

**United States Department of Justice
Office Justice Programs
National Institute of Justice
2010 Paul Coverdell Forensic Science
Improvement Grant**

**Portland Police Bureau
Forensic Evidence Division
Digital Information System
Transition Project**

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
FY 2010 Paul Coverdell Forensic Science Improvement Grants Program
City of Portland, Oregon Police Bureau
Cover Page, Abstract, Program Narrative and External Investigations
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Proposal Abstract

The Portland Police Bureau is the largest police agency in the state of Oregon. The Bureau has over 900 sworn officers and nearly 300 support staff. One of the key goals of the Bureau is to continuously improve work processes. In conjunction with this goal the Bureau's Forensic Evidence Division (FED) would like to move to a fully digital format in its evidence photo processing. The move would allow for faster turn-around time for processing photographic evidence. It will enable FED to make images available to stakeholders (police officers, detectives, district attorneys and child abuse investigators) more quickly, as well as, enable distribution in different formats (photo prints, CD, digital images to computers, etc) In order to do so, FED will need to obtain digital cameras for their staff plus a secure digital archive system.

In researching the feasibility of migrating to digital imaging the Forensic Evidence Division was offered a unique opportunity. Intel Corporation has offered to donate a portion of the hardware needed to run the system (rack server systems) and Linear Systems, a digital imaging systems vendor, has offered to supplement a significant amount of the cost of their second generation Digital Information Management Solution (DIMS2). Linear Systems and Intel Corporation's combined contributions to this project will equate to \$94,500. This partnership will increase the efficiency, quality and timeliness, as well as the security of digital forensic evidence. The Forensic Evidence Division will still need to fund the remaining cost of the digital image management system and purchase digital cameras. In order to achieve this goal the City of Portland is requesting \$155,444.60 in funding from the Paul Coverdell Forensic Science Improvement Grant.

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Introduction

The Portland Police Bureau is the largest police agency in the state of Oregon, serving the City of Portland population of 551,226¹. Portland Police Bureau has over 900 sworn officers and nearly 300 support staff. The mission of the Portland Police Bureau is to reduce crime and the fear of crime by working with all citizens to preserve life, maintain human rights, protect property and promote individual responsibility and community commitment. The Bureau's goals are: 1) Focus efforts on repeat calls for service and chronic offenders, 2) Enhance the police community relationship, 3) Develop and encourage employees and, 4) Continuously improve work processes.

In conjunction with its fourth goal, the Bureau has improved the ability of the Forensic Evidence Division (FED) by remodeling its lab space in 2006 and purchasing state of the art fingerprinting workstations that include fuming hoods, down-flow workstations and vacuum chambers. Additionally, through the 2008 Paul Coverdell Forensic Science Improvement Grant Program FED obtained advanced graphics computer workstations for enhancing developed latent prints, obtained much needed training for staff and achieved Crime Scene Investigator certifications for its crime scene officers (Criminalists) through the International Association for Identification (IAI).

The Forensic Evidence Division operates 24 hours a day, 365 days a year, with 17 full-time criminalists. Criminalists specialize in processing crime scenes, collecting evidence, examining evidence for latent prints and identifying latent prints. They use a variety of

¹ 2006-2008 American Community Survey

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photographic and photo processing equipment to assist in the development, preservation and presentation of physical evidence. They also provide expert testimony in courts of law regarding fingerprint identification.

The Forensic Evidence Division is also staffed with two photographic reproduction specialists that work Monday through Friday with overlapping coverage from 6AM to 6PM. The specialists provide vital photographic, digital imaging and audio enhancement services and training to the Portland Police Bureau and other local, state and national law enforcement agencies. They process photographic film and photographic prints to be used as evidence, develop and apply techniques for digital image and other media enhancement and maintain security of source materials.

Past NIJ Grant Success

In 2008 the Forensic Evidence Division received a Paul Coverdell Forensic Science Improvement Grant. The Bureau accomplished three goals with the grant: staff training and certification; equipment/software upgrades and reduction of a backlog of unidentified latent fingerprints. Staff training included basic and advanced fingerprint identification techniques, court testimony training, International Association for Identification (IAI) Crime Scene Investigator certification training, and Forensic Photoshop classes. All of the Division's Criminalists were certified as IAI Crime Scene Investigators. Equipment and software purchased included advanced graphic computers with Adobe Photoshop CS4 used to enhance latent prints before entry into the Automated Fingerprint Identification System (AFIS). The Division was able to reduce its backlog of previously unidentified latent prints by nearly 18

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percent by enhancing and rerunning 428 of the 2,445 previously unidentified latent prints. Fifteen identifications were made from these cases, one of which was a homicide investigation. The Division continues to work on the backlog with the availability of grant-purchased computers. New latent prints searched will have the best possible chance of producing an identification.

Crime Statistics

For the calendar years 2006, 2007 and 2008, the State of Oregon reported an average of 10,299 Part 1 violent crimes per year. During those same years the City of Portland averaged 3,672 Part 1 violent crimes per year.² The exact number and types of crimes per year can be seen in the table in appendix A.

Current Operations

Portland's Forensic Evidence Division uses 35mm film for crime scene photographs, crime victim photos and to capture latent prints on surfaces where it is not possible to lift. The film is delivered to the FED's photo lab for development. Photographs of latent prints are digitally scanned and enhanced submission into the Automated Fingerprint Identification System (AFIS).

Due to the high volume of criminal mischief and other types of vandalism calls the Bureau receives, patrol officers have been issued digital cameras. Scenes that do not require a criminalist are photographed by the officer and the digital images are saved to a CD or DVD.

