Agency: Commerce, Community and Economic Development

Grants to Municipalities (AS 37.05.315)

Grant Recipient: Anchorage **Federal Tax ID:** 920059987

Project Title: **Project Type:** Equipment and Materials

Anchorage - Digital Police Video Systems

State Funding Requested: $1,392,000 **House District:** Anchorage Areawide (16-32)
Future Funding May Be Requested

Brief Project Description:

In-car digital video in all marked patrol units and specialty response vehicles. The in-car video system will allow for the evidentiary video recording of traffic and other responded incidents. The License Plate Recognition System, that integrates to the video system, will actively search passing license plates for stolen or reason to locate vehicles.

Funding Plan:

Total Project Cost:	$4,000,000
Funding Already Secured:	($0)
FY2012 State Funding Request:	($1,392,000)
Project Deficit:	$2,608,000
Funding Details:	
FY2012 $1,392,000	

Detailed Project Description and Justification:

In-car Digital Video and License Plate Recognition System for patrol vehicles

With all the technological advances of today, few have impacted law enforcement as significantly as the use of in-car cameras. The single greatest value of the in-car camera is the positive impact that it has on officer safety. The Supreme Court has referred to cameras as “the Silent Witness.”

In-car camera systems are a vital tool for gathering intelligence and documenting events. With recent advances in wireless video technology, images and video files are transmitted electronically to a central location where they can be compared with state records, suspect files, or terrorist watch lists.

Automated license plate recognition systems, or License Plate Readers (LPR) systems as they are commonly known, play an increasingly important role in public safety by enhancing productivity, effectiveness, and officer safety. LPR systems are able to recognize, read, and compare motor vehicle license plates against various "hot lists" much more efficiently than officers manually scanning and making comparisons while on patrol.

LPR systems can observe and record thousands of plates an hour in various lighting and weather conditions. LPR systems consist of high-speed cameras and sophisticated computer algorithms capable of converting the images of license plates into computer-readable data. The technology automatically compares license plates against key databases (e.g., stolen and

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wanted vehicles), and records the date, time, and location at which the image was captured. The technology has proven particularly effective for law enforcement in a variety of operational settings.

The in-car camera coupled with the License Plate Reader has become another valued tool in an officer's arsenal that confirms and assures the high degree of professionalism they demonstrate daily in the performance of their duties.

The Anchorage Police Department (APD) is looking at providing in-car digital video cameras with License Plate Reader integration for all Patrol, Traffic and Warrant Officers. APD has a vehicle fleet of approximately of 343 patrol vehicles capable of these systems.

The project includes:

• Purchase and Installation of in-car digital video cameras with LPR integration
• Purchase and Installation of wireless network and work station/server in patrol vehicles
• Training on the in-car video cameras and LPR systems
• Installation/verification of wireless "Hot Spots"
• Testing of units in patrol vehicles
• Testing of wireless network for automatic upload of video files to a secure network and storage system
• Installation/Implementation of a Digital Storage System capable of holding videos according to APD's retention policy.
• Implementation of a secure wireless network for automatic upload of video:
o Automatic upload begins when the car is within range of the hotspot. It continues until all files are transferred or the car drives out of range.

System Description

The in-car digital video system with integrated LPR consists of a digital video recorder, windshield mounted miniature color cameras with zoom capability, a rear facing camera, color LCD monitor with audio, a bi-directional digital spread spectrum wireless microphone system, and a microphone mounted within the law enforcement vehicle capable of providing a clear audio and video record of traffic stops, pursuits, sobriety tests, server to house the database and video files and wireless network for upload to station.

DVR: The digital video recorder (DVR) shall use digital media that can withstand up to 50 Gs while recording for maximum reliability. All operator controls shall be mounted on the front panel. The DVR shall allow the simultaneous recording of two video sources and three audio sources plus multiple sources of metadata. The DVR shall include a programmable pre-event recording in MPEG-4 mode allowing it to capture images up to 90 seconds prior to the activation of the RECORD mode.

Cameras: The windshield mounted miniature color cameras shall utilize a full color CCD for maximum night-time performance. It shall be fitted with an automatic zoom lens. The camera shall be extremely compact so as not to obstruct driver's view through windshield.

Monitor: A compact color LCD monitor console shall be provided with a minimum screen size of 3.5 inches. The monitor console shall include a built-in speaker and shall have backlit operational controls which mimic those on the DVR so it can be secured in remote locations.

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Microphone: The officer worn wireless microphone must be capable of being automatically activated whenever the DVR is triggered into the RECORD mode, and deactivated whenever the DVR is put into the STOP mode. The automatic wireless microphone system shall use a rechargeable battery and shall be capable of being recharged within the vehicle or with a separate charger located at the post or precinct.

Network: Digital video files shall be transferred from the DVR by any of the following methods:
a. Removal of the digital media
b. Through the DVR's Ethernet connection
c. Automatically via the DVR's internal 802.11 (a, b/g) wireless LAN card.

Server: The Digital Video Server must be able to automatically and wirelessly send software updates to vehicles/DVRs without human intervention.

Digital Evidence Management

The Digital Evidence Management solution: shall consist of a video transfer system, a management, storage and distribution server and a backup and output system. It shall be capable of automatically or manually uploading video from the in-car systems and managing access and distribution through a stand alone workstation.

