King County

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MEMORANDUM

DATE: August 16, 2010

TO: Kathy Lambert, Chair, Government Accountability and Oversight Committee (GAO)
Jan Drago, Vice Chair, GAO
Reagan Dunn, Member, GAO
Pete von Reichbauer, Member, GAO

FROM: Cheryle A. Broom, King County Auditor

SUBJECT: Integrated Security Project: Post Project Review

This report is a post project review of the Integrated Security Project (ISP), a capital project designed to replace and upgrade the electronic security systems and operations at the King County Correctional Facility (KCCF) in downtown Seattle. Over time, the project expanded to include major remodeling of the Jail Health Services (JHS) and Intake, Transfer and Release (ITR) areas of the jail, as well as several major maintenance items planned for future years.

These additions to the scope of the project significantly increased the budget, and they also contributed to delays in the overall schedule. Turnover in key agency supervisory personnel posed project management challenges too. Nevertheless, project stakeholders such as the Department of Adult and Juvenile Detention (DAJD) and JHS expressed general satisfaction with the results of this capital improvement effort.

A "lessons-learned" session of stakeholders, facilitated by an independent consultant, documented both positive and negative comments about the project. This report and the consultant's summary (attached) highlight the main points and make recommendations to the implementing agency for this project, the Facilities Management Division (FMD) of the Department of Executive Services. Those recommendations suggest that FMD consider developing additional policies and procedures to strengthen and improve the communication, management, and reporting on capital projects.

INTRODUCTION

This report provides a post project review of the Integrated Security Project (ISP) to enhance the security and operations of the KCCF. It includes a summary of lessons learned (see attachment), which reflects the opinions of project stakeholders, prepared by the consulting firm of PMA Consultants LLC (PMA), under contract to the King County Auditor's Office (KCAO). Overall, the stakeholders gave positive feedback on the finished project. However, there were some significant challenges faced by the project that provide lessons learned for improving the management of similar capital improvement projects in the future.

After an initial, failed attempt in the 1990s to improve electronic security at the KCCF, the county initiated the ISP in 2001 to replace the entire electronic security system in the jail. An analysis by jail security system experts reported that the existing security system needed to be replaced in order to avoid catastrophic failure with significant public safety repercussions.

The ISP was a complex project involving construction in an occupied, multistory jail, and it required complicated and costly coordination with operations involving the relocation of inmates and vacating entire floors of the jail. Also, the project scope adapted to include other major capital improvements to the existing infrastructure and remodels of the JHS and ITR areas to provide operational efficiencies. The scope additions and the complexity of the project presented the project team with numerous challenges. This post project review identifies several areas where stronger and more effective project management may have more successfully addressed these issues.

As mandated by the County Council, the KCAO has been involved in oversight of the ISP since 2003. Our efforts regarding KCCF have also included a special study of jails in 2002 and oversight during the development of the KCCF Operational Master Plan (OMP). In addition, KCAO provided project management recommendations for ISP in 2007 as part of the Capital Projects Oversight pilot program study completed by PMA Consultants LLC and Saybrook Associates Inc. (PMA-Saybrook). According to project stakeholder feedback, these recommendations in part helped make the final phase of the project run more smoothly. KCAO's involvement helped reduce the estimated cost for operations support during ISP and JHS construction by over $2.4 million. This included the development of strategies to lessen DAJD's cost for security escort services and inmate relocation and to enhance delivery of the final phase of Jail Health remodeling.

This report is intended to document and close the KCAO oversight effort on the ISP.

PROJECT HISTORY AND ACCOMPLISHMENTS

Addressing electronic security issues in the jail has had a long and difficult history, starting with the initial construction of the jail facility in the 1980s. The original electronics subcontractor for KCCF went bankrupt in 1983 while the jail was still under construction. A replacement subcontractor was hired to complete the project, but the electronic security system proved to be unreliable, which delayed the opening of the jail by eight months. By the early 1990s, periodic breakdowns in critical areas of the electronic security system, such as central control panels, were becoming more frequent and more difficult to repair because of outdated parts and the poor condition of the system wiring throughout KCCF. This led to an effort to design a project to upgrade the electronic security system. The original project concept envisioned replacing the existing fixed control panel operations with a programmable hand-held system and was targeted for completion in mid 2002. However, upon further reviews by DAJD and FMD, the county concluded that the new system would pose safety and security concerns, and that the project budget was unrealistic. By the time the original project was cancelled in 2000, approximately $3 million of the $9.3 million budget had been spent.

Integrated Security Project

In 2001, after extensive analysis by the County Executive and DAJD, including mock security operations drills, a new project, called the Integrated Security Project, was scoped. The county selected Integrus Architecture in March 2001 to prepare new plans for upgrading the facility, with Justice Systems Corp providing the electronic security design. The construction start date was initially targeted for September 2002 but was delayed until 2004. Design issues and the

county's decision to have a new operational master plan (OMP) contributed to the delay. Christopher Murray and Associates and Online Electric of California prepared the OMP. One of the early key findings by Online Electric, who provided an independent review of the electronic security design, was that the existing security systems at the KCCF were in very fragile condition, in danger of failure, and should be replaced as soon as possible.[1] This finding resulted in the County Council supporting the County Executive's declaration of emergency for this project in July 2003. The emergency declaration waived some procurement procedures allowing the ISP to accelerate some elements of project delivery before completion of design.