² *Crime in the United States; Uniform Crime Reporting Program 2005, 2006 & 2007*

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These are then sent to the Bureau's Property Room for storage. If prints are needed the officer will request the disc be sent to FED lab for processing.

Statement of Problem

Storage of the 35mm negatives and digital image discs takes up a large amount of physical space. Because the two different media types are stored in different locations it can be difficult to get copies out in a timely manner. If an officer does not correctly burn the data to disc the evidence is lost. Officers have, on several occasions, made copies for the Multnomah County District Attorney's office and then forgotten to make copies to be placed in evidence. This creates a chain of custody issue that can be challenged when the case goes to court.

Oregon law requires hard copies of photographs of children involved in sexual assault or child abuse cases must be made available to medical professionals for examination, care or treatment within 48-hours.³ This timeline can be difficult to meet when developing 35mm film and getting the prints to the required agencies.

There are timeliness issues with other types of photographic evidence processing. Homicide and other violent crimes may take days to get crime scene photos to investigators. Blood spatter analysis cannot be done until the 35mm photos have been rescanned into a digital format. Photographed latent prints cannot be entered into AFIS until they are rescanned and digitized as well.

Project

³ Oregon Revised Statutes, "Karly's Law" ORS 419B.023 through 419B.028

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Beginning in 2008 the Forensic Evidence Division began a needs assessment to determine if a migration to digital imaging was warranted. The Division's, as well as the Bureau's, current practices were evaluated to determine if there were a need to replace existing policy and technology. The cost of replacing film-based processing with digital imaging was evaluated. Other agencies that have already moved to digital imaging were surveyed.

It was determined there are two main reasons departments are moving away from 35mm and migrating to digital. First, there is a large ongoing cost involved with printing 35mm photographs. It became apparent that many agencies experienced savings through the ability to quickly and economically produce and distribute images in digital format. Many of their savings were in the form of greatly reduced image printing, which saved on chemicals and paper used in the photo development process. The second reason is ease of use. There is an inherent benefit to being able to review images while at the scene. There is a desire on the part of investigators at a homicide scene to examine the photographs taken and ensure they have everything they want before moving on to the next phase of crime scene processing. Another similar benefit is being able to show detectives, district attorney's (DA's), and other invested parties the interior and close up examinations of the crime scene without having to contaminate the scene with people looking at it first hand. With the aid of a laptop computer or TV monitor, a virtual walk-through can be provided without having additional personnel enter into the crime scene.

The Forensic Evidence Division would like to move to a fully digital format in its evidence photo processing. This move would allow for faster turn-around time in processing of photographic evidence. It will allow them to make images available to its stake holders

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(detectives, officers, DA's office) more quickly, as well as enabling distribution in different formats (photo prints, CD, digital images to computer, etc.). In order to do so the FED staff will need to obtain digital cameras plus a digital archive system.

In 2009, the Divisions' 35mm photo printer, which was over 15 years old and no longer supported by the manufacturer, became inoperable due to mechanical breakdown. In preparation for digital transition, the Division replaced the photo printer with a new Noritsu photo printer that also has the capability of accepting digital images and being a part of a digital workplace.

Equipment/System Requirements

The Division is authorized a staffing level of 17 criminalists. However, the Bureau has left two positions vacant due to a budget shortfall. These positions are not expected to be filled for at least a year. Of the 15 remaining criminalists, one position is staffed as an inside call taker. This person is responsible for processing evidence brought to the lab by police officers and does not go out to crime scenes. While researching the feasibility of transitioning to digital photography the Division purchased two Nikon D300 digital single lens reflex (DSLR or SLR) cameras for testing. These cameras can be used by the inside call taker and Photo Specialists. The Division would like to purchase 14 digital SLR cameras to supply each of the criminalists that process crime scene with a camera.

The Forensic Evidence Division determined a camera system similar to the Nikon D700 meets the specifications needed to capture forensic quality photographs of trace evidence and crime scenes. It is a digital single-lens reflex (DSLR or SLR) camera that is very similar to a 35mm film camera in its quality. This type of camera has the ability to capture photos using

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dynamic lighting. Dynamic lighting preserves details in highlights and shadows, creating photos with natural contrast. This is needed for high contrast scenes, for example when photographing brightly lit outdoor scenery through a door or window or taking pictures of shaded subjects on a sunny day. It must have a broad ISO sensitivity and super low noise performance, which will offer photo opportunities in very low light conditions. A full size image sensor is required to capture images in proper perspective. It should be designed with a rugged camera body along with extensive dust and moisture protection and a durable shutter mechanism. A good sized high resolution color monitor for confident image review is needed. And finally, it must capture in up to 12 megapixel size.

The ideal archive system allows for input of digital images from multiple locations. This will allow officers to upload photos without having to physically bring the evidence into the lab. Additionally, this system would allow for expansion to contain other types of digital media evidence (audio, video, Taser data, etc.). Preference is for a non-proprietary format so the data can be exported to other programs without requiring special vendor required interfaces.

File management will need to meet the Scientific Workgroup on Imaging Technology (SWGIT) and The American Society of Crime Lab Directors (ASCLD) standards for storage, viewing, enhancement and reproduction of images. Critical to these standards is a system that maintains and demonstrates the integrity of the original file. The original image must be stored in such a way that it can be validated as not having been changed. Additionally, the system must log all access made to the digital evidence (viewing, printing, etc.) and enhancements made to copies of the original. To facilitate image integrity, multi-level security to log and control access

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to files will be required. An audit trail, which tracks any viewing, downloading to other storage medium or enhancements of the image is needed.

