



The University of Texas Medical Branch
Audit Services

Audit Report

Construction Management – Change Orders
Engagement Number 2019-007

March 2019

The University of Texas Medical Branch
Audit Services
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Background

The University of Texas Medical Branch (UTMB Health) Facilities Design & Construction (D&C), a department within Business Operations and Facilities (BOF), plays a key role in assisting UTMB Health achieve its objective of “Building the Future of Health Care”. The D&C team includes multi-disciplined professionals comprised of Program Directors, Project Managers, Construction Managers, and Interiors Managers responsible for overseeing projects from inception to move-in and ensuring projects keep flowing through the procurement and accounting processes.

During the design phase of a project, the D&C staff manage the architects and engineers' work to assure code-compliant projects meeting UTMB Health and the end-user's needs. During construction the D&C staff manage contractors, job order contractors, and in-house construction staff to build the designed projects. The details of project execution, including flowcharts of the life cycle process and standardized forms, are outlined in the BOF Project Delivery Manual (PDM).

UTMB Health capital projects managed or overseen by BOF can include infrastructure upgrades, Information Technology (IT) installation and/or upgrades, design-build for new facilities, repairs and renovations, etc. The University of Texas System's Capital Improvement Program (CIP) is a six-year projection of major new construction and repair and rehabilitation projects funded from institution and System-wide revenue sources. The UT System Regents' Rules and Regulations Rule 80301 defines major capital projects as meeting one or more of the following criteria:

- New building construction with a total project cost of \$10 million or more
- Road, paving, and repair and rehabilitation projects with a total project cost of \$10 million or more
- Any project determined by the Board to be architecturally or historically significant

Non-UT System CIP projects are those projects budgeted for less than \$10 million dollars and are known as “local” projects.

The construction contract is the primary document used to manage scope, budget, and schedule for any construction project. Project Change Orders made to Purchase Orders represent a risk that can adversely affect budget, scope and schedule and as such, require proper management. Project Managers should have an in-depth understanding of the terms and conditions of the construction contract as well as the scope of work. Additionally, the Project Manager must be familiar with the contractual requirements for managing change orders, including any limitations within the contract, and understand any time constraints on requesting a change order.

Audit Objectives

The primary objective of this audit was to assess the effectiveness of current change order processes in place for local/non-Capital Improvement Program construction projects.

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Scope of Work and Methodology

The audit scope of work included a review of the change order process for six recently completed or currently in process construction projects under \$10 million dollars. The projects selected for review included:

- 4 Bid Projects – Cryo Electron Microscope, EYE/ENT Clinic Renovation, PCP Pain Clinic, and Rebecca Sealy 3&4 Restrooms
- 1 Job Order Contract (JOC) – Alumni Field House Renovation
- 1 Lease Improvement – Friendswood Ob/Gyn

Our engagement methodology included interviews with key personnel, review of departmental policies & procedures and manuals/employee guidance, system/tool utilization analysis, limited observations of current operations and sample testing of construction projects within scope. For those projects selected, Audit Services analyzed a total of 138 Change Orders/Proposals and 104 Field Orders.

The audit was conducted in accordance with the *International Standards for the Professional Practice of Internal Auditing* as promulgated by the Institute of Internal Auditors.

Audit Results

General/Administrative

The BOF PDM, initially developed in 2014 and last revised in 2016, serves as the primary guidance and set of standardized tools to be used for projects. Audit Services used this as the guide when reviewing documentation related to the sample projects. During our testing, we noted various processes outlined in the PDM are not reflective of current operations. Additionally, we noted not all teams are using the same templates and various versions of templates are being used. Discussions with the D&C Program Director indicated they are aware of the need to update the PDM due to the continued evolution of operations.

Recommendation 2019-007-01-RM:

The Associate Vice President of Facilities Design & Construction should ensure the Project Delivery Manual is updated to reflect current processes and establish a routine documented review and update process.

Management's Response:

Design and Construction is currently in the process of updating the Project Delivery Manual to ensure it accurately reflects the project processes. After manual update completion an annual review will be conducted to ensure the accuracy of all the project delivery manual.

Implementation Date:

July 1, 2019

Recommendation 2019-007-02-RM:

The Associate Vice President of Facilities Design & Construction should ensure the standardization of project forms and their consistent use across the projects.

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Management's Response:

Design and Construction is currently in the process reviewing and updating all project forms to ensure standardization. Upon completion all current forms and the master location where the form will be located, will be communicated to all project teams.

Implementation Date:

May 31, 2019

Audit Services interviewed various team members associated with the 6 projects reviewed including 2 Program Directors, 4 Project Managers, 2 Construction Managers, and 2 Team Coordinators. We noted all individuals have at least 4 years of construction experience and appear to possess sufficient knowledge and skill-sets to adequately monitor projects.