FMD had responsibility for managing the project, and in that role selected Turner Construction (Turner) as the project's general contractor. FMD also hired URS Inc., a project management consulting firm, to be the ISP Development Manager. In that role, URS provided a variety of project management services, including serving as the liaison between FMD and the KCCF staff, and providing contract administration, tracking, and quality assurance services.

Project Scope, Schedule and Budget

The OMP recommended adding a remodeling project for the ITR area to the project scope. The county added the ITR remodel to the ISP scope in March 2005 and also a Jail Health Services component in November 2006. Due to the addition of both the ITR remodel and Jail Health Services components, the target date for completion was adjusted to August 2008.

Altogether over time, including contingency and major maintenance projects for shower and elevator replacements, the council appropriated $54,801,289 for the revised project scope. In addition to the ISP scope of work, FMD was authorized to complete a number of other KCCF improvements using the major maintenance reserve fund (MMRF).

Construction was substantially completed in November 2008, and the close out of the construction contract with Turner occurred in May 2010. Final close out of the project is expected after this summer. The county's ARMS accounting system indicates that $53,906,172 was spent on ISP through May 2010. As noted at the time the ISP was designed, construction of such magnitude in an occupied high rise jail presented unprecedented complexity for FMD to manage. As measures of the operational success of the project, all of the major security upgrades as defined in the baseline scope have been tested and are fully operational as intended, and no safety or security problems were experienced during construction.[2] Representatives from DAJD and Jail Health Services, the two county agencies responsible for operations at the KCCF, expressed satisfaction with the remodeled facility.

This success did not occur, however, without challenges along the way, including maintaining adequate communication among stakeholders, and keeping the project on schedule and within budget. Although the county is not likely to have a project exactly like ISP in the future, there will likely be many projects that share the characteristics of being large, complex, logistically difficult, and involving multiple agencies and stakeholders. Some of the lessons learned from the ISP may help to provide guidance for future projects.

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[1] Preliminary report of Online Electric dated June 24, 2003 stated: *"It is a virtual certainty that major systems will fail in the very near future."* [Emphasis included in original document.] Also see Christopher Murray and Associates, *Integrated Security Project: Implementation Plan Report*, June 2004, p. 1.

[2] Based on oral and written reports presented to the ISP Advisory Group, chaired by the director of DAJD, and stakeholder feedback received during the December 2009 lessons-learned session.

LESSONS LEARNED

To be most useful, a project review and lessons-learned exercise should focus on what worked well on a project as well as what did not work so well. As already mentioned, from an operational standpoint, the ISP security system upgrade has been a success. Other major successes and innovations include the following:

- Reassessing and terminating the predecessor project was a difficult but necessary decision. Although the earlier concept may have been ill-conceived and can be considered a failure, it would have been an even greater mistake to keep spending money and moving forward on the project. It is to the county's credit that it made the decision, albeit after the expenditure of approximately $3 million.[3]

- Adding other remodeling and major maintenance projects to the ISP enabled the county to complete those improvements while floors of the jail were vacated. By coordinating the original security work with the added projects, FMD avoided multiple inmate relocation costs and some of the costs of providing security escorts for construction workers. FMD decided to add work to the contract with Turner to avoid creating potential conflicts and other management challenges associated with multiple contractors working concurrently in the same location.

- Some of the added remodeling projects were identified in the OMP and designed to provide jail operational efficiencies. By adding them to ISP, they were completed sooner than they could have been if pursued separately. This approach resulted in realizing the benefits through operating cost savings sooner, helping the county to begin to offset capital costs earlier. For example, operational savings from the elimination of one permanent corrections officer post needed to staff ITR began within one year of adding the ITR remodel to the scope of the project.

- Executive-initiated and council-mandated independent oversight provided analysis and recommendations that proved valuable in improving the escorting and inmate relocation plan, resulting in a lower cost approach. Implementation of project management improvements recommended in 2007 improved communication and accountability for the remainder of the construction period.

As with most lessons-learned exercises, however, attention is predominately focused on problems that were encountered and on strategies that might be employed to avoid them in the future. That is a theme that runs through the attached lessons-learned report that provides an independent consultant's assessment of the key stakeholders' perception of the project. In the remainder of this post project review of the ISP, we focus on lessons learned from the project oversight perspective.

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[3] Review of the failed first effort (1993-2000) was not part of the lessons-learned exercise reported by PMA. This conclusion represents the opinion of the auditor's office.

Customer-Management Communications and Planning

During our involvement with the ISP, we found the following conditions that impeded successful delivery of the project:

- On most capital projects, the baseline scope, schedule, and budget are determined after the preliminary design efforts have been completed. Construction funding is requested and approved based upon these baselines and the project managers are held accountable to those approved terms. In the case of ISP, some components, including the ITR remodel, were not fully detailed in the original design, and, as noted above, significant and multiple other additions to the project scope were approved. This required schedule and budget revisions and further complicated the already challenged project management structure for ISP, as discussed below.

- There was an apparent lack of understanding among stakeholders of the roles and responsibilities of the project team in terms of implementing the design and construction phases.