In forensic analysis, i.e., latent prints or other scientific comparisons, the original image is duplicated to create a "working" image. The working image can then be enhanced with programs such as Photoshop. The more advanced functions of such programs require that a history (or audit trail) be maintained so another person can replicate the enhancements done to the photo if required in court. Having a system that has both authentication and an audit trail is a must.

A data management system must have multiple stations to input or view the images in the database. One of the advantages of digital over 35mm photography is the ability to allow controlled access to photographs from many different work sites such as Detectives, DA Offices and Precincts. A data management system that allows uploading and viewing from more locations than just the FED office will save countless personnel hours in the FED lab and the rest of the Bureau and allow for higher security standards.

Currently, once photographs are transmitted to investigators or the DA's office there is no way to track who has viewed them, determine if prints were made, or even if the photographs were uploaded to a website. Around the country other agencies have had issues with crime scene photos being released inappropriately. Lawsuits have been filed and won for mismanaged photographs.

Access to the secure images must be configurable to the needs of a case. In general, there may not be any reason to limit access to viewing photographs of a Criminal Mischief case. But,

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in an officer involved shooting, rape, or homicide, the access will need to be limited to only a handful of Bureau employees and a few DAs who are reviewing the case.

As a precautionary measure it is critical to have an off-site backup system. In the event of a systems failure (hardware or software) or disaster that destroys the server location, an off-site backup will allow for system integrity and security of the digital evidence. The Portland Police Bureau has a plan for data backup of their records management system and other critical systems. The digital evidence system will be added to this plan.

In researching the feasibility of migrating to digital imaging the Forensic Evidence Division was offered a unique opportunity. Intel Corporation has offered to donate a portion of the hardware needed to run the system (rack server systems) if Portland Police are willing to showcase the system for other agencies. Additionally, Linear Systems, a vendor of digital imaging systems, has offered to supplement a significant amount of the cost of their second generation Digital Information Management Solution (DIMS2). Both of these companies have a desire to show that their products will increase the efficiency, quality and timeliness, as well as the security of digital forensic evidence. Appendix B contains a letter of intent from Linear Systems committed to supplementing the grant by \$74,500. Appendix C contains a letter of intent from Intel committing direct financial support not to exceed \$10,000 plus an Intel server valued at \$10,000. The level of support supplied by both companies equals \$94,500 in non-federal funding.

System information:

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One Enhanced Digital Acquisition/Enhancement workstation tower is needed for FED's photo lab. The workstation will interface with the digital server system and directly to the Division's photo processor. It will have additional software to allow the download and storage of audio, video, AFIS export (for latent prints) and a print ordering module. It will include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data.

One enhanced Mobile Digital Download Station Kiosk is required for acquisition and download of vital investigative images for major crime scenes to allow for quick dissemination of photographic evidence to investigators of a major crime scene. The device is a 15" notebook computer to be stored in one of the Division's homicide vehicles. It will also include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data.

Eight enhanced Digital Download Station Kiosks will be distributed to bureau precincts and the FED crime lab. Police officers and criminalists may upload crime scene photos to the server system quickly and efficiently with these kiosks. The kiosks include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data. The Digital Information Management System Software is the base software loaded on the stations. It will manage the download of image data and control the processing and transmission to the archive server. It has 64-Bit image encryption and authentication.

Additional software modules for the Acquisition/Enhancement workstation and five other workstations at the precincts are for the download and storage of additional types of digital media (audio and video). The Acquisition/Enhancement workstation will also include modules

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with advanced audit tracking of Photoshop exports, an AFIS export ability, an uncompressed (RAW) image decoder for comparative analysis, CD/DVD/Blue-ray burning and the advanced print ordering module. The core browser software to view images over a secure intranet connection will be available on all Bureau computers (with authorization).

The Digital Information Management System Enterprise ImageServer consists of the hardware and software needed to run the server system and provide security, hashing and audit trails for all the evidence stored on the system. By using Active Directory the system can interface with Police Bureau systems for authentication and confirmation of secure user level access. The rack server consists of dual quad-core processors with a 2 TB database data cache. The multi-user case management database will control user access and run audit trails of what data is accessed. The Redundant Array of Independent Disks (RAID) secure-array has a 24 TB memory.

The Digital Information Management System Archive Storage is the backup system that will be added to the Portland Police Bureaus off site location for disaster recovery should the primary system be corrupted or destroyed in the event of a catastrophe. The archive has 24 TB of memory and a triple redundant power supply.

Forensic Services Improvements

Under current conditions it takes approximately 48-hours to process photographs brought to the division. This time frame does not include weekends, which extends the time by another 48-hours. If photographic evidence is being held at the Property Room it takes at least another 24 hours before it is delivered to FED for processing (72-hours not including weekends).

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It is estimated the timeliness in processing of photo requests may be cut in half or more by transitioning to digital. By adding an electronic system for ordering and receiving photographic requests, the timeliness and efficiency of the lab will be increased significantly. High priority requests may be processed in a matter of hours, rather than days. Output of critical photographic evidence may be accomplished electronically to multiple users within minutes of the evidence being uploaded to the database. Criminalists will be able to begin processing and AFIS searching digitally photographed trace evidence and latent prints almost as soon as they return to the lab.

The Division's quality of service will increase with the ability to review crime scene photos at the scene to ensure proper exposure, perspective, to determine if additional photos need to be taken or if photos of a specific item were captured. When the criminalist and detectives leave the scene, they will know they have every photograph needed from overall views to the minutest details.

