
Secretary of State

State of Oregon

DEPARTMENT OF CORRECTIONS

Change Order Management and Subcontractor Bidding



Audits Division

Contract Auditor: Dye Management Group, Inc. in conjunction with Garry Struthers Associates, Inc.

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Auditing for a Better Oregon

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Attached is the audit of *change order management* and *subcontractor bidding* of the Department of Corrections' prison construction program. Dye Management Group, Inc., conducted this audit under contract to the Oregon Audits Division.

The report makes key recommendations to enhance the department's management of Oregon's major new prison construction projects. We hope that this report is used by the department, the Governor's Office, and the Legislative Assembly to improve Oregon's use of the \$1 billion budgeted for new prison construction.

The audit reached conclusions in three important areas:

- ***Contracting Practices***

While the prison construction contracts generally complied with laws and standards, the contracts were not clear. For example, the contract did not clearly identify which changes that occur during construction would fall under the general scope and cost of the original contract and which changes would warrant construction cost adjustments.

- ***Change Order Management***

The department's independent review of project change orders was insufficient to ensure that the state's interests were protected. The department paid additional markup for costs not explicitly allowed by the contract, and allowed substantial increases to many subcontractors. Project change orders can be substantial (e.g. one increase of 3,000 percent), making a rigorous review process essential.

- ***Subcontractor Bidding***

The department's contractor did not obtain bids at one prison construction site in compliance with the contract's "sealed bidding" requirements. Further, the department has made little effort to review bids awarded by its contractor. These practices do not protect against the possibility of preferential treatment of some bidders.

OREGON AUDITS DIVISION

John N. Lattimer
Director

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Performance Audit
on behalf of
Oregon Secretary of State, Audits Division
for
Change Order Management and Subcontractor Bidding
New Prison Construction Program
Oregon Department of Corrections



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Executive Summary



On behalf of the Oregon Secretary of State (Audits Division), Dye Management Group, Inc. conducted an audit of the Oregon Department of Corrections' (Department) contracting practices, change order management, and subcontractor bidding processes. The audit team utilized interviews, literature reviews, and data and project record analysis to assess the Snake River and Two Rivers Correctional Institution projects (SRCI and TRCI, respectively).

The project management approach used by the Department for the two projects was construction manager/general contractor (CM/GC), a fast-track approach by which a single firm is hired to provide both construction management and general contracting services.

Major conclusions and recommendations for the audit appear below:

A. Contracting Practices

- Contracts are in compliance with ORS and OAR regulations as well as industry practices. However, we find that the applicable standard general conditions do not clearly identify the standards or factors under which changes warrant guaranteed maximum price adjustment. In fact, there were many SRCI changes performed within the guaranteed maximum price that fit the standard general conditions criteria. The TRCI contract provisions better satisfy the requirement to identify factors under which changes fall outside of work scope.

However, the audit team found the TRCI provision to be too broad. We believe that if the CM/GC is unclear as to what is and what is not to be included in the guaranteed maximum price, the CM/GC is more likely to include considerable contingency in its estimates.^A

B. Change Order Management

- We found that the Department does not afford adjustments the same level of scrutiny as owner change requests, in spite of the fact that adjustments may value in the hundreds of thousands of dollars and impact the costs and schedule of unrelated work.^B
- In our professional judgement, the TRCI CM/GC has exercised good oversight and review of proposed changes and subcontractor cost proposals. However, the Department should not rely solely on the contractor to protect the owner's interests in this regard. SRCI's change order records did not provide as clear evidence of change order management. However, the project management firm applied proven change

management techniques to carefully track and review changes, and our review found that at times, the SRCI CM/GC reduced subcontractors' prices.^C