- Changes in stakeholder personnel at the supervisory level occurred during the course of the project, including staff from DAJD, JHS, and FMD. This resulted in a loss of institutional knowledge regarding the design and construction plans and agreements, which weakened the project management effort.

- Despite a record of extensive meetings, our project management consultant discovered communication gaps between the project implementation team and customer stakeholders on upcoming work and the prerequisites and planning needed to maintain the work schedule.

To address these issues that were present nearly three years after beginning construction, we made six recommendations, which were formally conveyed to the executive and to the council in June 2007. The recommendations called for all project stakeholders to reach agreement on the remaining work left in the contract; evaluate the priority, cost, and schedule impacts of any further proposed scope additions; and make decisions to inform a proposed supplemental appropriation request.

Budget and Final Project Costs

Because a baseline budget was never established for any of the components or for the entirety of the KCCF work, it is very difficult to assess how the actual project costs compared to the expectations of costs that the council had upon the original appropriation. Multiple appropriation actions from multiple capital program funding sources supplemented the original appropriation request of $16.3 million. Through May 2010, $53,906,172 of the total $54,801,289 appropriated for the project had been spent. Although the project was substantially completed in November 2008, as of June 2010 it still has not been officially closed out, though the main construction contract with Turner has been closed out. Final close out of the project was delayed because the installation of a heat exchanger had to wait until the summer to avoid impacting patients in the infirmary. We recommend that FMD officially close out this project as soon as possible after the completed installation of the heat exchanger.

Two types of cost overruns were experienced on the ISP project: one related to carrying out the actual construction work, and the other related to operational expenses, capitalized as part of the project. We reviewed a few major, discreet project elements that were most easily segregated in the appropriation actions and in the project cost records and identified significant cost overruns.

Cost overruns related to the security upgrade totaled approximately $2.9 million, and can be mainly attributed to project complexity and unforeseen conditions, together with high commodity and labor cost increases over the longer-than-planned construction phase of the project. The planning and communication issue discussed above also contributed in a more minor way to the overrun, because some expenses that could have been foreseen were not adequately communicated. One example was discovering rather late in the elevator security upgrade implementation, that the design team and the operational stakeholders had been using the same term to describe exactly opposite meanings when discussing the desired operating logic for the elevators. Another example of cost overruns was the $338,000 project to accommodate the transfer and housing of inmates with mental health issues during work on the housing floors of the jail.

Cost overruns related to operations also totaled approximately $3.5 million and can be attributed to the schedule delays and project time extensions associated with added project scope.[4] This additional time increased the cost for providing security escorts for contract workers, inmate transport, and inmate relocation. It also increased the challenges associated with communicating and managing the complex jail operational needs during construction.

On a project as complex as the ISP, the level of project contingency needs to be carefully set based on a comprehensive assessment of project risks and costs unknown at the time of setting the project budget. The amount of contingency originally budgeted did not cover the cost overruns on the ISP project.

Regarding operations costs, we believe that one opportunity lost for mitigating cost overruns was that the ISP project did not have in place the ability to comprehensively track and monitor operations costs incurred by DAJD and JHS on a timely basis. Furthermore, the ISP did not forecast cost overruns in advance, which would have enabled the project team to develop strategies to correct the overrun trend. One such strategy might have been to place tighter controls on conformance with the security escort plan and budget. Greater transparency in the reporting of operating costs for escort officers would have facilitated that process. All cost data (from designers, contractors and operations) should be collected monthly and compared to budget at the line item level and reported to all stakeholders with full transparency.

In monitoring other capital projects, the Capital Projects Oversight program has advocated the use of a methodology to forecast budget at completion of a capital project.[5] We believe such tracking would have been beneficial to the ISP, especially for the operations costs, and would be useful for all major capital projects in the county.

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[4] Mainly the addition of ITR and JHS.

[5] For example, at our suggestion, the ABT program added earned value analyses to monitor schedule and cost performance to help inform their forecast cost at completion.

Project Delivery Method

The ISP used a General Contractor/Construction Manager[6] (GC/CM) contract as an alternative project delivery method in March 2003. FMD negotiated a Maximum Allowable Construction Cost (MACC) at $14.3 million with Turner in September 2004 for the electronic security system portion of the project. Many scope additions to the project and to this contract occurred after that date resulting in an unusually high value for change orders, totaling $19.3 million, or 135% of the original contract amount. As with any contracting method, keeping change order costs as low as possible compared to the original contract amount and within the construction contingency is a focus of project management. Generally accepted industry sources suggest that keeping change order volumes on GC/CM contracts below ten percent is considered acceptable for GC/CM projects.[7] However, in the case of the ISP, significant additions to the scope of the project could not be fairly assessed by this measure.

When significant additions are made incrementally to a GC/CM contract, the benefit to the owner of greater cost certainty that this alternative delivery method usually provides, is not able to be realized. However, once started as a GC/CM project, it would have been infeasible to change the contract type without significant delay and potential additional cost to the county. Nor would a change in the delivery method have been consistent with the need to respond to a declared emergency.

