



OFFICE OF INTERNAL AUDIT

REPORT TO THE BOARD OF SUPERVISORS

Public Works – Construction Management

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Executive Summary

The purpose of this audit was to evaluate construction management within the Pinal County Public Works Department. Overall, we have concluded that management of both facility and road construction projects could be improved. Planning for facility construction projects was determined to be inadequate, and transportation project planning is currently fragmented and inefficient. Although the projects we reviewed were acquired using methods allowed under Arizona Revised Statutes, we noted the facilities projects, unlike the transportation projects, were not competitively acquired using a traditional sealed bid procurement process.

Established procedures for paying contractors were appropriately documented and consistently followed; however, we found that inspections of contractors' work were not adequately or consistently documented. Even though change orders significantly increased project costs, we found no evidence that analyses are performed for the purpose of identifying endemic issues and preventing future cost increases in facility and transportation projects.

Finally, we would like to note that the Public Works Contracts Coordinator has done an excellent job administering the competitive bid process, and the Public Works Budget Analyst has also done an excellent job overseeing contract payments.

We recommend:

- Facility planning should be overseen by a formal committee and supported by a master plan
- Existing transportation committees should be formalized and streamlined
- A formal process should be established to determine, for each construction project, if a procurement method other than sealed bids will be used
- Inspections of contractors' work should be properly documented, retained and used to support contractor payments
- Change orders should be justified, reviewed, approved and analyzed to help ensure project costs are appropriately contained

The following report provides additional details of our audit observations and recommendations.

Lori Stripling
Internal Audit Officer

Background

The Office of Internal Audit has completed a review of construction management within the Pinal County Public Works Department. The audit was conducted in accordance with generally accepted government auditing standards and included such tests of internal controls as deemed necessary. We did not rely on automated data to support any of our conclusions.

The Public Works Department is responsible for overseeing both transportation and County facilities construction projects. For FY 2007-2008, Public Works maintained oversight of a construction budget in excess of \$70 million utilizing various highway funds, property and sales tax revenues, as well as grant awards and other revenue sources. Transportation projects generally consist of road and bridge construction, while facilities projects generally include new or renovated County facilities, such as judicial and administrative offices and work space.

Scope and Methodology

The purpose of this audit was to evaluate construction management within the Pinal County Public Works Department. Our specific objectives were to determine if:

- Planning for construction projects is adequate
- Contracting is efficiently accomplished
- Projects are adequately monitored and inspected
- Contractor payments are proper
- Change orders are effectively controlled

To accomplish our objectives, we:

- Interviewed Public Works and other County personnel
- Reviewed relevant documents, such as contractor payment files, construction contracts, inspection reports, committee meeting minutes, policies and procedures, bid files, change orders and budget documents
- Surveyed other counties to identify best practices
- Conducted site visits of construction projects

Overall Evaluation

Management of both facility and road construction projects could be improved. Facility construction project planning was found to be inadequate, and transportation project planning was fragmented and inefficient. Although the projects we reviewed were acquired using methods allowed under Arizona Revised Statutes, we noted the facilities projects, unlike the transportation projects, were not competitively acquired using a traditional sealed bid procurement process.

We noted established contractor payment procedures were followed and appropriately documented; however, inspections of contractors' work were not adequately or consistently documented. Finally, even though change orders significantly increased project costs, we found no evidence that analyses were performed to identify endemic issues, which could prevent future cost increases in facility and transportation projects.

Audit Results:

A. Facility Planning

Facility planning is in need of improvement. We found no evidence that formal comprehensive planning is performed for new or improved county facilities.¹ Unlike transportation planning, there is no five-year Facilities Plan. Instead, there is simply a list of facilities projects to be completed. For FY 2007-2008, there were nine facilities projects with a total budget of \$6.5 million. As the individual County offices and departments developed project needs and secured funding for their projects, they engaged the Public Works Department to perform or contract for the required services, such as engineering, design and construction.