The increase to the quality of service applies to blood spatter analysis as well. Digital photos may be uploaded to a laptop with appropriate software for on-scene analysis of impact spatter and area of origin. This real time data analysis will help determine if additional images need to be captured and to allow the criminalist to make sure all data is collected prior to further scene processing.

Training

The preferred camera to purchase would be a Nikon D700 series system. Nikon will provide free specialized training to customers who purchase in large volume. With the purchase

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of 14 cameras the Division will be eligible for onsite training from a Nikon representative as part of the bulk purchase. This will be sufficient to cover all 15 criminalist positions plus the photo specialists. The training will assist criminalist and photo specialist in learning the full potential and differences of the digital cameras as compared to the 35mm systems they have been using.

Training of Forensic Evidence Division staff on how to fully utilize the digital management system will be done in two multi day sessions provided by Linear Systems and are included in the purchase price of the equipment.

Training DVDs will be created by the Bureau to train street officers how to upload data from their digital cameras to the digital download stations at the precincts. Additional DVDs will be made to instruct Bureau members and other stakeholders on how to view and request copies of photographs. Additionally, roll call question and answers will be provided by FED staff.

Staffing and Overtime

Even though the training through Nikon and Linear Systems is included in the purchase of the equipment it will be necessary to provide Division coverage with other qualified staff during the training. This will be accomplished three ways:

1. Adjust work schedules to minimize the impact on the Bureau
2. Work at minimum staffing levels during the trainings
3. Provide overtime pay to backfill needed positions to maintain minimum staffing levels

The Division proposes to use Coverdell grant funds to pay for 150 hours of overtime to backfill criminalist positions while the criminalists participate in the training.

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Project Management

Program considerations

There are several differences between 35mm photography and digital single lens reflex (SLR) cameras that need to be considered when moving to digital photography. The 35mm film format has a greater dynamic range giving it a greater ability to capture very dark to very bright subject areas in the same photograph. An example would be a homicide subject under a shady tree with the surrounding area in bright sunlight. The 35mm camera would better capture that situation in a single photograph. The digital SLR cameras will require the criminalist to take multiple pictures and use different lighting techniques (fill flash for example). Some newer high end digital cameras, like the Nikon D700, have an active dynamic lighting feature that regulates the dynamic range when the contrast is too great.

The size of the film capture area is also different from 35mm to digital unless the digital camera is equipped with a full frame sensor. The regular digital acquire area is only one half of the size of a film negative. To compensate, the photographer must use a wider angled lens to achieve similar results. For example, with 35mm cameras the 50mm lens is used to show how a crime scene looks relative to the surroundings, giving a perspective similar to the human eye. The different size capture area means the photographer has to apply a multiplication factor to the standard lens power to simulate the lens size of a film camera, an approximate adjustment would be to use a 35mm lens on a digital camera ($35\text{mm} \times 1.5 \text{ factor} = 52.5\text{mm}$). The Forensic Evidence Division uses full frame sensor lenses on its F100 35mm film cameras. These lenses

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may be used on newly purchased digital cameras that are equipped with full frame sensors to allow for proper perspective and ease of use.

The transition to digital cameras will require initial and continuous training, as well as practice in the field. Until the criminalists are fully trained and have experience using digital cameras at crime scenes, the Division will need to use both formats for processing. This overlap period will increase the time it takes to process scenes but is critical to make sure the quality of forensic services do not diminish.

Standard Operation Procedures will be developed to ensure consistency, quality, integrity and repeatability of the process. It will be the responsibility of the FED Project Manager and Command Staff to maintain written documentation of system procedures and SOPs. Coordination with Information Technology (IT) is necessary to implement security and procedure policies, create access controls and ensure the system is optimally configured.

In transitioning to digital imaging there are on-going costs to consider for budgeting purposes. Primarily associated with these costs is a maintenance package for the digital archive system (hardware and software). Maintenance usually runs between 10 and 20 percent of the original system price. Another factor to consider is equipment replacement for digital cameras. Traditional 35mm cameras are sturdier and longer lasting; they need to be replaced about every 10 to 12 years. Digital cameras are not as durable and need replacement every four to six years.

Implementation Approach

The Forensic Evidence Division proposes within the first two months of the grant award date they will:

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1. Purchase all necessary cameras and camera equipment.
2. Schedule instructors and classes for digital camera training.
3. Purchase rack servers and other computer hardware and software.

By the end of the third month of funding the IT Division will install the needed hardware into the server room and the offsite backup location. The digital download workstations will be deployed to the precincts and other identified locations. IT will coordinate an Active Directory for user interface/security rules.

During the fourth month of the grant, Linear Systems will install the software to the system. Training on the DIMS2 system should be provided by the end of the month.

By the end of the sixth month training DVDs will be produced and distributed throughout the Bureau for roll call review. Additionally, criminalists and photo specialists will go to roll calls for question and answer sessions about the system.

By the end of the 12th month the transition to digital should be complete with criminalists being competent using digital cameras exclusively.

Performance Measures:

The Forensic Evidence Division, in order to assess the improvement to quality and timeliness of forensic services, will measure the following:

1. The reduction in time it takes to allow stakeholders to review photographic evidence from crime scenes. Download and processing time of digital data will be evaluated by the project manager. This data will be compared to the time it currently takes to review images.

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2. Reduction in time it takes to process photo requests. The print ordering module will indicate the date and time orders are made and when notifications of orders being ready are sent out. This data will be compiled by the photo specialists.
3. The number of Division personnel who complete the training classes on the new equipment funded by the Coverdell grant. The project manager will keep a list of all training received and who attended.
4. The number of Police Bureau personnel who complete training on the equipment funded by the Coverdell grant. The Bureau keeps a roster of all officers that view roll call video training. A copy of this roster will be forwarded to the project manager. A log of roll call question and answer sessions will be made to track that all Bureau personnel have an opportunity to ask questions and receive answers on the system.

