end of report for additional information.

Objective #3: Reduce DNA forensic casework backlogs
Progress Oct-Dec 2009

- To reduce and maintain the forensic casework backlog the laboratory has requested to purchase new equipment that can replace broken and outdated equipment, which includes: extraction hoods, laptops, microscope, and genetic analyzer. No action has been taken to purchase these items.

Progress Jan – June 2010

- The laboratory typically does not have a backlog of cases. As cases come in the door they are assigned to an analyst who will screen the evidence for the presence of biological fluids and perform DNA analysis on those samples. A case may sit with an analyst for a short period of time before they are able to begin working that case. As the case sits (not being worked) that would be the typical backlog. BFS has been able to maintain a turnaround time of less than 45 days and we strive to reach that goal. To reduce and maintain the forensic case load (backlog) the laboratory has requested to purchase new equipment that can replace broken and outdated equipment, which includes: extraction hoods, laptops, microscope, and genetic analyzer. The genetic analyzer is no longer being purchased with this grant. No work has been completed

regarding the purchase of the extraction hoods, microscope, or refrigerator (added with grant adjustment). The laptops have been purchased and implemented into casework.

Progress July – December 2010

- The laboratory had savings in several categories for purchases throughout the year. With these savings UBFS was given permission to purchase four new computers, including monitors and Microsoft Office Pro, as well as a printer. The new computers will be used in the new serology section along with the printer. This will help streamline casework by allowing the analyst's to check SOP's, write reports, and print reports and pictures directly from the serology laboratory. The computers, monitors, Microsoft licenses, and the printer have all been sent to the department purchasing. It is anticipated that these items will be purchased and installed in the next month. Request for purchase sent to department purchasing.

Progress January – June 2011

- The four computers were purchased and implemented into the laboratory. Two computers were placed in the new serology section, one computer became the laboratories expert system computer and the final computer went to a new analyst. The printer was purchased and installed in the new serology area. The serology computers and printer have been able to save analysts time by giving the analyst the ability to print while working in the serology section. With funds from the 2010 grant UBFS hired a new analyst, a computer was needed for that analyst to begin training. Finally, the fourth computer became the expert systems computer. The laboratory is working on the validation of that system. Purchase of computers and printer complete.

Progress July - September 2011

See end of report for final comments.

Additional Comments:

From the beginning of this grant to the present UBFS has seen an overall increase in the number of cases submitted for DNA analysis as well as the number of samples per case. The chart below gives a breakdown of the number of DNA cases and the number of samples processed for each quarter of this grant.

	Oct – Dec 2009	Jan – March 2010	April – June 2010	July – Sept 2010	Oct – Dec 2010
# DNA Cases	32	48	40	44	61
# Samples	144	173	156	187	200-225

From September to November UBFS biology/DNA analysts spent some time preparing to take the American Board of Criminalistic's (ABC) Examination in Molecular Biology. Time was allotted each day to studying for this examination test. In addition one analyst was out on maternity leave from July through October 2010. UBFS analyzed two major homicides, as well as several rush sexual assault cases suspected of being related to one of the homicides, in December causing another two analysts to concentrate on only those cases.

Most of the purchasing for this grant has been completed, with the exception of the amplification kits, quantitation kits, and the new computers and printer. Although some of the objectives of this grant have not been met, the goal to improve the analytical and technological capabilities of the BFS biology/DNA section and the analysts of that section has been met. UBFS is indeed thankful for the funds supplied through NIJ's FY 2009 Forensic DNA Backlog Reduction Program. Even though we find ourselves in a tough spot with a lot of cases to get through, it has been the support from NIJ that has kept the laboratory in excellent working conditions, which has enabled us to prepare and plan for the challenges we face. UBFS has a commitment to providing the best forensic service to the citizens and law enforcement agencies in the state of Utah and that is being accomplished through funding opportunities like this.

Case completion and the number of samples decreased over the last quarter for several reasons: the DNA section of the laboratory went through two audits (NFSTC audit and a surveillance audit), two of the laboratories DNA analysts have been presenting their study on a kit comparison to the ABI road shows, multiple rush homicide cases were submitted which took analyst several months to screen the evidence. Though the numbers aren't as high as previous reports, a lot of good hard work has been spent on some extremely difficult cases.
The 2009 Forensic DNA Backlog Reduction Grant has been a successful grant. During a time of deep department budget cuts, economical challenges, and uncertainty the Utah Bureau of Forensic Services biology section continues to improve and provide our customers with the analysis that they need. UBFS has processed several extremely brutal and threatening cases with funds from this grant. Some of these brutal cases have yet been solved, but UBFS has good evidence pertaining to these cases. Many felony property crimes have been solved through DNA analysis and assistance from the CODIS program. Every single DNA case that UBFS has processed over the past 24 months has been completed with equipment and supplies purchased with this grant. UBFS has maintained its case turnaround time, has increased the throughput of DNA samples, and reduced the backlog of DNA cases through the generous funding provided by NIJ.