We noted that oversight review of facilities projects was limited. Due to a lack of adequate and appropriate master planning, County facilities have not been efficiently and effectively coordinated, located, or generally well planned. A recent example is the decision to place a modular library facility adjacent to the existing Sheriff's modular facility, which is located on county land in the San Tan area. No planning document was found illustrating future anticipated location, use or design of facilities and parking on this land.²

A master County facilities plan with a strong oversight committee is needed. This plan would identify future County needs and projects to be phased in over a multi-year period. It would result in coordinated efforts designed to ensure not only more efficient contracting, but more coordinated facilities, shared infrastructure (utilities, parking, etc.), and more permanent facilities for future use. It would afford better project review and budgeting, as ongoing maintenance and operating costs are considered together with initial acquisition and start up costs. It is important to note the lack of oversight and review may contribute to the number of expedient solutions, such as the use of modular facilities, as opposed to securing adequate funding for more permanent well planned facilities. Finally, the lack of strong facilities oversight has contributed to the use of less competitive contracting methods and excessive use of change orders, due to requested changes to project specifications.

Recommendations:

1. *a. The County Manager should require the newly formed Master Facility Planning and Construction Committee to formalize its procedures and submit them to him for final approval.*

b. The Committee should be given the authority and responsibility to develop a five-year facilities plan; approve, reject or modify requested projects; prioritize project requests; and approve all facility change order requests due

¹ The Board of Supervisors recently initiated action to start a Master Facility Planning and Construction Committee.

² A limited plan was completed in 2006. It indicated multi-use facilities for the San Tan Complex, but it is not evident that this was considered when deciding to place a modular Library at the site.

to changed project specifications that result in increases of more than 5% of the original contract cost.

c. The Committee should be required to record minutes of each meeting, formally documenting all actions taken and decisions made by the Committee.

- 2. The County Manager should ensure a master facility plan study is conducted, to identify current and future County facility needs. This plan should serve as the basis for the Master Facility Planning and Construction Committee's review and prioritization of projects.*

B. Transportation Planning

Transportation planning is fragmented. Planning for new roads and bridges is currently accomplished using a combination of three advisory committees, along with transportation studies overseen by the Public Works Department. Each of the three Transportation Advisory Committees (one for each County district) directs the planning for only a portion of road projects within their districts, while the remaining road projects are planned by the Public Works Department. As such, projects totaling \$34 million were included in the FY 2008-2009 five-year plan, in addition to the three Committees' planned projects. The Committees focus primarily on citizen, staff, and officials' requests, which are funded only from the County's designated ½ cent tax source. The other major projects planned by Public Works are based on transportation studies, and are funded using both the ½ cent tax and other funding sources. The three Committees operate without Board approved by-laws, which would specify their role and establish key rules and guidelines, such as length of term and term limits for committee members.

We surveyed the two Arizona counties of Maricopa and Mojave and found these counties use only one Committee, with approved by-laws, that includes representatives from each County district. Use of a single committee streamlines the planning process and allows for more comprehensive county-wide planning, while continuing to assure individual district representation. Further, the use of only one committee will greatly reduce the time needed for Public Works personnel to facilitate Committee meetings. We estimated, in 2008 alone, Public Works staff devoted 250 work hours to attending and facilitating district committee meetings.

While citizen input is valuable, well developed transportation studies that focus on traffic, future growth, state Air Quality rules, legislative mandates, and documented road conditions should serve as the primary basis for allocating scarce transportation dollars. Funding roads based on traffic studies helps to ensure limited tax dollars are appropriately allocated to projects providing the greatest benefit to the public.

Recommendations:

- 3. The Director of Public Works should consider providing the County Manager with an analysis and recommendation for establishment of a single Transportation Advisory Committee.*

4. *The Director of Public Works should establish Transportation Advisory Committee By-Laws, which should include:*

- *Rules for appointing members*
- *Established terms and limits*
- *Committee's roles and responsibilities*
- *Guidelines for selecting and prioritizing projects.*

5. *The Director of Public Works should ensure that transportation planning studies are used by the committee(s) as the primary basis for identification of County transportation needs.*

6. *The Director of Public Works should coordinate efforts with the formally chartered Transportation Advisory Committee(s) in establishing a comprehensive five-year transportation plan, which should be updated annually.*

C. Facilities Contracting

Facility construction contracts are not always obtained using competitive sealed bids. Although the projects we reviewed were acquired using methods allowed under Arizona Revised Statutes, we noted the facilities projects, unlike the transportation projects, were not competitively acquired using a traditional sealed bid procurement process.