The Division will generate a semi annual progress report of training accomplishments. The Office of Management and Finance will complete the online Quarterly Financial Status Reports on behalf of the Bureau. All training and installations will be fulfilled within 12 months of receipt of the grant. All performance measure data will be kept for three years and be available for review as required by the Coverdell Forensic Science Improvement Grant.

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Appendix 3. Template for “External Investigations” Attachment

(Instructions: Scan the completed document and submit image file electronically as part of your application package.)

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Attachment: External Investigations

The "Certification as to External Investigations" that is submitted on behalf of the applicant agency as part of this application certifies that—

A government entity exists and an appropriate process is in place to conduct independent external investigations into allegations of serious negligence or misconduct substantially affecting the integrity of the forensic results committed by employees or contractors of any forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility that will receive a portion of the grant amount.

Prior to receiving funds, the applicant agency (that is, the agency applying directing to the National Institute of Justice) must provide — for each forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility that will receive a portion of the grant amount — the name of the "government entity" (or entities) that forms the basis for the certification. Please use the template below to provide this information. (Applicants may adapt this template if necessary, but should ensure that the adapted document provides all required information.)

IMPORTANT NOTE: If necessary for accuracy, list more than one entity with respect to each intended recipient of a portion of the grant amount. For example, if no single entity has an appropriate process in place with respect to allegations of serious negligence as well as serious misconduct, it will be necessary to list more than one entity. Similarly, if no single entity has an appropriate process in place with respect to allegations concerning contractors as well as employees, it will be necessary to list more than one entity.

Additional guidance regarding the "Certification as to External Investigations" appears in the "Eligibility" section of the program announcement for the FY 2010 Coverdell program.

Name of Applicant Agency (including Name of State or Unit of Local Government):

City of Portland, Oregon
 Police Bureau

Date: _____

Name of any forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility that will receive a portion of the grant amount

Existing government entity (entities) with an appropriate process in place to conduct independent external investigations

1. PPB Forensic Evidence Division

PPB Internal Affairs Division

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FY 2010 External Investigations Attachment (continued)

2. City of Portland Independent Police
Review Division
3. Multnomah County District
Attorney's Office
4. State of Oregon, Department of
Justice

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Budget Detail

A. Personnel

Federal Funds:

<u>Position</u>	<u>Computation</u>	<u>Cost</u>
Criminalist – overtime (OT) rate	\$59.34 per hour x 150 hours	\$8,901.00
Subtotal Personnel:		\$8,901.00

B. Fringe Benefits:

Federal Funds:

Fringe benefits on overtime hours are limited to FICA, Workman's Compensation and Unemployment Compensation.

Criminalist	\$8.90 x 150 hours	\$1,335.00
The City of Portland is a reimbursing, or self-paying, employer.		
Subtotal Fringe Benefits:		\$1,335.00

C. Travel: Not applicable

D. Equipment:

Federal Funds:

<u>Equipment Item</u>	<u>Computation</u>	<u>Cost</u>
Digital SLR Cameras	\$2,800.00 x 14 each	\$39,200.00
Enhanced Digital Acquisition/Enhancement workstation	\$4,325.00 x 1 each	\$4,325.00
Enhanced Digital Download Station Kiosks	\$2950.40 x 8 each	\$23,603.20
Mobile Digital Download Station Kiosk	\$3,064.40 x 1 each	\$3,064.40
Digital Information Management System Software (photo module)	\$995.00 x 10 each	\$9,950.00

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 Budget Detail
 Application Attachment 2

Digital Information Management System Software (audio module)	\$995.00 x 6 each	\$5,970.00
Digital Information Management System Software (video module)	\$995.00 x 6 each	\$5,970.00
Digital Information Management System Software (Advanced Print Ordering Module)	\$4,500.00 x 1 each	\$4,500.00
Digital Information Management System Archive Storage Modular Server	\$22,788.00 x 1 each	\$22,788.00
Network controller	\$2,950.00 x 1 each	\$2,950.00
Subtotal Equipment		\$122,320.60

E. Supplies: Not applicable

F. Construction Not applicable

G. Consultants/Contracts:

Federal Funds:

<u>Contract Fees (Linear Systems):</u>	<u>Computation</u>	<u>Cost</u>
Installation, integration, calibration, testing & QC of hardware and software	\$10,050.00 x 1 each	\$10,050.00
System Training	\$1,200.00 x 1 each	\$1,200.00
Maintenance and Support Contract	\$11,638.00 x 1 each	\$11,638.00
Subtotal Consultants/Contracts		\$22,888.00

H. Other Costs: Not applicable

I. Indirect Costs: Not applicable

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City of Portland, Oregon Police Bureau
Budget Detail
Application Attachment 2

Non-Federal/Co-funding amount

D. Equipment:

Intel Corporation:

<u>Equipment Item</u>	<u>Computation</u>	<u>Cost</u>
Digital Information Management System Intel Rack server ImageServer	\$20,000 x 1 each	\$20,000.00
	Subtotal Intel:	\$20,000.00

Non-Federal/Co-funding amount:

Linear Systems:

<u>Equipment Item</u>	<u>Computation</u>	<u>Cost</u>
Digital Information Management System Intel Rack server ImageServer Hard drives and memory	\$24,900 x 1 each	\$24,900.00
DIMS Decoding ImagServer	\$30,100.00 x 1 each	\$30,100.00
24TB Digital Image Raid 6 Secure-Array	\$19,500.00 x 1 each	\$19,500.00
	Subtotal Linear Systems:	\$74,500.00
	Total Equipment Non-Federal	\$94,500.00

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
FY 2010 Paul Coverdell Forensic Science Improvement Grants Program
City of Portland, Oregon Police Bureau
Budget Detail
Application Attachment 2

Budget Summary

<u>Budget Category</u>	<u>Amount</u>
A. Personnel Costs:	\$8,901.00
B. Fringe Benefits:	\$1,335.00
C. Travel:	- 0-
D. Equipment:	\$122,321.00
E. Supplies:	- 0-
F. Construction:	- 0-
G. Consultants/Contracts:	\$22,888.00
H. Other Costs:	- 0-
I. Indirect Costs:	- 0-
Federal Request:	\$155,445.00
Non-Federal Amount:	\$94,500.00
Total Project Costs:	\$249,945.00

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
FY 2010 Paul Coverdell Forensic Science Improvement Grants Program
City of Portland, Oregon Police Bureau
Budget Narrative
Application Attachment 2

Budget Narrative

Section A: Personnel (\$8,901.00) This expense will allow the Portland Police Bureau to pay overtime for criminalists to attend training outside their regularly scheduled shifts and to backfill positions in the lab for staff attending weekday training.

Criminalist overtime will be used to maintain the quality of service provided to the Bureau for crime scene calls and prevent a backlog of casework. The overtime hours will also be supplemented with adjusted shifts and staffing at minimal levels needed to adequately support crime scene calls.

Section B: Fringe Benefits (\$1,335.00) This expense reflects the employees' benefits reimbursable by the grant. Fringe benefits on overtime hours are limited to FICA, Workman's Compensation and Unemployment Compensation. As the City of Portland is a reimbursing, or self-paying, employer, only FICA (Social Security and Medicare) is eligible for overtime reimbursement.

Section C: Travel (\$ -0-) There are no travel costs associated with this grant request.

Section D: Equipment (\$122,320.60) This expense relates to computer hardware and software and digital photography equipment requested by the Forensic Evidence Division to upgrade the division's technological capacity and functionality.

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
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City of Portland, Oregon Police Bureau
Budget Narrative
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The primary pieces of equipment needed are 14 digital SLR cameras for the Forensic Evidence Division's Criminalists. Specification for the cameras include the ability to capture photos with dynamic lighting, a broad ISO sensitivity, super low noise performance, a rugged camera body with extensive dust and moisture protection, a durable shutter mechanism, and it must capture in up to 12 megapixels. These cameras will be used to photograph crime scenes and various types of evidence.

To increase the quality and timeliness of the Divisions photo evidence processing one Enhanced Digital Acquisition/Enhancement workstation tower is needed for the photo lab of the Forensic Evidence Division. This workstation will interface with the digital server system and directly to the Division's photo processor. It will have additional software to allow the download and storage of audio, video, AFIS export (for latent prints) and a print ordering module. It will include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data.

Eight enhanced Digital Download Station Kiosks will be distributed to the various police precincts and the Forensic Evidence Division so that officers and criminalists can upload crime scene photos to the server system quickly and efficiently. They will include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data.

One enhanced Mobile Digital Download Station Kiosks is required for acquisition and download of vital investigative images for major crime scenes to allow for quick dissemination of photographic evidence to investigators of a major crime scene. The

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
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Budget Narrative
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device is a 15" notebook computer that will be stored in one of the Division's homicide vehicles. It will also include a 500 GB external memory drive in addition to the internal memory for dual backup of downloaded data.

The Digital Information Management System Software is the base software loaded on the eight download kiosks, the mobile download station and the acquisition/enhancement station. It will manage the download of image data and control the processing and transmission to the archive server. It has 64-Bit image encryption and authentication. The software also contains the core browser software to view images, and a RAW image decoder for comparative analysis.

Additional Software modules for the Acquisition/Enhancement workstation and five other workstations at the precincts are for the download and storage of additional types of digital media (audio and video). The Acquisition/Enhancement workstation will also include modules with advanced audit tracking of Photoshop exports, an AFIS export ability, CD/DVD/Blue-ray burning, and the advanced print ordering module.

The Digital Information Management System Archive Storage is the backup system that will be added to the Portland Police Bureau's off site location for disaster recovery should the primary system be corrupted or destroyed in the event of a catastrophe. The archive has 24TB of memory and a triple redundant power supply.

The network controller regulates the flow of data. It controls the download from the kiosks, the upload to the archive system and the access to files on the server system.

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City of Portland, Oregon Police Bureau
Budget Narrative
Application Attachment 2

Section E: Supplies (\$ -0-) There are no supply costs associated with this grant request.

Section F: Construction (\$ -0-) There are no construction costs associated with this grant request.

Section G: Consultants/Contracts (\$ 22,888.00) This expense relates to the installation, training and support of the system.

Linear Systems will install and integrate the DIMS2 system within the Portland Police Bureaus IT infrastructure. The install is estimated to take two days.

Training on the system for administrators, primary users (criminalists and photo specialists) and advanced training for the photo specialists is expected to take two days.

The software for the archive system comes with a five year free maintenance and upgrade agreement. The server system and RAID array require a maintenance contract which the Portland Police Bureau will need to budget for in future years.

Section H: Other Costs (\$ -0-) There are no other costs associated with this grant request.

Section I: Indirect Costs (\$ - 0-)

There are no indirect costs associated with this grant request.

