



# Fairfax County Internal Audit Office

Department of Public Works and Environmental Services  
Contract Management of Change Orders Audit  
Final Report

January 2011

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# Introduction

The Department of Public Works and Environmental Services (DPWES) organizational structure provides that the Construction Management Division (CMD) performs contract administration for facility, stormwater, transportation, and wastewater construction contracts. CMD advertises to bid, awards contracts, monitors construction activity and issues contract change orders. In the last two years, CMD has issued 75 change orders in the amount of \$4.6 million.

Change orders are a normal part of the construction contract process and can be requested by the owner through a Request for Proposal (RFP) or requested by the contractor. Typical construction contracts have experienced between 10% to 15% in change work and are budgeted accordingly. Change orders represent additional work which is within the scope of work required in the contract and identified subsequent to contract award. DPWES change orders include direct and indirect costs. The mark-ups (review and acceptance) for indirect costs and profit and how these costs are applied is governed by DPWES contract general conditions and specifically article 12, which addresses changes and modifications in the work.

## Executive Summary

We performed an audit of DPWES construction contract change order administration within CMD. Our audit focused on the evaluation of controls designed to prevent overpayments to the contractor on change orders. The results of our audit found that controls were in place, and were providing adequate safeguards. CMD was in substantial compliance with policies and procedures. We found that negotiated labor burden rates were within appropriate parameters and labor rates were within industry guidelines. Further progress in cost evaluations may yield incremental improvement.

We noted that DPWES had revised its policy and procedures over the contract administration function to an electronic version in 2007 that can be easily maintained and/or accessed by DPWES project managers to provide current, accurate, and thorough procedures to aid in the proper administration of contracts. This policy and procedure covers the capital construction contract administrative procedures employed by CMD project managers. This was a significant improvement to support the consistent administration and pricing of contract change orders, and we would like to commend DPWES management for their efforts in this regard. DPWES has also implemented a policy whereby more experienced supervisors and project managers as well as the Internal Audit Office provide training to engineers on the proper application of policy and procedures including change order mark-up. We note that this has been delivered about once every two years. Additionally, DPWES has provided training to its engineers using the Construction Management Association of America's Construction Management (CM) certification program. Since May 2009, eleven engineers have been certified with the goal of certifying all CMD engineers.

We noted in our sample of 16 contract change orders covering a total of \$1.89 million that six contained minor errors for an estimated \$11,000. This sample was from total contract awards of \$114 million with \$4.6 million in change orders. It should be noted that the total change order rate was 4% while this is historically in the range of 5 to 10%. The overall results are positive for the department's contracting procedures and controls. This performance can be further enhanced through several recommendations included in this report. For example, supervision, small tools, and general liability insurance were paid as a direct cost; when in fact, they are indirect expenses already paid for in the 15% mark-up for overhead and profit. These types of errors can be further reduced by enhanced oversight and training. These issues address effectiveness of the contract change order administration process and do not represent major oversights. Our recommendations are in line with DPWES strategic initiatives in the areas of departmental communications, training and development, and quality control.

## Scope and Objectives

This audit was performed as part of our fiscal year 2010 Annual Audit Plan and was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

The scope of this audit included all construction contracts and/or change orders issued during the period June 2008 through May 2010. During this period, DPWES awarded over \$114 million in construction contracts and issued over \$4.6 million in change orders.

The objectives of our audit were to determine that:

- CMD was in compliance with policy and procedure.
- Negotiated labor burden rates were reasonable.
- Labor rates were within appropriate ranges.

## Methodology

Our audit approach included judgmentally selecting a sample of capital projects that covered a range of project sizes and respective project managers. Since the sample selection was not statistically based, findings found in the sample could not be projected to the entire population. We interviewed key DPWES personnel, performed an internal control evaluation, and examined contract files. We examined change orders and noted the labor, labor burden rates, and mark-ups for overhead and profit to insure that the rates allowed were both reasonable and consistent with contract terms. Additionally, we selected contractors and/or consultants whose labor rates and/or labor burden rates

appeared excessive for a possible field audit in the near future. Our sample selection included 13 different contracts and 16 change orders amounting to an absolute value of over \$1.8 million or 40% of change orders from the audit period. We selected projects from the three CMD divisions to provide adequate audit coverage. We performed testwork that included reviewing all change orders in the sample for general conditions that are specifically included in contract mark-up for overhead and profit.

Our audit did not examine the system controls over purchasing and financial applications. Our transaction testing did not rely on those controls; therefore, this was not a scope limitation.

## Findings, Recommendations, and Management Response

### Change Orders

Our review of 16 change orders selected for our sample identified six different change orders that should have had minor pricing adjustments, totaling \$11,818. A majority of adjustments, 75% of the errors noted during our review, were due to inconsistencies in the application of procedures included in the standard contract general conditions Article 12. The type and nature of errors are as follows:

- Contractor site supervision paid as a direct cost (\$1441)
- Small tools paid as a direct cost (\$316)
- Indirect cleanup charges paid as direct cost (\$35)
- Sales taxes applied to direct labor (\$1404)
- Excessive labor rates charged (\$6992)
- Inflated rate allowed overhead and profit (\$1630)

To enhance the quality control for change orders, and minimize future errors, we recommend the following actions.

### **Recommendation:**

- a. **Checklist** – We recommend that CMD develop a checklist that clearly identifies allowable and unallowable mark-ups for overhead and profit to use as a guide in the application of contract general conditions. The checklist should be provided to each project manager (PM) responsible for the administration of construction contracts. This would provide a readily available tool that the PM maintains for each contract. This reference on proper contract administration procedures may result in fewer mistakes made when marking-up contractor proposed change orders prior to executing contract change orders.

**Management Response:** CMD will develop a checklist for staff to use as a guide to ensure conformance with contract requirements regarding allowable mark-up for change order work. This checklist will be posted on the Construction Management Guide, and will be available to all project engineers. The anticipated completion date is January 31, 2011.

**b. Training** – We recommend DPWES put a stronger emphasis on training by providing more frequent communication and training for the project managers and their supervisors in the critical sections of the contract general conditions. There should be specific orientation/ training for all new DPWES/CMD employees prior to performing as a project manager. Subsequent to the new employee training, more routine training exercises should be provided to staff and managers alike that allows all project managers and supervisors to be well versed in the proper contract mark-ups included in Article 12 of the general conditions. The department may benefit from developing and delivering training for the project managers more frequently than once every two years, increasing it to be conducted on an annual basis. The Internal Audit office is available to assist DPWES in developing presentations and/or highlighting specific areas of the general conditions to be reviewed.

**Management Response:** Change management training will be provided annually. This year's training was conducted on December 15, 2010. In addition, new employees will receive additional training in change management procedures as part of their orientation with close supervision and coaching.