- Change order approvals, in the form of Department and CM/GC signatures, were not always obtained in a timely manner. Deferred decisions on both projects further impact the work by causing rework, work stacking, schedule delays, and additional cost.^D
- Despite the efforts of the TRCI CM/GC to ensure excessive charges were not passed through to the Department, there are indications that subcontractor pricing reflected impact costs. SRCI change orders included settlements with three subcontractors for impacts due to issues such as lost productivity, extended overhead, additional supervision, and uncompensated costs for directed work.^E
- Included in a number of changes reviewed by the audit team were costs that were not explicitly allowed in the Standard General Condition of the contracts. These were typically computed by percentage markups to labor amounts for expenses such as safety, record drawings, small tools and consumables.^F
- To date, the percentage of change order amounts has not exceeded allowable amounts. However, with allowable amounts (set by Oregon law) ranging as high as 20 percent, SRCI changes equaled 20 percent of the original guaranteed maximum price contract, and TRCI changes stand at 14 percent of the original guaranteed maximum price (at approximately 73 percent project completion).^G
- According to industry practices and CM/GC officials from both projects, typical contingency funds on new construction projects range from 3-5 percent construction contingency, and a 5-10 percent owner contingency. The Department's project experience at SRCI and TRCI exceeds these ranges.^H
- Many individual subcontracts experienced increases well over 20 percent of their original value. On SRCI alone, twenty-seven subcontractors had their contracts amended by more than 20 percent, including the major subcontractors for electrical, mechanical, concrete, and site utilities. In one case at SRCI, a subcontractor had an original scope of \$22,920 increase by over 3000 percent (to \$525,148) through change orders.^I
- There are indications that extra work was performed on both projects before change orders were finalized. At both projects correspondence indicates that in a few cases subcontractors were directed to perform work before negotiation of a change order. For example, at TRCI work was begun on the Workforce Alternative before potential change order 158 was approved in December 1998.^J

C. Subcontractor Bidding

- The 20 interviews with subcontractors revealed few complaints about the quality and accuracy of the bid packages and other bid information on either project. However, on both projects two subcontractors raised concerns regarding the short timeframe to put bids together, due to the fast nature of the projects.^K
- Based on the requirements of ORS 279, SCRI bids were not obtained in compliance with sealed bidding requirements, whereas TRCI bids were compliant.^L
- The TRCI subcontractor bidding process has been more closely managed than the SRCI process – especially in terms of sealed bid oversight. However, on both projects the Department has made little effort to question how bid award decisions have been made.^M
- Current practices inherently leave room for inadvertent or deliberate preferential treatment of some bidders, as the CM/GC is privy to information not necessarily available to all general contractors.^N

D. Other Matters

Although not an issue originally included within the scope of this audit, the auditors found the current use of guaranteed maximum price savings and owner contingency accounting problematic and not always in the best interest of the State; we suggest that reforms should be made in its design and use.^O

I. Introduction



This audit presents the results of our performance audit of Change Order Management and Subcontractor Bidding of two prisons being constructed as part of the Oregon Department of Corrections prison construction program. The audit was conducted by Dye Management Group, Inc. on behalf of the Oregon Secretary of State, Audits Division.

The audit is the fifth in a series of audits of the Department of Corrections' prison construction program. The Audits Division has also conducted four previous performance reviews of the Department's prison construction program: (1) a review of the Department's infrastructure planning; (2) a review of the Department's procurement and contract development practices; (3) a review of the Department's long-range planning and budgeting process; and 4) a review of the Department's construction oversight practices. This audit is intended to address these questions about the Snake River and Two Rivers new construction projects (SRCI and TRCI):

- **Contracting Practices:** Do contract provisions comply with applicable regulations? Do contracting practices comply with industry practices?
- **Change Order Management:** How does the Department of Corrections ensure that change order work is needed and that the Department is not paying more than necessary for this work? What controls are in place to prevent excessive change order costs and are these controls operating to effectively protect the State's best interest?
- **Subcontractor Bidding:** How does the Department ensure that subcontractor work is competitively bid? Are the controls in place sufficient to allow for an open, competitive process?