The three facilities projects reviewed totaling \$4.5 million, which include the Long Term Care Facility Expansion, Eloy Courthouse renovation and Maricopa Courthouse building, were contracted using non-competitive bid processes. The methods used, though technically allowable, may not have been the most cost effective. Justification for the decision to forego a competitive, sealed bid process was not documented in any of the project files. Also, independent cost estimates were not performed to determine if the contract amounts were reasonable, prior to entering the contracts.

Although reasons for using alternative procurement methods were not documented, it appears they were used to expedite the projects, avoiding the more time consuming competitive process. Also, because there was no oversight committee, as discussed earlier in this report, individual offices and departments were allowed to independently choose their preferred method of contracting, as opposed to Public Works making the decision to use a competitive sealed bid process. Deviating from established competitive bid procedures reduces the assurance that projects are acquired at a reasonable cost, using a fair and transparent process.

Recommendation:

7. *The Director of Public Works should establish a formal process to determine, for each construction project, if a procurement method other than sealed bids will be used.*

D. Daily Activity Inspections

Daily activity inspections of construction projects were not adequately documented. While Public Works employs project inspectors to oversee all road and facility construction projects, daily activity reports for three of the seven projects reviewed could not be located³. This may be due to a lack of established formal procedures for documenting daily activity inspection results and filing and retaining reports.

The forms used for daily activity project inspections are designed in duplicate, and during our review of facility projects, we noted the duplicates were provided to the project manager. However, they were discarded after review and not retained as part of the permanent project file. As a result, only the inspector's book copy was retained.

Conversely, during our review of transportation projects, we noted the duplicate was never forwarded to the project manager for review, and remained attached to the original in the inspector's office. As a result, the duplicate document is not properly utilized, and there is an increased risk it will be misplaced. Payments of more than \$2 million for these projects were made with no documentation of daily activity inspections or verification of contractors' work. Further, for those projects⁴ that did include daily inspection files, the documents were not consistently prepared and did not always adequately document the contractors' completed work, prior to approving progress payments. For example, we noted a \$63,000 invoice for concrete work was approved, while reports did not indicate this work was accomplished. The project manager stated he normally relies on discussions with the inspector and site visits, to ensure invoices reflect only work actually completed.

Project documentation is critical to supporting the County's position in the event of contractual or billing disputes. It provides assurance that inspectors and other County personnel are properly performing their duties. It ensures contractors are evaluated fairly and consistently; and it provides assurance that the County is receiving a level of quality equivalent to the dollars expended.

Recommendation:

- 8. a. The Director of Public Works should develop procedures for documenting daily activity inspection results, as well as distributing and retaining inspection copies.*
- b. A standard checklist for daily activity inspection reports should be developed, and the inspectors and project managers should be trained.*

³ Five weeks after completion of audit work, two of the three missing files were located.

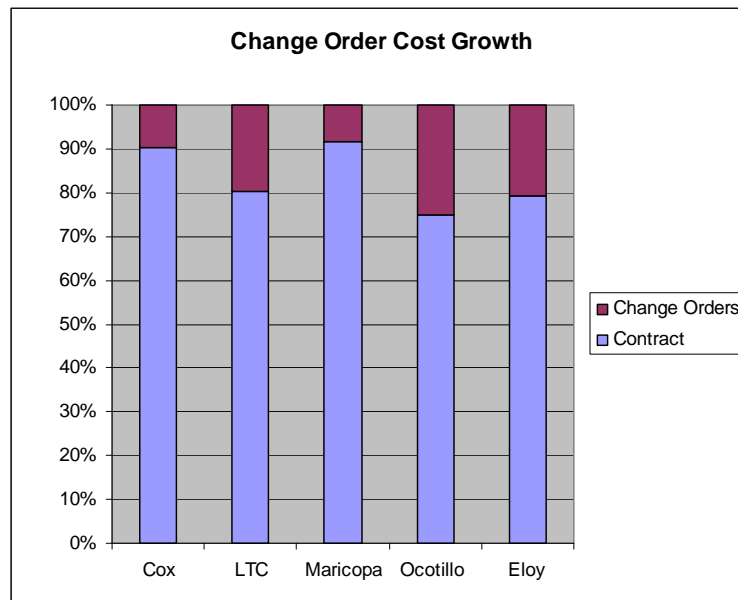
⁴ One project reviewed was state administered; therefore, no Pinal County inspections were required.