The GC/CM method is often best suited for complex projects, where the qualifications of the contractor and a cooperative relationship between the contractor and owner are needed to work through constructability, value engineering, and challenging technical issues during the design and construction phases of a project. This method is also advisable for projects where an aggressive project schedule is needed, as was the case in this emergency situation. The selection of the GC/CM delivery method seemed to be well reasoned at the time it was made. FMD had consulting firm URS under contract to perform the tasks needed to manage and negotiate these major change orders, including obtaining independent estimates. Also, a November 12, 2009 report of the final accounting of the Turner contract by Griffin, Hill & Associates, LLC, found no discrepancies.[8]

Experts consulted for this follow-up review agree that the county should strive to develop a clear and stable project scope and a comprehensive understanding of the project risks before selecting a project delivery method. However, once a GC/CM method is selected, design issues should be identified and risk mitigation strategies developed in consultation with the selected general contractor. This could help to contain the change order volume and costs and allow the county to realize the intended benefits from the alternative project delivery method.

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[6] General Contractor/Construction Manager (GC/CM) is an alternative project delivery method in which the contractor provides input to the Owner and the Owner's Architect during the design phase of the project and acts as the general contractor and construction manager during the construction phase of the project.

[7] Those sources include a 2005 "Survey of General Contractor/Construction Management Projects in Washington State" by the Washington State Joint Legislative Audit and Review Committee that studied 108 capital projects, including correctional facilities and a 1986 National Research Council Building Research Board study of over 60,000 private and public GC/CM construction projects nationwide.

[8] The procedures included reviewing and confirming the terms and conditions of the contract, the original contract price and change orders, the agreed upon General Construction Contract (GCC), the accuracy of billings, a random check of billings (reasonable, allowable, allocable, and supported), the actual cost of the GCC, and the shared savings for the contractor.

RECOMMENDATIONS

FMD should review the lessons learned from the PMA report (attached) and consider modifications to division policies and procedures that would incorporate recommendations applicable to their wide range of projects, and that would enhance successful project delivery. Those areas for consideration include:

- Project execution plans that clearly spell out communication protocols and the roles and responsibilities of all key participating agencies.
- Criteria for selecting an appropriate delivery method for a specific capital project.
- Management of and monthly reporting of actual capital and operations costs (if applicable) compared to a baseline budget.
- For major projects, plan for adequate resources and require an estimating methodology for tracking and forecasting schedule and budget, such as earned value analyses.
- Completing project close out in a more timely manner.

If you have any questions on this report or would like a briefing on it, please contact Tina Rogers, Capital Projects Oversight Program Manager or Ron Perry, Deputy County Auditor.

DISTRIBUTION

Government Accountability and Oversight Committee

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ATTACHMENT

Integrated Security Project, Project History / Lessons Learned Workshop, December 8, 2009, PMA Consultants LLC

Integrated Security Project

Project History / Lessons Learned Workshop
December 8, 2009

Report dated December 19, 2009

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A. Executive Summary

PMA Consultants LLC was engaged by King County to conduct a formal lessons learned workshop on the Integrated Security Project (ISP). This involved reviewing the project record, developing interview questions, conducting two workshops with the customer and project delivery team, and drafting this report.

The decision to conduct a formal lessons learned exercise for ISP was made due to a variety of significant issues encountered during implementation, including major changes to the project's scope, design concept, schedule and budget. The ISP project itself was completed to correct safety, security, and operations issues associated with the original construction of the jail facility. The improvements made are summarized in Section B, below. Completing the ISP effort was complicated by the fact that the jail facility had to remain open during construction, requiring temporary inmate relocation and special guard services throughout.

The Department of Adult and Juvenile Detention and the Department of Public Health – Jail Health Services (collectively referred to herein as "customer") are happy with the new facility and the processes that were eventually put in place to bring the improvement project to a successful conclusion. There was very positive interaction between the customer, the Facility Management Division (FMD) and the development manager URS Corporation during the workshops. When asked, FMD and URS stated that they would not have done the project any differently, except for better tracking of operation's expenditures.

This report captures lessons learned covering the entire period of the ISP effort, which lasted from 1993 to 2009. It also documents the methodology used as a potential model for future Lessons Learned workshops on other projects.

The ISP workshops resulted in over 40 recommendations, but the two main issues that were discussed related to better up-front planning related to operational costs and schedule, and the need for a Project Execution Plan that clearly addresses the following issues:

- Roles and responsibilities of each project participant, especially the customer
- A clear governance structure
- Communication protocols
- Definitions of technical design & construction terms unfamiliar to customer

These lessons learned comments reflect a common problem in project management, the focus of the project team on tracking the design and construction contracts while leaving the tracking of the operational costs to the owner. Incorporating these lessons learned into standard procedures will bring a heightened focus to customer service at King County.

B. Project Overview

The ISP project was undertaken to improve the security and operations of the King County Correctional Facility (KCCF), including correcting space planning and electronic security system issues identified after the building opened in 1986. This led to two major efforts to improve the facility: The first effort began in 1993 and was cancelled in July 2000, when it was determined that the plans and budget approved for the project were unrealistic. The second effort commenced in March 2001 and was substantially completed in May 2009.

The ISP scope evolved from 2001 until June 2006, when the Jail Health Services II remodel project was added to the effort. The improvements made ultimately included replacement of the jail's electronic security systems, elevator upgrades (as part of King County's Major Maintenance Reserve Fund program), and remodels of the Jail Health Services and Intake, Transfer and Release (ITR) areas. Both efforts were managed by the Facilities Management Division (FMD) for the Department of Adult and Juvenile Detention (DAJD) and the Department of Public Health – Jail Health Services program. Turner Construction was hired as the project development manager in March 2001, but their role was converted to a CM GC in April 2003. URS was hired as the county's development consultant during the same month.