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
FY 2010 Paul Coverdell Forensic Science Improvement Grants Program
City of Portland, Oregon Police Bureau
Budget Narrative
Application Attachment 2

Non-Federal/Cofunding Amount: Equipment (\$94,500.00) Intel Corporation is providing the Digital Information Management System Intel Rack server ImageServer. It is the hardware and that will house the software that runs server system. The rack server consists of dual quad-core processors with a 2TB database data cache.

The Digital Information Management System Intel Rack server hard drives and memory are the pieces that hold the multi-user case management database and the DIMS Decoding ImageServer software. They will control user access, run audit trails of what data is accessed and authenticate the encryption of data.

The RAID secure-array has 24TB of memory. It will create a high level of storage reliability and increase input/output performance. This array distributes data across multiple disk drives, but the array is seen by the operating system as one single disk. It is designed to rebuild the operating system should a single drive fail.

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
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City of Portland, Oregon Police Bureau
Performance Measures
Application Attachment 3

Performance Measures:

The Forensic Evidence Division, in order to assess the improvement to quality and timeliness of forensic services, will measure the following:

1. The reduction in time it takes to allow stakeholders to review photographic evidence from crime scenes. Download and processing time of digital data will be evaluated by the project manager. This data will be compared to the time it currently takes to review images.
2. Reduction in time it takes to process photo requests. The print ordering module will indicate the date and time orders are made and when notifications of orders being ready are sent out. This data will be compiled by the photo specialists.
3. The number of Division personnel who complete the training classes on the new equipment funded by the Coverdell grant. The project manager will keep a list of all training received and who attended.
4. The number of Police Bureau personnel who complete training on the equipment funded by the Coverdell grant. The Bureau keeps a roster of all officers that view roll call video training. A copy of this roster will be forwarded to the project manager. A log of roll call question and answer sessions will be made to track that all Bureau personnel have an opportunity to ask questions and receive answers on the system.

The Division will generate a semi-annual progress report of training accomplishments. The Office of Management and Finance will complete the

U.S. Department of Justice, Office of Justice Programs, National Institute of Justice
FY 2010 Paul Coverdell Forensic Science Improvement Grants Program
City of Portland, Oregon Police Bureau
Performance Measures
Application Attachment 3

online Quarterly Financial Status Reports on behalf of the Bureau. All training and installations will be fulfilled within 12 months of receipt of the grant. All performance measure data will be kept for three years and be available for review as required by the Coverdell Forensic Science Improvement Grant.

APPENDIX A**Part 1 Violent Crimes in the State of Oregon and City of Portland by Year¹****Part 1 Violent Crimes in Oregon by Year****2006**

Oregon estimated population 3,700,758

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
86	1,195	2,689	6,403	10,373

2007

Oregon estimated population 3,747,455

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
73	1,255	2,862	6,587	10,777

2008

Oregon estimated population 3,790,060

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
82	1,156	2,641	5,868	9,747

Part 1 Violent Crimes in Portland by Year**2006**

Portland estimated population 542,174

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
20	293	1,297	2,262	3,872

2007

Portland estimated population 538,133

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
22	280	1,289	2,110	3,701

2008

Portland estimated population 553,023

Murder	Forcible Rape	Robbery	Aggravated Assault	Total Part 1 Violent Crimes
26	250	1,132	2,037	3,445

¹ Crime in the United States; Uniform Crime Reporting Program 2006, 2007 & 2008



LINEAR SYSTEMS

Image of the Future

Portland Police Bureau
Attn: Captain George W. Babnick
1111 Southwest Second Ave.
Portland, OR 97204-3232

April 29, 2010

Dear Captain George W. Babnick,

Linear Systems is pleased to express our intention to provide assistance to the Portland Police Bureau in procuring the Linear Systems, Digital Information Management Solution (DIMS). Linear Systems is an organization focused on enhancing digital workflow efficiencies and reducing financial liability in local, state, and federal law enforcement agencies. Our goal is to support the Portland Police Bureau in your transition to a digital workflow. To show our support, Linear Systems is committed to supplementing Portland Police Bureau's Coverdell Grant award by \$74,500.

Linear Systems looks forward to partnering with Portland Police Bureau in its efforts to create a more streamlined and efficient workflow.

Sincerely,

Chris Parsons
Chief Executive Officer

909-899-4345 • 909-899-4346 FAX

P. O. Box 3093 • Rancho Cucamonga, CA 91729
www.linear-systems.com



May 6, 2010

Portland Police Bureau
1111 S.W. 2nd Avenue
Portland, OR 97204

Captain George W. Babnick

Intel Corporation is a leading supplier for the information technology industry and a long term technology advisor to the city of Portland given our local facilities and employee base in neighboring Washington County. As such Intel would like to support the Portland police department's digital evidence storage and evidence tracking project. In general, Intel intends to provide guidance given their insights into the current state and future of IT technology and knowledge of IT best practices. In the specific, Intel intends to provide the following -

- Server products with estimated value of \$10,000
- Direct financial support not to exceed \$10,000
- Engineering support to help deploy Linear Technology's solution on Intel's modular server product.
- Results documentation

Sincerely

A handwritten signature in dark ink, appearing to read "Paul Butcher", written over a horizontal line.