2009 Forensic DNA Backlog Reduction Grant Summary:
Number of cases completed: 303
Number of profiles uploaded to CODIS: 149
Number of CODIS hits: 41

FY09 Recipient Name: Virginia Department of Forensic Science
Award Number: 2009-DN-BX-K080
Award Amount: $950,167
Final Report: The Department of Forensic Science (DFS) received funding under this grant to pay the salaries and benefits of four full-time scientists to conduct scientific exams on items of evidence and reference samples. It is anticipated that each scientist will be able to analyze at least 10 cases per month, for a total of 40 cases per month. DFS also received funding to hire one full-time forensic laboratory specialist who will contact law enforcement agencies on a regular basis to determine the status of backlogged cases and will assist the DNA examiners with

laboratory support functions. In addition, funding was provided for the statewide DNA annual mandatory training in accordance with the FBI Quality Assurance Standards and for the purchase of robotic systems and supplies needed for DNA analysis on backlogged cases.
The Goals/Objectives of this grant project are as follows:

1. Reduce case backlog in the Forensic Biology section
2. Increase the DNA analysis capacity in the Forensic Biology section

In order to meet these objectives, the following were proposed in the application:

1. Hire four full-time scientists to analyze backlogged cases
2. Hire one full-time FLS to contact law enforcement agencies and to assist with support functions in the lab
3. Purchase supplies needed for DNA analysis
4. Purchase new robotic systems
5. Complete 480 backlogged cases
6. Attend annual mandatory DNA training seminar

Status of objectives from January 1 – June 30, 2011

1. At the end of the last reporting period, the scientists hired under this grant were transferred to the 2010 Backlog Reduction Grant and, thus, had ceased using funds under this award.
2. At the end of the last reporting period, the full-time FLS hired under this award was transferred to the 2010 Backlog Reduction Grant and, thus, had ceased using funds under this award.
3. Supplies were ordered in this reporting period (January 1 – June 30, 2011). Eight (8) PowerPlex® 16 kits were ordered.
4. Equipment was ordered in this reporting period (January 1 – June 30, 2011). Two Leica microscopes and two Biomek NX Automation Workstations were purchased for casework use in accordance with the goals of this award.
5. During this reporting period (January 1 – June 30, 2011), the number of cases completed using the supplies purchased under this grant is 2443. The number of profiles uploaded to CODIS using supplies purchased with this grant during this reporting period (January 1 – June 30, 2011) is 698. The number of CODIS hits assigned using the supplies purchased under this grant during this reporting period (January 1 – June 30, 2011) is 406.
6. In this reporting period, no additional funds were used for meeting the objective of attending annual DNA training. This goal was complete for this award at the end of the previous reporting period.

Summary of Performance During Entire Funding Period (October 1, 2009 – June 30, 2011)
During the entire funding period, the Virginia Department of Forensic Science (DFS) has purchased supplies and equipment used by the DNA examiners to complete 5018 cases, exceeding the goal of 480 cases. (Note that a change in the method of calculating these cases was adopted for the previous reporting period and was not reflected in the initial goal.) In addition, one full-time position was funded to support the work completed in accomplishing the objectives set forth. Three scientists were hired and trained, although one resigned her position prior to

completion of training. We planned "The Second Annual Current & Future Advances in Human Identification Conference", which took place in September 2010. Fifty-eight (58) VDFS laboratory examiners and analysts attended the conference to fulfill the annual mandatory training required in accordance with the FBI Quality Assurance Standards.
When laboratory work began on this grant (July 1, 2010), 1100 cases were backlogged in the Forensic Biology Section statewide, and the average turn around time was 131 days from receipt of the case into the laboratory to the delivery of the results to the submitting agency. At the end of the award period (June 30, 2011), 833 cases remained backlogged, with an average turn around time of 72 days, representing significant improvements in both reducing the backlog as well as reducing the turnaround time. During the entire award period, 1614 profiles were entered into CODIS and 913 CODIS hits were reported using funding provided with this award.