C. Methodology Followed

Overview

Lessons Learned is a formalized approach to gathering information that has affected construction, and from which future project teams can gain from these experiences and recommendations. The purpose of this Project History / Lessons Learned Report is to capture information from the Integrated Security Project that will improve the design and construction of future projects, as well as to make recommendations for the enhancement of the performance of Legislative oversight and Executive project delivery staff.

PMA was asked to provide a comprehensive and independent assessment for the ISP project, but was not asked to conduct an "audit" into all of the details of the ISP project. The steps associated with the lessons learned process are as follows:

- Reviewing the project record
- Developing interview questions
- Conducting two workshops
- Drafting a report
- Incorporating feedback from King County into a final report

These steps are described in more detail in the sections below.

1. Reviewing the project record

Prior to the workshop, PMA requested and was provided with the following documentation maintained by the project team during its life cycle:

- Project Management Plan
- Status reports
- Baseline, any major re-baselines and last CPM schedule
- Project Org Chart or roles and responsibilities list
- Original engineers estimate and revision summary
- Any chronologies produced regarding project issues
- Contract General conditions for GC and design firm
- Change Order Log
- Construction claims information (if any)

2. Developing interview questions

Using the information provided by the project team, PMA developed the list of questions included in Attachment 1. Advance copies of the questions were distributed to all attendees, so they could review them to help prepare for the workshop. Attendees were asked if there were any project related issues the questions would miss.

3. Conducting Workshops

PMA conducted two workshops with the customer and project delivery team. The decision was made to split up the groups because of different issues and to facilitate a freer exchange of information. Attendees at each workshop are shown on the sign-in sheets included in Attachment 2. The workshops each lasted 1 hour and 45 minutes. It is recommended that future sessions allow more time, perhaps up to three hours.

The agenda for both workshops is shown below:

- Introductions (5 minutes)
- Discussion Using Project Related Questions (85 minutes)
- Open Discussion (10 minutes)
- Closeout / Feedback Form (5 minutes)

4. Drafting Report and Incorporating Feedback

The report was drafted over a 2-week period following the workshop and provided in draft format to get feedback from the Capital Oversight staff that setup and attended the workshops.

King County should consider having the County Project Managers maintain a Lessons learned log during the project life as issues are encountered. This can then form the basis of a workshop conducted at the project completion, rather than having an outside consultant review the record after the fact. A professional facilitator independent of the project participants should be considered to conduct the sessions.

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
Although design workshops were held, the results were not formally documented and did not get communicated clearly to design team.	The Customer had to follow up more than once to ensure their needs, goals, objectives, and concerns were incorporated in design. This reduced their confidence and lost good will.	1. FMD should develop a formal planning report template. 2. FMD or the design team should document the results of design planning meetings. 3. FMD needs to improve the feedback loop to customer. 4. KC should consider publishing planning reports with search capabilities on its intranet site.	FMD is implementing a web-based PM system that could be used to post comments and feedback.	Planning
The Security part of the ISP program was delayed while waiting for new jail Operational Master Plan. This delay was viewed as positive by the customers because the project was able to take advantage of evolving electronic technology.	Jail renovation was finished years later than the public dates, but the security system was well thought out and functions well. Also the time frame allowed multiple projects to be done when jail floors were vacated, saving escort costs.	5. Be realistic when publishing project completion dates. Schedule planning should consider the bigger picture beyond the immediate project, especially when there are interrelated projects or they are high profile.		Planning
The original scope of the ISP program expanded over time to take advantage of efficiencies resulting from having an entire floor cleared of prisoners during construction. Over $41M worth of work was added to the original $ 16M project budget, including the ITR and Jail Health Services II remodels.	Overall program completion was delayed. Additional appropriations were needed as scope developed. The "Big picture" was not clear to Council until late in the project.	6. Planning should account for the costs associated with delaying individual projects until the full program design is finalized. (U) 7. KC should try to calculate cost saving realized by combining contracts as a counterbalance to perception of cost overruns and delays. (U)		Planning
For much of the project, jail	Frustration and inefficiency when it	8. KC should clearly define the who,	This can be	Planning

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
operations' staff were not clear regarding the extent of their role in tracking certain project costs, including guard escort services.	turned out all costs were not fully estimated, including for the guard escort services and the furniture, fixtures and equipment to be purchased using direct customer funds.	what, and when for each project participant, especially the customer 9. KC should consider developing a responsibility assignment matrix (RACI) chart defining the roles and responsibilities of all project stakeholders as part of the formal Project Execution Plan (PEP).	incorporated in the PEP workshops FMD has implemented.	
A misunderstanding by customer as to the meaning of the terms "override" and "automatic" (as they related to the elevator controls) led to extensive problems with elevators that are crucial link in prison logistics.	Initial elevator controls design did not meet the customer's needs. This led to trial and error design and ongoing problems related to moving prisoners.	10. Technical terms need to be defined so a common understanding is reached. This can be incorporated as a definitions section in the formal Project Execution Plan.	This can be incorporated in PEP workshops FMD has implemented	Planning
There was an overrun in the budget for guard escorts related to prisoner relocations.	A performance audit had to be performed in order to determine that the escort budget had been exceeded, and to develop a model to better forecast future costs. Also the budget had to be increased.	11. Include mock operational drills during the planning process to better forecast operational costs. (U) 12. Assign responsibility to monitor operations costs against the budget, allowing earlier identification of problems and improving ability of management to adjust operations methods to avoid or minimize cost overruns.		Planning
Phase 1 Pre-Construction surveys related to the condition of the original security wiring were inadequate.	Extensive unforeseen conditions related to original wiring contributed to the budget issue that played a part in the cancellation of phase 1.	13. Pre-construction and pre-design surveys are important tools to avoid unforeseen and differing site conditions.		Pre-design