c. Daily Activity Inspection Reports should clearly correlate with contractor work completed, to serve as support and justification of progress payments.

d. Duplicate copies should be forwarded from the inspector to the project manager for review, and should be retained as part of the project master file.

E. Change Orders

Change orders significantly increased the cost of projects and were not always well documented. Public Works did not have formal performance goals developed, to evaluate the extent of cost escalation caused by change orders. Further, there is no review process established to analyze change orders, for the purpose of improving the construction process. We reviewed seven transportation and facilities projects and noted five (5) or 71% had change orders increasing the project cost more than 5%⁵. The increases ranged from 9% to 33% of the original contract cost. The significance of the cost growth is illustrated on the following chart.



Change orders occurred for several reasons, but primarily they were due to facility users changing the scope of the project after work had commenced, or because of technical problems identified after construction began.

⁵ Although no goals for change order cost containment were currently established, 5% of original contract cost has recently been proposed.

Since contractors bid competitively for only the initial contract, increasing the scope after the contract is awarded results in little incentive for a contractor to keep the additional costs down. Further, since no facility review committee had been formally established, as discussed in Finding A, there was no formal review and approval of these increases in project scope. Generally, if the department had the necessary funds, the increases were approved.

When costs were increased due to technical problems, such as poor soil conditions, we found no review or analysis regarding potential fault of designers, contractors or others. It was noted the County always assumed the increased cost. Properly managing change orders is critical to controlling construction project costs and assuring the County is getting the most value for its construction dollars.

Recommendations:

9. *The Director of Public Works should require that all change orders for facilities projects, resulting in additional project costs of more than 5% of the original contract amount, are reviewed and approved by the Master Facilities Planning Committee.*
10. *The Director of Public Works should revise change order documentation procedures, to include a required assessment of cause/fault, prior to recommending approval of change orders that increase project costs.*
11. a. *The Director of Public Works should ensure a periodic review of change orders is performed, to determine if improvements in construction planning and processes are needed to minimize future change orders.*

b. *A regular management report should be established, documenting the review of change orders.*

Attachments:

Exhibit A: Management Response

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Exhibit A
Audit of Public Works Construction Project Management
Management's Response and Action Plan
December 2008

Audit Recommendation	Concur (Yes or No)	Management's Response and Action Plan	Target Date	Individual(s) Responsible
<p>1. a. The County Manager should require the newly formed Master Facility Planning and Construction Committee to formalize its procedures and submit them to him for final approval.</p> <p>b. The Committee should be given the authority and responsibility to develop a five-year facilities plan; approve, reject or modify requested projects; prioritize project requests; and approve all change order requests that result in increases of more than 5% of the original contract cost.</p> <p>c. The Committee should be required to record minutes of each meeting, formally documenting all actions taken and decisions made by the Committee.</p>	Yes	<p>The committee is in the process of establishing written procedures. Once completed, the procedures will be formally adopted and approved by the County Manager.</p> <p>The Committee will be given the stated authority and responsibilities.</p> <p>The Committee will record minutes.</p>	2-28-09	<p>Lisa Garcia Manny Gonzalez Ken Buchanan</p>

