

# JUVENILE JUSTICE CENTER

## DETENTION ELECTRONICS UPGRADE

### PRELIMINARY PROJECT PROPOSAL



**Date:** August 26, 2010

#### Introduction

On June 10, 2010, the Board of County Commissioners adopted the Fiscal Year 2011 Multnomah County Budget, including the following budget note:

The monitoring of and access to all internal areas (custody units, sleeping rooms, holding cells, hallways) and external areas (police gates, public entrance, sally ports) is currently operated by manual input-output switch systems located in Main Control, Intake, Visiting Control and in each custody unit. Any time one of these system areas breaks down, extreme security and safety hazards are created. Community Justice, working with Facilities and Property Management and Electronic Services proposes to replace the existing control systems with modern, detention-grade control systems that allow for the County's Electronic Services group to provide cost effective servicing.

The Board directs Community Justice and County Management to return to the Board on or before August 31, 2010 and report on the following:

- Total estimated cost for a new or updated system
- Timeline and implementation schedule
- Financing/funding options

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## Facility Overview

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The Juvenile Justice Center, which includes a three county regional detention center, was constructed in 1995. The JJC includes Juvenile Courts, District Attorney Offices, Juvenile Probation and Treatment offices, Juvenile Detention, and offices of the State Oregon Youth Authority. Multnomah, Washington and Clackamas Counties partnered on the construction and operation of the Detention Center for youth from the tri-county area.

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## Project Description

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Upgrade the detention electronics system at the Juvenile Justice Center with a modern, detention-grade control system consisting of a network of Programmable Logic Controllers (PLC's). The project includes replacement of malfunctioning mechanical door equipment and additional security equipment.

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## Sponsors and Stakeholders

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Sponsor:	Multnomah County Board Department of County Management
Stakeholders:	Multnomah County Board Department of Community Justice Department of County Management
Depts. Affected:	Department of Community Justice Department of County Management District Attorney State Courts State Oregon Youth Authority

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## Existing Conditions

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The monitoring of and access to all internal areas (Custody Units, sleeping rooms, holding cells, hallways) and external areas (police gates, public entrance, sally ports) is currently operated by manual Input/Output switch systems located in main Control, Intake and Admissions, Visitation Control and in each Custody Pod (Units A1-F2). System malfunctions create potential security hazards such as being unable to open holding cells or sleeping room doors, staff being locked in sally ports, hallway access denied, etc. These situations seriously compromise the ability to back up or reach jeopardized staff or youth.

The existing detention portion of the facility was built in two phases, with each phase employing a different level of technology in its installation and operation. The first phase used proprietary circuit

boards. The parts are becoming difficult to obtain, the technology is obsolete, and the equipment has exceeded its lifespan. The second phase utilized discrete components, typically described as relay logic, and, while not proprietary, has also reached the end of its useful lifespan. Additionally, the control boards in the various control rooms use switches and indicator lamps that have become difficult to maintain due to lack of available parts.

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## Objectives

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- A. Mitigate Life/Safety Risk to staff, youth and visitors
- B. Improve overall security of facility
- C. Make control aspects more efficient for Custody Operations
- D. Provide system adaptability to respond to future Custody Operation needs
- E. Reduce the high cost of system maintenance
- F. Align system functionality with current technologies
- G. Provide capabilities for reporting

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## Deliverables

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- A. Preliminary Project Plan
- B. Preliminary Implementation Schedule
- C. Preliminary Cost Estimate

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## Project Scope

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The project scope is to upgrade all detention electronic systems in the facility. This includes the system components, user interfaces and control desk configurations. There are approximately 18 control desks in the facility that will receive this new equipment. Additionally, the scope includes enhancements to the building security system. This project will not include installations of new field hardware (i.e., door locking mechanism, wall mounted intercom speakers); these systems are in good working condition.

*See Appendix A for additional detail on project scope*

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## Implementation Schedule

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The project will take approximately 15 Months to complete (this includes allotments for procurement process). The design and installation work will take approximately 10 months of the 15 month schedule.

*See Appendix B for the implementation schedule*

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## **Preliminary Cost Estimate**

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Project estimate is \$1,400,000.

This estimate was developed in conjunction with Engineered Controls Systems per the defined scope of work.