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
The original jail contractor went bankrupt, and the recent elevator contractor subcontracted all the work and acted as a broker.	Owner costs almost always increase when contractor defaults. The problems with the elevators were in part due to poor coordination between the Subs.	14. Establish a bidder pre-qualification process for specialized, complex contracts. 15. On future jail contracts, KC should bid all controls integration work to one firm.		Bid Phase
The original ISP budget did not include detailed scope and budget for furniture, fixtures and equipment (FF&E) provided by customer.	Additional budget appropriations were needed to cover the FF&E costs.	16. FMD should be more proactive in letting customer know what is needed from them and when it is due. Recognize that customer has full time duties and is not knowledgeable about construction processes. 17. FMD should establish formal training to facilitate knowledge transfer from its senior staff to less experienced FMD staff.	The situation improved when new Customer and FMD liaisons were assigned and a detailed budget estimate was prepared. FMD is developing training.	Budget
JHS stated they could never get an accounting of how much was left in their $3.2M budget during the first (cancelled) effort. Some cost data was not stored in the ARMs system used as a reference for decision making.	DAJD/JHS asked for more money than needed during the second effort because did not know how much was spent during the first effort. This tied up County funds that could have been used elsewhere. Inadequate accounting records also undermined the project's ability to forecast budget overruns in advance.	18. Expenditures against customer budgets should be transparent. 19. Monthly reports should compare budget, expenditures and forecast cost. 20. Budget and actual cost data should be available in the ARM system	FMD is implementing a web-based PM system that will compare budget and expenditures	Budget
The various project budgets that were packaged together to make up ISP were initially being viewed individually without reference to	Cost overruns resulting from interrelationship between projects were identified later than they could have been.	21. Cost data for all projects in a program like ISP need to be brought together into a single report. 22. This data needs to be easily	FMD tracked budgets and actual cost for ISP using its own database system.	Budget

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
the big picture cost.		accessible to the customer.	This will be part of the new web tool they are developing.	
The customer was surprised when FMD made certain charges against their operating budget	Potential budget overrun since customer did not budget for FMD charges.	23. Controls need to be established that prevent charges to budgets by unauthorized staff.		Budget
The budget did not consider the amount of consultant help needed. Also, it did not consider extra CM staff needed to manage the bid process because of confidentiality and design control issues.	Cost overruns were encountered in the original budgets due to the need to utilize specialists in elevator, jail health records, etc.	24. Future specialized project budgets should consider special circumstances of each project.		Budget
The appropriations budget for ISP included the standard 10% construction contingency, even though design was not complete.	The contingency was insufficient, leading to supplemental appropriations.	25. The amount of contingency for complex or incompletely designed projects should be determined based on specifics of project. One way to do this is through a formal probabilistic risk workshop w 26. Contractor Schedule of Bid Price should include cost allowances bid items for unknown conditions so they are priced up front.		Cost
URS had little to no visibility of County expenditures against the ISP budget. Operations' expenditures were initially only charged on a quarterly basis using inter-fund transfers. This was later revised to monthly after the	Inability to forecast cost overruns for operations portion of the budget in advance.	27. Project teams should not rely on KC self-reporting of Operational costs. 28. All cost data (from designers, contractors and Operations) should be collected monthly and compared to budget at the line item level. 29. A formal process of using "burn	A monthly tally had been done in later period of project.	Cost

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
overrun in guard escort services costs was identified.		rate" to forecast budget at completion on every project should be established. 30.		
FMD and URS had a difficult time initially in prioritizing customer scope change requests.	Cost overruns and schedule delays resulted.	31. Each Agency needs to have a liaison/spokesperson. 32. Customer liaisons should have authority to make decisions for their agency. 33. Customer liaisons should have an understanding of construction. 34. Customers should balance the flexibility of allowing beneficial changes against the need to freeze the design to minimize delays and cost overruns.	The immediate issue was resolved when new "take charge" customer and FMD liaisons froze continuing design & scope changes. The long term solution is selecting liaisons carefully and make it easier for FMD to bring in subject matter experts through on-call contracts	Cost
The Auditor's Office established a contingency oversight group that provided additional oversight of Change Orders	None.	35. Establishing contingency oversight committees is a best practice that should be expanded to other projects	Contingency oversight committee is being used on other multi agency projects.	Cost
Customers were not consulted when decisions made regarding out of service elevator impacts.	Solutions did not always meet prison operations' needs.	36. Customer liaisons should be included in all decisions impacting Operations. 37. The PEP should emphasize the customer as a partner in resolution of problems.	This can be incorporated in the PEP workshops FMD has implemented.	Communi-cation