Audit Recommendation	Concur (Yes or No)	Management's Response and Action Plan	Target Date	Individual(s) Responsible
<p>2. The County Manager should ensure a master facility plan study is conducted, to identify current and future County facility needs. This plan should serve as the basis for the Master Facility Planning and Construction Committee's review and prioritization of projects.</p>	Yes	<p>The Board of Supervisors approved a Master Facilities Plan several years ago. Several smaller projects have been added that were approved by the CIP Committee but were not part of the larger Master Plan. The existing Master Plan will be revised and presented to the Board of Supervisors for FY 2009-2010. Pinal County is currently procuring a construction management company to address this area.</p>	2-28-09	<p>Lisa Garcia Manny Gonzalez Ken Buchanan</p>
<p>3. The Director of Public Works should consider providing the County Manager with an analysis and recommendation for establishment of a single Transportation Advisory Committee</p>	Yes	<p>Draft is completed and will be forwarded through the chain of command to the County Manager.</p>	1-31-09	A.J. Blaha
<p>4. The Director of Public Works should establish Transportation Advisory Committee By-Laws, which should include:</p> <ul style="list-style-type: none"> • Rules for appointing member • Established terms and limits • Committee's roles and responsibilities • Guidelines for selecting and prioritizing projects. 	Yes	<p>Draft is completed and will be forwarded along with the analysis.</p>	1-31-09	A.J. Blaha

Audit Recommendation	Concur (Yes or No)	Management's Response and Action Plan	Target Date	Individual(s) Responsible
<p>5. The Director of Public Works should ensure that transportation planning studies are used by the committee(s) as the primary basis for identification of County transportation needs.</p>	Yes	<p>The next 5 year plan will include references to transportation studies or design concept reviews.</p>	6-30-09	A.J. Blaha
<p>6. The Director of Public Works should coordinate efforts with the formally chartered Transportation Advisory Committee(s) in establishing a comprehensive five-year transportation plan, which should be updated annually.</p>	Yes	<p>The next 5 year plan will include the identification of all funding sources for transportation projects.</p>	6-30-09	A.J. Blaha
<p>7. The Director of Public Works should establish a formal process to determine, for each construction project, if a procurement method other than sealed bids will be used.</p>	Yes	<p>A process will be created that will be initiated by the Project Manager making a recommendation as to type of procurement and reasons why. If other than traditional Design-Bid-Build, the recommendation will be forwarded to the Assistant County Manager for their approval.</p>	2-28-09	Scott Bender

<p style="text-align: center;">Audit Recommendation</p>	<p style="text-align: center;">Concur (Yes or No)</p>	<p style="text-align: center;">Management's Response and Action Plan</p>	<p style="text-align: center;">Target Date</p>	<p style="text-align: center;">Individual(s) Responsible</p>
<p>8. a. The Director of Public Works should develop procedures for documenting daily activity inspection results, as well as distributing and retaining inspection copies.</p> <p>b. A standard checklist for daily activity inspection reports should be developed, and the inspectors and project managers should be trained.</p> <p>c. Daily Activity Inspection Reports should clearly correlate with contractor work completed, to serve as support and justification of progress payments.</p> <p>d. Duplicate copies should be forwarded from the inspector to the project manager for review, and should be retained as part of the project master file.</p>	<p>Yes</p>	<p>Item 8.d. has been implemented. Public Works will establish formal procedures for Project Management. This will include all items identified, and Project Managers will have training as to their specific requirements.</p>	<p>6-30-09</p>	<p>Scott Bender</p>
<p>9. The Director of Public Works should require that all facility project change orders, resulting in additional project costs of more than 5% of the original contract amount, are reviewed and approved by the Master Facilities Planning Committee.</p>	<p>Yes</p>	<p>This is part of the processes being included in the MFPCC procedures that are currently drafted. Public Works will comply with those procedures. Change orders are performance measure included in our Managing For Results Strategic Business Plan.</p>	<p>2-28-09</p>	<p>Scott Bender</p>

Audit Recommendation	Concur (Yes or No)	Management's Response and Action Plan	Target Date	Individual(s) Responsible
<p>10. The Director of Public Works should revise change order documentation procedures, to include a required assessment of cause/fault, prior to recommending approval of change orders that increase project costs.</p>	Yes	This will be added to all change order request documentation	1-31-09	Scott Bender, Gloria Bean
<p>11. a. The Director of Public Works should ensure a periodic review of change orders is performed, to determine if improvements in construction planning and processes are needed to minimize future change orders.</p> <p>b. A regular management report should be established, documenting the review of change orders.</p>	Yes	This will be done as part of Public Works Managing for Results reviews and reports.	1-31-09	Scott Bender