FY09 Recipient Name: Vermont Department of Public Safety
Award Number: 2009-DN-BX-K111
Award Amount: $100,000
Final Report: The funding from this award has been very helpful to move the DNA unit forward. We requested and obtained a grant adjustment to move a portion of the grant funds to allow us to purchase an Applied Biosystems 3500 instrument or equivalent. As a result of that GAN to move funds, this grant was completed on December 2010, and we obtained an AB 3500 instrument. This instrument will allow us to keep current with casework and meet the demands of new legislation that will take effect in July of this year. That legislation requires the analysis of felon arraignee samples. The sheer number of samples resulting from this legislation in conjunction with our casework samples would have been difficult to accommodate on our single four capillary array 3130 instrument. This new 8 cap array instrument will give us the capacity to meet both casework and database demands.
The report for the previous reporting period is similar to this report since the bulk of the work occurred in the July- December 2010 period and the funds appropriated to pay for the instrument finished the funding available for this award. This is the final report and the metrics reflect cumulative numbers when appropriate.
We are currently operating on the 2010 award.
The Goals of this grant are:

- Hire and train forensic chemist
    - Completed- we were fortunate to retain the individual who was previously employed under the previous award. She is currently performing the requisite duties- casework management, and serological analysis in preparation for DNA analysis.
- Purchase supplies when needed, have CE serviced when required
    - This has been completed
- Have pipettes sent for calibration-QC testing
    - This has been completed
- Perform review of cases- administrative screening
    - 69 cases were administratively reviewed resulting in the closing (no exam required) of 4 cases.

- Perform serological analysis, DNA extraction and STR analysis on 65 cases
    - During this time period, 105 cases were subjected to either all or one aspect of the above. No cases were counted twice. If a serology case was analyzed with these funds and transferred to DNA for analysis, it was counted only one time for purposes of grant counting.
- Use funds to purchase a genetic analyzer- this is a new goal with the movement of funds to the equipment category
    - We purchased an AB 3500 and that is currently undergoing validation.

FY09 Recipient Name: Washington State Patrol
Award Number: 2009-DN-BX-K141
Award Amount: $984,340
Final Report: Narrative: The following were additional challenges to overcome during this award: Two CODIS analysts were transferred to casework and are now being trained to help offset the loss of casework DNA analyst positions due to state budget reductions.
The following goals and objectives were set for this award:

Report 1

- Goal 1- To improve the capacity of the DNA lab by purchase of Laboratory Equipment; Additional BioRobot EZ1 DNA extraction instruments to all the casework laboratories. A 16 capillary upgrading of three CEs to 16 capillaries at the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments. Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory.
  Progress – The additional BioRobot EZ1 extraction instruments have been purchased and are now operational in all labs.

- Goal 2 – To maintain analytical capacity with the additional DNA Forensic Scientist to the Marysville Lab and add another Forensic Scientist to the Vancouver Lab (switched from Tacoma as there was an opportunity to employ a trained scientist).
  Progress – Both positions are filled and the analysts are working on cases.

- Goal 3 – To integrate new instruments and maintain and improve the existing instruments and supporting software in the state wide instrument network by hiring a DNA Information Technology Laboratory Employee
  Progress – the DNA information technology employee position is filled and continues from the past DNA Backlog Reduction grant. This person also has implemented the electronic notebook of worksheets that was developed to comply with form standardization to meet ISO standards.

Report 2

- Goal 1- To improve the capacity of the DNA lab by purchase of Laboratory Equipment; Additional BioRobot EZ1 DNA extraction instruments to all the casework laboratories.

A 16 capillary upgrading of three CEs to 16 capillaries at the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments. Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory.
Progress – The additional BioRobot EZ1 extraction instruments have been purchased and are now operational in all labs. Due to the announced production discontinuation of the AB 3130 series of genetic analyzers, the XL upgrade of the three CEs the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments is no longer feasible and has been replaced with the ordering of the new 8 capillary 3500 CE model. The order has been placed but the instruments have not yet been received.

- Goal 2 – To maintain analytical capacity with the additional DNA Forensic Scientist to the Marysville Lab and add another Forensic Scientist to the Vancouver Lab (switched from Tacoma as there was an opportunity to employ a trained scientist).
  Progress – Goal completed.