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The customers were happy with the services ultimately provided by FMD. They recognized that URS worked for FMD and that their point of contact was with their FMD liaison.	The use of permanent KC staff as project liaisons began to build a trust relationship with the customers, which will be beneficial in future projects.	38. The practice of having permanent KC staff act as liaison to in-house customers should be continued. Consultants should be hired as needed to manage the detailed project responsibilities and leverage limited FMD staff.	This practice should be expanded to other King County groups.	Organiza-tional
FMD staffing appears inadequate to manage large volume of capital projects.	Primary focus becomes reacting to issues rather than being proactive in developing best practices.	39. King County should evaluate means of augmenting FMD's project management staffing, including expanding the use of on-call consultant contracts for specialized project management services.	FMD is setting up on-call contracts for consultants.	Organiza-tional
Some PM staff assigned to the project were not knowledgeable in jail operations.	There were trial and error design solutions (i.e.- elevator).	40. FMD's PM should have prior/similar experience in the type of project being completed (i.e., jail and in this case), so they understand any unique operational needs involved.	FMD can use on-call contracts to bring in subject matter experts.	Organiza-tional
There was no master schedule that included dependencies outside the contractor's scope, like customer FF&E.	Jail Health Services dependencies were missed, leading to an unrealistic baseline schedule, and subsequent delays.	41. Where appropriate, there should be a master schedule maintained by FMD or their CM consultant that considers work dependencies outside of the contractor's scope.		Schedule
The initial project schedule was based on unrealistic assumption that the security upgrade work could be done independent of other planned projects.	Later expansion of scope resulted in a six month delay and cost overruns in guard escort costs.	42. All project milestone schedules should be developed based on conservative assumptions. 43. Contingency should be provided for schedule milestones; similar to cost contingency.		Schedule
There was a six-month delay in	This led to a 6 month delay in the	44. All projects should be sure to allow		Schedule

ISSUE /LESSONS LEARNED SUMMARY DESCRIPTION	ISSUE /IMPACTS	RECOMMENDATIONS (U = Unique to ISP)	STATUS	PHASE/ TOPIC
the start of the floor by floor work due to Central Control Center submittals.	overall project schedule.	sufficient time for complex submittals when developing the schedule.		

Attachment 1 – Interview Questions

1.1 Project Implementation Team Experience Questions

Pre-Design Planning Phase

1. Were adequate pre-design surveys, studies and mock operations drills completed?
2. Were they effective?
3. What process did you use to determine the project scope during planning?
4. How much input was there from the user groups/owners?
5. Did you follow a formal approval process with them?
6. Was it effective:
7. How was the design consultant selected?
8. How was the cost estimate approved by the Board calculated?
9. Could it have been done better?
10. Could it have been done at a different time?

Design Phase

11. Were there formal design scoping meetings held with user groups?
12. How many?
13. Were they effective?
14. What was the design review process? Were user groups involved? Were formal approvals obtained?
15. What was FMD's role during the design process? Was URS involved?
16. Were there increases to the design budget? How much? Why?

Bid Phase

17. Why did so many separate projects get combined?
18. Why didn't waiting for the master plan allow them all to be combined at the same time?
19. Why wasn't the critical security work released before the plan came out?
20. Why weren't there separate competitive bids?
21. What was the pre-Qualification process for contractors?
22. Is qualification-based bidding allowed or is low price the only option?
23. How long did it take to get a replacement contractor using the JOCS contracts?

Construction Phase

24. What were the major logistical issues you faced?
25. How closely did you work with the user groups to resolve them?
26. Do you feel that they were resolved as efficiently as possible?
27. Is there a formal process for review of contractors' change order proposals?
28. Are the reasons for change orders identified by standard causation codes?
29. What is the approval process?
30. Was change order contingency sufficient? How held it? How was it released?
31. What were your QA procedures during the project?
32. Are you satisfied with your QA efforts?
33. What, if any, problems remain?
34. What steps are you taking to resolve them?

35. What is your policy for as built documentation?
36. Have all as built documents been assembled?
37. Is as builts something done at the end?
38. Are monthly payments tied to as-built verification?

Cost Controls

39. When was the Design estimate done? By whom?
40. Is there an estimating standard template/ would it capture all costs including Operational indirect costs (like guard escorts) and cost escalation?
41. What is the Owners' process for vetting design estimates of construction costs?
42. Where there any issues with the design estimates produced for the project?
43. Is the estimate reviewed to see if it met the project budget? By who?
44. When are design estimates of construction cost done?
45. What value engineering processes were used to optimize project costs?
46. Does FMD utilize standardized value engineering procedures?
47. Is there a VE spec in the Construction contract?
48. What budget does King County measure performance against?
49. Was the full budget for all of the ISP projects ever shown on one page?
50. Was it compared to actual on a report?

Schedule Controls

51. How are contract milestones established during design?
52. When were the dates announced to the public?
53. Were they realistic?
54. Was there time contingency to announced dates?
55. Were Liquidated Damages (LDs) established? How?
56. What value engineering processes were utilized to optimize the project schedule?
57. Does FMD utilize standard procedures to determine the most efficient schedule for delivering projects?
58. Was there any process for analyzing time impacts and allocating liability?
59. How was time dealt with at the end of the project?