Chain of Custody: The Digital Evidence Management solution shall be capable of automatically organizing and managing files based on evidence state and category and managing their lifecycle accordingly. The Digital Evidence Management solution shall maintain video evidence integrity and security in all operations. Video evidence is secure and is stored redundantly using a dual media architecture with at least one media being a write once media such as DVD. Original video files are immutable (they are never changed) and are maintained securely. The system shall track video throughout its lifetime. All activity is logged (viewing, outputting, commenting, etc.) and the system can output a simple Chain of Custody report documenting the files history.

Uploading: The Digital Evidence Management solution shall support the automatic uploading of video and metadata utilizing wireless 802.11 (a/g/n) and uses an intelligent, load balanced data transfer system. The wireless transfer of the data shall be automatic and not require manual intervention. It commences as the car enters a designated access zone (hot spot) and automatically transfers, confirms receipt of, and clears the DVR's memory appropriately.

System Video Storage Management: The Digital Evidence Management solution architecture shall utilize RAID 5, on-line storage (for instant access) and "write once" DVD media for redundancy, security, long-term archiving and disaster recovery.

Tape Backup system: The Tape Backup system capable of backing up 60 TB in a single backup process for off site storage and retrieval of files.

All activity must be tracked and logged. A Chain of Custody document (not a computer log file) containing the agency logo and an easy-to-follow categorized history of activity shall be automatically generated. This document is outputted as an unalterable, encrypted PDF file.

The Digital Evidence Management solution shall be available with an optional automated archiving/DVD backup system. Disk writing and labeling occurs without manual intervention. The system requires only the periodic loading a stack of DVDs

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into a robot.

The solution shall support a definable review period (e.g. 1 year) wherein all video is maintained on-line and available for potential evidence review. Video is easily output to DVD for longer term retention.

All video files shall be searchable and traceable even if not designated as evidence and/or has rolled from the RAID system. The metadata shall remain on the server after the video has rolled off. Thus providing an easily searchable database of the archived files facilitating their restoration and utilization.

All archived video shall be capable of being reloaded back into the system through a simple automated process. The system automatically identifies the appropriate archived DVD and notifies the administrator for video restoration.

User Interactions & Capabilities: All user interactions shall utilize a simple web-based interface at the stand alone, Windows based PC. The application requires no special skills other than basic web-like navigation. The solution provides simple key data based search capabilities for easy location of video files. Data includes: officer's name, car Identifier, date/time, and incident classification.

Project Budget:

Qty	Item	Price	Total
343	in-car digital video cameras with LPR integration	6,500.00	2,229,500.00
343	additional installation components	800.00	274,400.00
1	Digital Storage System (Software) chain of custody	120,000.00	120,000.00
2	Video Evidence Server's	12,000.00	24,000.00
1	Video Evidence Server Storage (60 TB SAN) Real-time	225,000.00	225,000.00
1	Video Evidence Server Storage (60 TB SAN) Near Real-time	100,000.00	100,000.00
1	Tape Backup system w/ software	25,000.00	25,000.00
1	Network infrastructure (wireless)	65,000.00	65,000.00
			3,062,900.00

Project Timeline:

Project will be submitted for RFP process in Fall of 2011 and implemented in 2012.

Entity Responsible for the Ongoing Operation and Maintenance of this Project:

Anchorage Police Department

Grant Recipient Contact Information:

Name:	Steve Miko
Title:	Resource Manager
Address:	4501 Elmore Road Anchorage, Alaska 99507
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Has this project been through a public review process at the local level and is it a community priority? [X] Yes [ ] No

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In-Car Audio/Video Systems & Data Storage

In January of 2010, Anchorage Police Department Senior Patrol Officer Jason Allen was shot multiple times while conducting follow-up on a domestic violence call in the Fairview neighborhood. This case, which has all the outward appearances of an ambush, is eerily similar to a 2009 case in Seattle, where a patrol officer was killed and another officer was wounded. That case, now solved, relied heavily on the in-car video's from the involved and responding officers cars. Officer Allen's case remains unsolved.

Only members of the Anchorage Police Department's Traffic Unit have patrol vehicles equipped with in-car video/audio systems. The camera systems' compliment the traffic officer's courtroom testimony and can also be used by supervisors for post incident review and inquires into professional standards. Officers equipped with camera systems have a "2nd set of eyes" with them in the car – allowing this technology to serve a force multiplier in an agency already challenged by staffing needs. Currently, with less than 5% of the Anchorage Police Department's vehicles equipped with in-car video, there is an opportunity to realize substantial operational gains.

One commander with the Alaska State Troopers (AST) estimated that AST had 50% of their patrol vehicles equipped with in-car video. I recently rode with the Juneau Police Department and found their vehicles equipped with video systems as well. This is consistent with what I have observed during my observation rides with other department in the Lower-48. The Anchorage Police Department has clearly fallen behind industry norms in deploying in-car video systems.

I have attached a complete proposal and specifications for 343 in-car digital video systems with license plate recognition integration and supporting technology infrastructure. The total cost would be $3,062,900, with $2,229,500 being the actual units and the remaining $547,000 being the required technology infrastructure.

An alternative to purchasing and fielding with an "en-mass" fleet wide deployment would be to purchase the required technology infrastructure and purchase enough units to equip cars with an estimated "minimum service life" of five years remaining (approximately 130 cars) and then also equip those new vehicles that come into service each year(approximately 50 per year). The first year costs for this option would $845,000 for the video units plus the $547,000 for the technology infrastructure ($1,392,000 total) with an estimated $325,000 for the following four years. Some video units could be recovered from damaged or otherwise surplus'd vehicles and put into newer cars.

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