*See Appendix C for additional detail on the preliminary cost estimate*

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## **Benefits**

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The key benefits are:

- A. Increased reliability and versatility of the access/monitoring systems
- B. Ability of system to respond and adapt to needs of the Custody Operation needs
- C. Integration of multiple access/monitoring systems for ease of control
- D. Decrease in time spent on system maintenance

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## **Constraints**

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The key constraints are:

- A. Must maintain continuous uninterrupted Custody operations throughout the entire project

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## **Assumptions**

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The key assumptions are:

- A. All field equipment (door hardware, locks, gate operators, elevator systems, etc.) are in good operating condition and are not considered part of the project unless indicated in Project Scope.
- B. All wiring is in good condition and will not be replaced unless indicated in Project Scope
- C. This is a preliminary project plan; additional project scope detail will be completed upon authorization of the work.

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## **Exclusions**

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The key exclusions are:

- A. All control stations will remain in their current locations
- B. No alterations to the building structure or systems except for those defined in the project scope

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## Funding Strategies

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Current Funding strategy:

- A. Programmed in FY14 of Capital Improvement Program Budget

The key funding strategies are:

1. Re-Appropriation of Capital Improvement Funds
2. General Fund Contingency or One-Time Only Funding
3. Borrow Funding

## Location of Project Site



<b>Building Address</b>	<b>Juvenile Justice Center 1401 NE 68<sup>th</sup> Avenue Portland, OR 97213</b>
<b>Building Code:</b>	<b>311</b>
<b>Classification:</b>	<b>Tier 1 – Preserve Building Integrity</b>
<b>Year(s) Built:</b>	<b>1995</b>

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## Appendix A – Scope of Work

- A. Install new PLC's (Programmable Logic Controllers), power supplies, and relays in each of the low voltage rooms/closets to replace the existing electronic control system. The system shall be the Modicon line, as manufactured by Group Schneider/Square D, to match the existing systems located at the Justice Center and to comply with the County standard.
- B. Install new touchscreen workstations at all control station locations. The touchscreens shall employ SAW (Surface Acoustic Wave) technology, as manufactured by ELO, and the supporting PC's shall use Citect Vijeo software, communicating with the PLC's via a closed, dedicated Ethernet network. The touchscreen workstations will allow the operators to access all intercom, door control, CCTV, perimeter detection, and lighting control systems.
  - a. Two stations in Main Control
  - b. Intake and Admissions
  - c. Visiting
  - d. Custody Pod Housing Units A1-F2 (12 Total)
  - e. Court Holding/Visitation Area
  - f. Courtroom Security Control
  - g. Front Desk Security
- C. Install new UPS's (Uninterruptible Power Supplies) to run the new security electronics. The purpose is two-fold: 1. To keep the electronics operational until the emergency generators transfer the load, and 2. Filter out any power surges and spikes, to protect and to prolong the life of the equipment. A UPS will be provided for each electronics room/closet.
- D. Install a new CCTV matrix switcher to control the video system.
  - a. The switcher will be controlled by the PLC control system, such that camera views will be automatically or manually brought up by the touchscreen workstation.
  - b. Switcher will have expansion capability to handle the cameras added herein, plus future additions.
- E. Install new high-resolution detention-grade color cameras to cover the following areas:
  - a. Visiting Rooms – 4 cameras
  - b. Custody Pod Units – (B2, E2, F2) – 3 cameras
  - c. Multipurpose Room, Computer Lab, Craft Room – 6 cameras
- F. New casework for all control rooms to accommodate new touchscreens and flat CCTV monitors.
  - a. Design to accommodate ergonomic consideration for multiple users
  - b. Locations:
    - 1. Main Control
    - 2. Intake and Admissions
    - 3. Visiting
    - 4. Custody Pod Housing Units A1-F2 (12 total)
    - 5. Courtroom Control
    - 6. Front Desk Security
- G. Replace mechanical door operators for the Secure Corridor and Judicial Corridor junction.
- H. Replace lighting control panels in each Custody Pod Unit
  - a. Low voltage switches in each panel will be removed, and control of lighting will be through the touchscreen.