Forecasting & Trending

60. Were a baseline budget and baseline schedule defined? Was it tracked throughout the project?
61. Is there a procedure for forecasting cost overruns and schedule delays?
62. When were overruns known? When was Council told?
63. How long does it take to get actual costs posted?
64. Does King County trend past history to predict future dates or costs?
65. Was a Risk Assessment Done? = When? How accurate was it?
66. Are earned value techniques used? If yes:
67. What is the accrual process?
68. How do you calculate the percent complete?

Roles & Responsibilities

69. Who manages design and construction contracts?

70. What is FMD's role when a professional CM is hired?
71. Are Project Execution plans done for larger projects?
72. Is there a formal liaison to user groups?
73. What feed back did you get from users? What could you have done better?

Communication

74. What processes did you use to maintain close communication during the project?
75. What reports were produced on a regular basis?
76. Are you satisfied that the users received the information they needed? Were they?
77. Were escalation procedures defined for the project? How effective were they?
78. (for consultants and contractor) Were the County's project expectations clear? Was it always clear who was in charge?
79. Do you have any recommendations to improve the county's communications process?
80. (For FMD) Did you encounter any misunderstandings with consultants and contractors regarding your goals or expectations for this project?
81. How were they resolved?

County Council Interaction

82. Was there any phasing of the release of Funding, or was it all given up front?
83. How was contingency use tracked & reported to Council?
84. Was there a standard form used for reporting to Council?
85. How were additional Appropriations justified when requested?
86. Did Council make their needs know regarding reporting etc.?
87. Did they give you the opportunity to explain the problems?
88. Were their expectations realistic?
89. What could they have done better?

1.2 Customer Experience Questions

1. Planning and Design Work

a. Were you given an opportunity to provide input?

b. Was the planning and design process clearly explained to you? Were benefits and costs fully explained?

c. Was your input reflected in the final product? If not, were the reasons why satisfactorily explained to you?

d. Did the planning studies and operational drills completed result in a better product?

e. What went well? What could have been done better?

2. New Operating Master Plan (OMP)

a. Did waiting for the new OMP help ensure a better project?

b. Are you satisfied that the completed project is responsive to the OMP?

3. Consultant and Contractor Selection

a. Did you have any involvement in the selection process?

b. Were the consultant and contractor qualifications satisfactorily explained to you?

c. Were you satisfied with your interactions with the consultants and contractors used? Why?

4. Roles & Responsibilities

a. Was the project management team responsive to your needs? Did they report back on the disposition of your requests?

b. How well did the project communication process work for you? Was a formal reporting mechanism provided? Were you kept informed about progress and scope issues on a regular basis?

c. Was it clear who was in charge? Was the same person in charge throughout the project? Did they seek your input and respond to it?

d. Was FMD's role clear during design and construction? Were you satisfied with your interactions with them?

e. Was URS' role clear to you? Did their involvement add value for your organization?

f. Given your experience, do you have any comments regarding the use of outside consultants versus county staff to manage capital projects?

5. Budget and Schedule

a. Do you feel that the project budget process was well handled? Why?

b. Were you adequately informed regarding cost overruns?

c. Do you feel that project schedule was well handled? Why?

d. Were you adequately informed regarding schedule delays?

6. Construction

a. Where you satisfied with how the logistics required to implement the project were handled?

Why?

b. What went well during construction? What could have been done better?

c. Were you satisfied with the training provided to your staff for new equipment?

d. Are you satisfied with the quality of the final product?

e. Do any problems with new construction or equipment remain?

7. Overall Comments

a. Did the project benefit your current operations? Why?

b. What would you do differently next time?

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Attachment 2 – Workshop Sign- in Sheets

[redacted]Projects Oversight P[redacted]
[redacted]g County Auditor's Offi[redacted]

ISP Lessons Learned Customer Service Session
December 8, 2009
8:45 – 10:30

Sign In

Name	Department/Business
Shelley Sutton	County Auditor
Tina Rogers	" "
Bob Thomas	" "
Toni Rezab	DAJD
Brandi DeFazio	Jail Health
[illegible]	Jail Health Services
[illegible]	County Auditor
[illegible]	PMA
Jim Burt	FMD
Ross Poultey	URS Corp.
Ron Perry	Auditor
Cheryle Broom	KCAO
BRIAN ESTES	KCAO

PMA Consultants

King County

Projects Oversight P
g County Auditor's Off

ISP Lessons Learned Project Implementation Team Session
December 8, 2009
10:45 – 12:30

Sign In

Name	Department/Business
[illegible] Bright	KCAO
Sandy Zirlynik	Electronic Security Consultant – Via Teleconfer
Rob Williams	Facilities Mgt
Paul Allyn	Justice Systems
Ron Perry	Auditor's Office
Rose Pouley	URS Corp.
LEO D. McKINLEY	URS CORP.
Tom Wood	KCAO
Bruce Stephen	PMA
Jim Burt	FMD
Karen Henderegott	FMD
Jim NAPOLITANO	U.W.
Bob Thomas	KCAO
LESLIE HARPER-MILES	K.C.-FMD.
Tina Rogers	KCAO
Laura Ochoa	KCAO