Audit Services interviews indicated the documentation for smaller and/or shorter projects is maintained on the D&C shared drive while documentation for larger/longer projects is maintained in e-Builder, a construction project management software. Our review of the D&C shared drive project file structure indicated an appropriate level of organization and consistency. Although D&C primarily uses e-Builder as a documentation repository, there is greater functionality that could be utilized. D&C and IS-Business Intelligence personnel indicated existing issues between e-Builder and PeopleSoft prevent the department from completely integrating and utilizing the full potential of the software. These issues are under review for resolution. Additionally it was communicated that there is a 2018 test version of e-Builder available; however, it is not currently being utilized.

Recommendation 2019-007-03-RM:

The Associate Vice President of Facilities Design & Construction, once all current integration issues are resolved, should re-evaluate e-Builder's capabilities and consider expanding its use to all projects as the single repository of project documentation and enhance project management.

Management's Response:

Integration has been resolved by UTMB Information Services/Business Intelligence and Data Administration and Design and Construction with the exception of a few minor tweaks that may need to be made. As of March 1, 2019 all new projects will be entered into e-Builder. Project teams will be trained by Design and Construction Project Control Managers within the next six months on the capabilities of utilizing e-Builder for the primary repository for project documentation/information. As we continue to develop our knowledge and the capabilities of e-Builder we will continue to work towards e-Builder being the single repository of project documentation.

Implementation Date:

May 31, 2019

Project Monitoring

Audit Services selected a sample of 6 local projects with budgets ranging from \$435,150 to \$8 million and reviewed project supporting documentation to assess the adequacy of project

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monitoring. Our review of supporting documentation included construction contracts, notice to proceed memos, project budget reports, construction change orders, project change proposals with applicable field orders and/or request for information (RFIs) and their respective logs, and substantial letters of completion. During this review, Audit Services noted the following reoccurring observations across multiple projects:

- Inconsistent documentation of project meetings and significant decision points
- Lack of appropriate support for requested change proposals and/or incomplete documentation of field order changes
- Change orders/proposals not approved timely or were after the estimated completion dates
- Project closeout not completed timely

Detailed observations by project were shared with the Vice President, Business Operations and Facilities and Associate Vice President of Facilities and Design.

Audit Services noted that although reasons for a Field Order change are captured; D&C does not routinely perform a summary analysis to identify opportunities for process implement. Field Orders are generated on-site during the course of the project and when applicable used to support a Change Proposal. Our analysis of the 104 Field Orders associated with the 6 projects reviewed indicated approximately 61% or 54% of the dollar changes were the result of a change in scope or error and omission during the design phase.

Recommendation 2019-007-04-RM:

The Associate Vice President of Facilities Design & Construction, should review and improve the current project monitoring processes and consider:

- Increasing standardization of documentation for project meetings and significant decision points.
- Establishing a materiality threshold to close projects after completion due to inactivity.
- Establishing a project closeout phase review process ensuring timely project completion and documentation existence.
- Establishing a periodic review process of Field Orders reasons and discussing the results with the project teams to identify and implement further project management improvements.

Management's Response:

- Meet with Project teams to discuss the importance of standardizing meeting minute requirements for all project meetings to ensure documentation exists for important decisions that are made during project meetings. Beginning on March 1, 2019, all new projects will be entered into e-builder. Meeting minutes should be uploaded to the e-Builder project. This will be incorporated into the Project Delivery Manual.
- Communicate to project teams the importance of monitoring when all invoices have been processed against the PO's, regardless of dollar amount, to ensure timely closeouts are completed when PO's may have a remaining balance however project is completed, and no more invoices will be processed. This will be communicated to the teams via either email or meeting.

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- While updating the Project Delivery Manual, we will be reviewing the current steps of project closeout. We will update the closeout section to ensure that it clearly defines processes that will lead us to work towards project's closing out more timely as well as ensuring documentation of project closeout is properly completed.
- During the Project Closeout phase, the Field Order reasons will be reviewed in the lessons learned meeting. The Project Manager and/or Director will review the reasons for the field orders and discuss with the team ways to possibly avoid the reason in the future. This will be incorporated into the closeout process in the Project Delivery Manual.

Implementation Date:

July 1, 2019

Conclusion

Based on the audit work performed, it appears overall the Design and Construction department has established an effective foundation for construction project life cycle management. Audit Services identified opportunities for continued maturation the program to further strengthen its overall effectiveness and improve efficiencies.

We greatly appreciate the assistance provided by Business Operations & Facilities Design and Construction staff and hope that the information presented in our report is beneficial.



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