- b. Existing lighting panels in electrical closets will be re-used, but have low voltage wiring replaced and wired in neat, workmanlike manner.
- I. Front Desk Security Station:
  - a. Building “Lock Down” function will be available at this location.
  - b. All non-detention Duress alarms will be annunciated at this location
  - c. Fire alarm annunciator will be relocated into new casework
- J. Court’s Security Station:
  - a. Building “Lock Down” function will be available at this location
  - b. All non-detention Duress alarms will be annunciated at this location
  - c. A fire alarm annunciator will be provided at this location
- K. A fence-mounted climb/cut alarm detection system will be provided, using microphonic technology, to be tied into the PLC/touchscreen system for control and monitoring.
  - a. Perimeter wall
  - b. Roof
  - c. Perimeter fences
- L. System programming per Custody Operations specifications
  - a. Hours of control
  - b. Emergency and manual transfer of control functions to other control stations
- M. Monitoring of Emergency Power Generator and UPS infrastructure alarms
- N. Integrate Card Access System monitoring and control to PLC/touchscreen system
  - a. Modify the Administrative access control system (Kantech) to allow the touchscreen to lock the associated doors down (Lock Down function)
  - b. Replace the Detention access control system (Hirsch) with a new TAC access control system (County standard), and integrate to the PLC/touchscreen system to allow for remote unlocking and override of the associated doors (Custody Administration, Health Services, Custody Administration)
- O. Replace existing relay-based intercom system with new detention-grade, microprocessor-based intercom system, as manufactured by Harding Instruments.
  - a. Replace existing head-end equipment and control room master stations with new
  - b. Re-use existing field intercom stations and associated wiring.

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**Appendix B – Schedule**  
**See Attached**