- Goal 3 – To integrate new instruments and maintain and improve the existing instruments and supporting software in the state wide instrument network by hiring a DNA Information Technology Laboratory Employee
  Progress – The new instruments have been integrated into the laboratory instrument network. The network was recently upgraded to improve functionality. The next generation of electronic worksheets is being programmed into a database format to allow more information to automatically transfer from 1 worksheet to the next and to link to QC data for the reagent lot numbers used.

<u>Report 3</u>

- Goal 1- To improve the capacity of the DNA lab by purchase of Laboratory Equipment; Additional BioRobot EZ1 DNA extraction instruments to all the casework laboratories. A 16 capillary upgrading of three CEs to 16 capillaries at the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments. Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory.
  Progress – The additional BioRobot EZ1 extraction instruments remain operational in all labs. The 3 new 3500 CE Genetic Analyzers have been received and preliminary data for validation has been generated.

- Goal 2 – To maintain analytical capacity with the additional DNA Forensic Scientist to the Marysville Lab and add another Forensic Scientist to the Vancouver Lab (switched from Tacoma as there was an opportunity to employ a trained scientist).
  Progress – Goal completed.

- Goal 3 – To integrate new instruments and maintain and improve the existing instruments and supporting software in the state wide instrument network by hiring a DNA Information Technology Laboratory Employee
  Progress – Installation of an upgrade of GMIDv3.2 to our recently validated GMIDX was completed by our IT3 person in this reporting period. The laboratory instrument network also changed to a different server.

Report 4

- Goal 1- To improve the capacity of the DNA lab by purchase of Laboratory Equipment; Additional BioRobot EZ1 DNA extraction instruments to all the casework laboratories. A 16 capillary upgrading of three CEs to 16 capillaries at the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments. Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory.
  Progress – Goal completed. To avoid analyst confusion and having overly complex SOPs the implementation of the 3 new 3500 CE Genetic Analyzers will be delayed until all the 3130's have been replaced with future grant funding.

- Goal 2 – To maintain analytical capacity with the additional DNA Forensic Scientist to the Marysville Lab and add another Forensic Scientist to the Vancouver Lab (switched from Tacoma as there was an opportunity to employ a trained scientist).
  Progress – Goal completed.

- Goal 3 – To integrate new instruments and maintain and improve the existing instruments and supporting software in the state wide instrument network by hiring a DNA Information Technology Laboratory Employee
  Progress – Goal completed.

Final Report

- Goal 1- To improve the capacity of the DNA lab by purchase of Laboratory Equipment; Additional BioRobot EZ1 DNA extraction instruments to all the casework laboratories. A 16 capillary upgrading of three CEs to 16 capillaries at the Seattle, Vancouver and Spokane laboratories to complement the implementation of the BioRobot Universal instruments. Adding a second AB 7500 Real Time PCR instrument in the Vancouver laboratory.
  Progress – Goal completed.
  Note - To avoid analyst confusion and having overly complex SOPs the implementation of the 3 new 3500 CE Genetic Analyzers will be delayed until all the 3130's have been replaced with future grant funding which is scheduled for February 2012.

- Goal 2 – To maintain analytical capacity with the additional DNA Forensic Scientist to the Marysville Lab and add another Forensic Scientist to the Vancouver Lab (switched from Tacoma as there was an opportunity to employ a trained scientist).
  Progress – Goal completed.

- Goal 3 – To integrate new instruments and maintain and improve the existing instruments and supporting software in the state wide instrument network by hiring a DNA Information Technology Laboratory Employee
  Progress – Goal completed.

Successes: On average per analyst (adjusted for non-DNA activities such as crime scene attendance and training) there was an increase greater than 2 times the monthly number of samples analyzed for DNA when compared to the stats at the beginning of the award period. There were many improvements made in workflow during the award period which attributed to the productivity increase. This included the switchover to Identifiler Plus replacing Profiler Plus and COfiler, more use of automation protocols and more familiarity of staff with the technology improvements of the past couple of years such as GMIDX.

Challenges: The biggest challenge in meeting the goals set out in this award was in the implementation of the next series of Genetic Analyzer capillary electrophoresis instruments (3500 series). During the start of the validation it became apparent that the data collected was very different than the current 3100 series instruments (much higher signal strength was observed in the new instruments). It was decided to not use the two different types of instruments at the same time in casework as the data interpretation guidelines would be too complex for the average DNA analyst to efficiently follow. A complete switch out of the old series Genetic Analyzer instruments for the new 3500s will be made at a future date.