Paul Butcher
Program Manager - U.S. Stimulus
Intel Americas, Inc
(C) 503-816-5073
(D) 503-712-8517

U.S. DEPARTMENT OF JUSTICE
OFFICE OF JUSTICE PROGRAMS
NATIONAL INSTITUTE OF JUSTICE

FY 2010 Coverdell Forensic Science Improvement
Grants Program

Certification as to Plan for Forensic Science Laboratories—
Application from a **Unit of Local Government**

On behalf of the applicant agency named below, I certify the following to the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice:

This unit of local government has developed a plan for forensic science laboratories under a program intended to improve the quality and timeliness of forensic science or medical examiner services provided by the laboratories operated by the applicant unit of local government and any other government-operated laboratories within the State that will receive a portion of the grant amount.

I acknowledge that a false statement in this certification or in the grant application that it supports may be subject to criminal prosecution, including under 18 U.S.C. § 1001 and 42 U.S.C. § 3795a. I also acknowledge that Office of Justice Programs grants, including certifications provided in connection with such grants, are subject to review by the Office of Justice Programs and/or by the Department of Justice's Office of the Inspector General.

I have authority to make this certification on behalf of the applicant agency (that is, the agency applying directly to the National Institute of Justice).



Signature of Certifying Official

Sam Adams

Printed Name of Certifying Official

Mayor

Title of Certifying Official

City of Portland, Oregon

Name of Applicant Agency
(Including Name of Unit of Local Government)

5.7.10

Date

U.S. DEPARTMENT OF JUSTICE
OFFICE OF JUSTICE PROGRAMS
NATIONAL INSTITUTE OF JUSTICE

**FY 2010 Coverdell Forensic Science Improvement
Grants Program**

Certification as to Generally Accepted Laboratory
Practices and Procedures

On behalf of the applicant agency named below, I certify the following to the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice:

Any forensic science laboratory system, medical examiner's office, or coroner's office in the State, including any laboratory operated by a unit of local government within the State, that will receive any portion of the grant amount uses generally accepted laboratory practices and procedures, established by accrediting organizations or appropriate certifying bodies.

I acknowledge that a false statement in this certification or in the grant application that it supports may be subject to criminal prosecution, including under 18 U.S.C. § 1001 and 42 U.S.C. § 3795a. I also acknowledge that Office of Justice Programs grants, including certifications provided in connection with such grants, are subject to review by the Office of Justice Programs and/or by the Department of Justice's Office of the Inspector General.

I have authority to make this certification on behalf of the applicant agency (that is, the agency applying directly to the National Institute of Justice).



Signature of Certifying Official

Sam Adams

Printed Name of Certifying Official

Mayor

Title of Certifying Official

City of Portland, Oregon

Name of Applicant Agency
(Including Name of State or Unit of Local Government)

5.7.10

Date

U.S. DEPARTMENT OF JUSTICE
OFFICE OF JUSTICE PROGRAMS
NATIONAL INSTITUTE OF JUSTICE

**FY 2010 Coverdell Forensic Science Improvement
Grants Program**

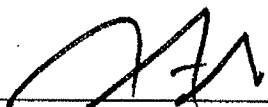
Certification as to Use of Funds for New Facilities

On behalf of the applicant agency named below, I certify the following to the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice:

The amount of the grant (if any) used for the costs of any new facility or facilities to be constructed as part of a program to improve the quality and timeliness of forensic science and medical examiner services will not exceed the limitations set forth at 42 U.S.C. § 3797m(c) and summarized in the FY 2010 Coverdell Forensic Science Improvement Grants Program Announcement.

I acknowledge that a false statement in this certification or in the grant application that it supports may be subject to criminal prosecution, including under 18 U.S.C. § 1001 and 42 U.S.C. § 3795a. I also acknowledge that Office of Justice Programs grants, including certifications provided in connection with such grants, are subject to review by the Office of Justice Programs and/or by the Department of Justice's Office of the Inspector General.

I have authority to make this certification on behalf of the applicant agency (that is, the agency applying directly to the National Institute of Justice).



Signature of Certifying Official

Sam Adams

Printed Name of Certifying Official

Mayor

Title of Certifying Official

City of Portland, Oregon

Name of Applicant Agency
(Including Name of State or Unit of Local Government)

5.7.10
Date

U.S. DEPARTMENT OF JUSTICE
OFFICE OF JUSTICE PROGRAMS
NATIONAL INSTITUTE OF JUSTICE

FY 2010 Coverdell Forensic Science Improvement
Grants Program

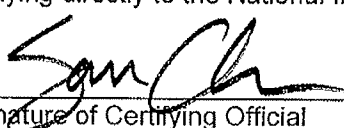
Certification as to External Investigations

On behalf of the applicant agency named below, I certify the following to the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice:

A government entity exists and an appropriate process is in place to conduct independent external investigations into allegations of serious negligence or misconduct substantially affecting the integrity of the forensic results committed by employees or contractors of any forensic laboratory system, medical examiner's office, coroner's office, law enforcement storage facility, or medical facility in the State that will receive a portion of the grant amount.

I personally read and reviewed the section entitled "Eligibility" in the Fiscal Year 2010 program announcement for the Coverdell Forensic Science Improvement Grants Program. I acknowledge that a false statement in this certification or in the grant application that it supports may be subject to criminal prosecution, including under 18 U.S.C. § 1001 and 42 U.S.C. § 3795a. I also acknowledge that Office of Justice Programs grants, including certifications provided in connection with such grants, are subject to review by the Office of Justice Programs and/or by the Department of Justice's Office of the Inspector General.

I have authority to make this certification on behalf of the applicant agency (that is, the agency applying directly to the National Institute of Justice).


Signature of Certifying Official

Sam Adams

Printed Name of Certifying Official

Mayor

Title of Certifying Official

City of Portland, Oregon

Name of Applicant Agency
(Including Name of State or Unit of Local Government)

5.10.10
Date