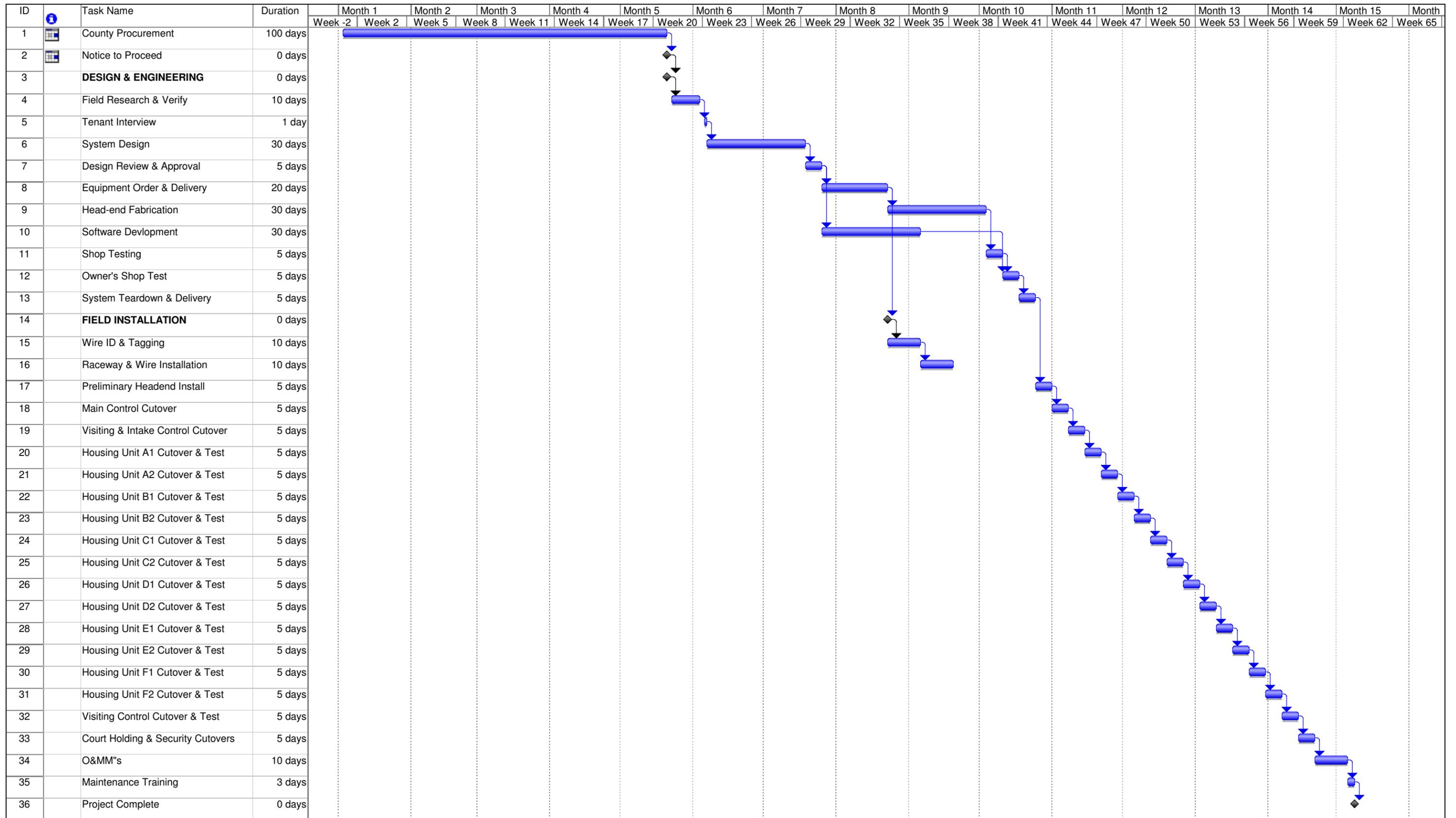
## Preliminary Cost Estimate

Juvenile Justice Center - Detention Electronics			2010.08.26
Mark	Task Description	Costs	Comments
<b>DE SYSTEMS/INSTALLATION</b>			
1	BASE ELECTRONICS : PLC & Touchscreens	\$ 470,000	Per ECS estimate
2	CCTV: New Switcher	\$ 14,000	Per ECS estimate
3	CCTV: New Cameras	\$ 26,000	Per ECS estimate
4	CCTV: Replace PTZ's	\$ 8,000	Per ECS estimate
5	PERIMETER DETECTION SYSTEM	\$ 290,000	Per ECS estimate
6	UPS'S	\$ 34,000	Per ECS estimate
7	CARD ACCESS SYSTEM	\$ 9,000	Per ECS estimate
8	CASEWORK	\$ 68,000	Per ECS estimate
9	INTERCOM SYSTEM	\$ 150,000	Per ECS estimate
10	CORRIDOR DOOR ACTUATORS	\$ 4,000	Per ECS estimate
11	PERFORMANCE BOND	\$ 14,000	Per ECS estimate
	<b>Subtotal</b>	<b>\$ 1,087,000</b>	
<b>MISCELLANEOUS</b>			
1	Salvage/dispose furniture and equipment	\$ 1,500	
2	Access Card	\$ 1,500	FPM Alarms
3	Salvage/dispose CCTV	\$ 1,500	County Electronics
	<b>Subtotal</b>	<b>\$ 4,500</b>	
<b>HARD COSTS (basis of soft costs)</b>		<b>\$ 1,091,500</b>	
<b>FPM SOFT COSTS</b>			
	Architecture/Engineering Services	\$ -	Estimated as a design-build (costs included above)
0.75%	Gov Permits and Inspections	\$ 8,186	
0.20%	Inspection/Testing Services	\$ 2,183	
0.17%	Environmental Monitoring	\$ 1,856	
0.12%	Advertisement/Solicitation	\$ 1,310	
0.25%	Duplication & Printing	\$ 2,729	
2.00%	Percent for Art	\$ 21,830	
8.00%	Project Management (FPM)	\$ 87,320	
15.00%	Contingency	\$ 163,725	
<b>26.49%</b>	<b>Subtotal</b>	<b>\$ 289,136</b>	
	Total	\$ 1,380,638	
0.00%	Inflation (COLA)	\$ -	
<b>GRAND TOTAL</b>		<b>\$ 1,380,638</b>	<b>\$ 1,400,000</b>

**NOTES**

- 1 These estimates are based on the proposed scope of work
- 2 Estimates based on information provided from Engineered Control Systems





APPENDIX B - Preliminary Project Schedule  
 Project: Juvenile Justice Center Detention Electronics  
 Date: August 26, 2010