Metrics: In addition to the increase in average analyst productivity there was approximately a 10% improvement in average case turnaround time at the end of the award period compared to the beginning. Due to the longer period it takes to expend funds for salary relative to the purchasing and implementation of new technology some of the effects on metrics may be delayed and thus influenced from other awards.

Award funded analysts: There were 2 DNA analyst positions funded through this award, 1 in the Marysville Lab and 1 in the Vancouver Lab. The analyst in Marysville was newly qualified for casework 2 months into the award funding period and worked at a much slower pace than the experienced analyst in Vancouver. Together they completed a total of 186 DNA requests during the time their salaries were award funded. It is expected that as the new analyst becomes more experienced her productivity will increase.

FY09 Recipient Name: Wisconsin Department of Justice
Award Number: 2009-DN-BX-K155
Award Amount: $744,491
Final Report: The 2009 DNA Backlog Reduction Grant allowed the Wisconsin Department of Justice Crime laboratories to continue a Statewide program to increase quality, service and accreditation needs to improve the forensic services in the State of Wisconsin.

The Wisconsin Department of Justice Laboratories were able to utilize monies for overtime for DNA analysts, critical training to increase skill sets, and also to purchase equipment and

renovate areas of the Milwaukee Laboratory that not only facilitated the output of case work but increased staff efficiencies with updated computers, software, and additional robotics. The total number of forensic science personnel that attended outside training using these grant funds was 14. The entire DNA staff (55) of the Wisconsin State Crime Laboratory system participated in a mandatory one day training to satisfy the FBI criteria with bringing in an external speaker using these grant funds.

The average number of days between submission of a sample to the state forensic science laboratory system and delivery of test results to a requesting office or agency increased by 15 days from the start of this award to the end date of this award. The primary reason is that since we currently have a turnaround time on homicides and sexual assaults (average 30-40 days which is actually 9 days less than the start of this award period), however, the submitting agencies have started to bring in numerous cold cases that have degraded DNA and numerous items which has led to our increased overall turnaround time due to the complexity of these cold cases.

The average number of samples analyzed per analyst per month is 52. The number of backlogged cases on September 30, 2011 was 1071. There were 216 profiles entered into CODIS as a result of funding provided under this award. There were 95 CODIS hits attributable to analyses funded under this award. There were a total of 443 cases analyzed and delivered to the requesting agency using funding provided under this award.

It cannot be stressed enough how much these funding sources assist the Wisconsin Department of Justice in carrying out the mission of the crime laboratory system. The funding is critical in allowing us to work cases more efficiently, stay current with new and changing technologies and provide a more timely service to the submitting agencies and ultimately to the Citizens of the State of Wisconsin.

FY09 Recipient Name: West Virginia State Police
Award Number: 2009-DN-BX-K081
Award Amount: $227,834
Final Report: The West Virginia State Police Forensic Laboratory (WVSPFL) utilized funds from the 2009 DNA Backlog Reduction Grant to help meet the following goals:

- Goal No. 1: Implementation of a New LIMS

  Although the complete implementation of a new LIMS did not occur during this grant period, great strides were made in preparing the DNA laboratory for implementation to occur in the near future. During the grant period, a LIMS system was chosen for the laboratory. Using funds from this grant, a consultant familiar with the LIMS system was brought in to assist the laboratory during the kickoff meeting in November 2010. The consultant helped make sure pertinent questions were asked as well as help laboratory personnel become familiar with the system. Since individuals in the WVSPFL have become familiar with the new LIMS system,

it has been determined that an additional contractor will not be needed to help with the in-house customization of this new system.

In order for the DNA laboratory to implement a new LIMS, equipment and software were purchased using grant funds. The servers currently utilized were insufficient to house the new system, therefore new servers were purchased. The current LIMS system operates with Microsoft Office 1997. The new LIMS system will utilize Microsoft Office Professional 2010. Therefore, the laboratory used funds to purchase enough licenses for all computers in the Biochemistry Section. With the implementation of the new LIMS system, it is the goal of the Laboratory to become paperless. Using funds from the grant, the Biochemistry Section was able to equip each DNA analyst's workstation with dual monitors which will assist in the technical review of case files as well as report writing.

Preparing for implementation has been a lengthy process and one that has been dependent on the vendor's timeframe as well as response from the laboratory. At present, the laboratory has finalized the design of worksheets and report format. A batching module for the LIMS system has also been evaluated and chosen. The batching module selected will batch samples from various cases and their associated quality control samples. The batching module will create a run sheet of samples selected from various cases and carry it through the process from extraction to analysis, eliminating redundant manual entries of sample information by the analyst. It is the goal of the laboratory to implement the new LIMS in the summer of 2012.

- Goal No. 2: External Training for DNA analysts

  Through funds from this grant, the laboratory was able to fulfill the continuing education requirement set forth in the FBI's Quality Assurance Standards for two (2) DNA analysts. Each analyst was able to attend a forensic conference, where they made valuable contacts within the forensic community while also receiving specialized training.

- Goal No. 3: Replace/Upgrade Equipment

  The laboratory was able to utilize funds from this grant to replace failing equipment. The laboratory was able to purchase a new pH meter for reagent preparation. Two mini vortex mixers, three 24-tube microcentrifuges, one Promega DNA IQ stand, and two digital cameras along with a camera card for each analyst were purchased to assist the workflow within the DNA laboratory. Having these additional items of equipment saves time because analysts do not have to wait on equipment during testing. The DNA laboratory has limited countertop workspace and therefore used grant funds to purchase safety shelves to help organize the containers of tubes between each extraction hood. These shelves free up countertop space and allow convenient access to pertinent consumables used during DNA testing.

  Since the laboratory is planning on becoming paperless with the addition of the new LIMS, additional computer stations were needed in the DNA extraction laboratory. One computer

was purchased to replace an outdated one, which was unable to accommodate the new LIMS as well as the new microscope camera being purchased. Another was purchased for a second microscope station as well as an inventory of evidence station. By having two microscope stations available, analysts do not have to wait during casework examination. During this grant period, the FBI upgraded the CODIS software for all participating laboratories. With the upgrade of the CODIS software, a new computer, back-up system and printer were purchased to replace the outdated equipment per recommendation of NDIS.

Several capacity enhancement projects were completed using funds from this grant. The DNA laboratory is in the process of becoming fully automated with respect to DNA extraction. Under this grant, the laboratory was able to purchase a Qiagen EZ1 Advanced XL 14-channel DNA extraction robot. This robot will elute the DNA samples in a volume similar to the current manual extraction procedure utilized. Instead of it taking approximately 2 hours to complete 14 samples, the testing could be completed in about 20 minutes. Due to State Purchasing regulations, the laboratory was unable to purchase the 2 year warranty extension for the Qiagen EZ1 Advanced XL 14-channel robot. With the addition of robotics and trained analysts, the laboratory was in need of additional Applied Biosystems (AB) GeneAmp PCR 9700 Systems. Therefore, the laboratory used grant funds to purchase two additional 9700 Systems for a total of four systems to be utilized in casework. An additional 96-well Temperature Verification Unit was also purchased as a backup for the existing unit, which is used to validate temperature calibration and uniformity in the PCR 9700 System. The AB 3130 genetic analyzer was upgraded to an AB 3130xl genetic analyzer. This upgrade increased the number of capillaries on the machine from 4 to 16, allowing samples to run in a shorter time frame. The laboratory now has two 3130xl genetic analyzers which accommodate the increase of casework samples created from the increase in trained DNA analysts and the addition of robotics. With the 3130 upgrade, the laboratory was also able to purchase one planned maintenance agreement for the following year as well as another Genemapper ID-X license.

FY09 Recipient Name: Wyoming Office of the Attorney General
Award Number: 2009-DN-BX-K107
Award Amount: $100,000
Final Report: GPA Narrative: The following goals and objectives were set for this award: *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.*

Goal #1: *Reduce the WSCL's DNA casework backlog.*

This goal is still complete (relatively).

During the grant period, the WSCL has devoted 292 overtime hours to casework DNA analysis towards reducing the backlog. Work on sixty-five cases has been funded through this grant. The acquisition of necessary supplies is complete.

During this grant period, the Wyoming State Crime laboratory moved into a new facility validated a bone and tooth extraction methodology, and validated the use of Y-Chromosome testing in casework. The Laboratory also began the process of processing Offender samples in-house. Though the backlog of cases increased during the grant period, we believe the increase would have been much greater without the NIJ funding for supplies and overtime.

Goal #2: *Increase the WSCL's DNA analysis capacity.*

This goal is complete.

The freezer mill has been purchased, and the validation study for the extraction of DNA from bones and teeth is complete. The purchase of slide warmers and pipettes is in complete.

Over the grant period, the average number of samples analyzed per analyst per month increased from 13 to 20.8. We believe this increase in analysis capacity will eventually lead to smaller casework backlogs.