The audit was conducted from May to July 1999. This work was carried out in accordance with *Government Auditing Standards, 1994 Revision*. Our audit methodology was comprised of interviews, documentation and file reviews, industry practices analysis, and data collection and analysis. Specific methods appear in Appendix A.

The audit was conducted by Dye Management Group, Inc. The audit team consisted of the following personnel:

William Dye, M.S.

E. Randolph Armour, M.A.

David Rose, Ph.D.

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The courtesies and cooperation extended by the officials and staff of the Oregon Department of Corrections were commendable and much appreciated.

II. Background



The construction of new prisons in Oregon is a significant capital investment that is being carried out by a dynamic process with multiple participants and sometimes complex procedures. This is illustrated in the background information presented below.

A. Prison Construction Program

The Oregon Department of Corrections (Department) is in the midst of a \$1 billion prison construction program. The Department's current long-range construction plan includes both new prison facilities and expansion of several existing facilities. The expansion of the Snake River prison was the first project on the Department's plan and was the largest state-financed construction project ever. The construction of the Two Rivers project followed and has completed approximately three-quarters of its construction phase.

B. The Construction Manager/General Contractor Process

To construct the expansion of the Snake River prison and the Two Rivers prison, the Department used the construction manager/general contractor (CM/GC) approach. The CM/GC is a fast-track approach by which a single firm is hired to provide both construction management and general contracting services. Under this process, the site work, building foundation, and other early construction work may be designed and bid before the design for later stages of the construction is completed. Subsequent parts of the project can also be designed, bid, and started in stages. The CM/GC provides professional management services for the construction project and assumes responsibility for competitively bidding and awarding construction trade contracts and managing and coordinating the activities of the trade contractors.

The method provides for significant construction input during the design phase of a project. The CM/GC is brought on board early, participates in design reviews, assists with the preparation of bid packages, manages the subcontractor bid process, and provides project management services. CM/GC projects can be completed on shorter schedules than conventional design-bid-build projects (on the order of 9.2 percent less time); however, cost growth has been found to be 7.8 percent more for CM/GC due, in part, to the nature of fast-tracked construction.¹

By definition, a "fast-tracked" project allows construction to begin before design is fully completed. As design advances from design development to preparation of final documents, construction packages are released for site work, foundations and utilities. As design is finalized, there is a high probability that work bid in early packages will require modification to accommodate final design elements, resulting in change orders.

Additionally, review of multiple bid packages increases the need to coordinate between documents and ensure all scopes of work are covered. Oversights will need correction via change order.

C. Project Organization

For both projects, the Department used four primary contractors: CM/GC, the architect, the professional project management firm, and the materials testing firm. The following describes the general roles and responsibilities of these four firms and the Department in the construction process.

The CM/GC Firm was responsible for coordinating and managing the building process with the Department, the architect, and other firms working on the project. Responsibilities included providing construction management services in the programming, planning, design, and construction phases of the project. The CM/GC also was responsible for working with the architect and the Department to provide a project “guaranteed maximum price” and for ensuring that the project was constructed within those constraints.

The Architect was responsible for providing design services. These services included programming and master planning, architectural programming, schematic designs, design development, construction documentation, bidding, construction contract administration, interior design and space, planning, and supplemental services.

The Project Management Firm was responsible for providing a full range of project management services, including overseeing the CM/GC and construction activity; providing technical advice and assistance regarding cost estimates, code requirements, consultant services, and construction procedures; and participating in the design and construction process to ensure that the project was completed on time and within budget. The firm’s role was not as a traditional Construction Manager, rather as a project controls consultant.

The Materials Testing Firm provided independent laboratory testing and special inspection services required by the Uniform Building Code. Services included the testing and inspection of earthwork, soil, concrete, paving, unit masonry, structural steel welding, and metal fabrication. The tests and inspections were conducted throughout the course of the project to ensure construction quality.

The Department of Corrections was responsible for managing the procurement of the key firms working on the construction projects, developing and administering contracts, and ensuring that the construction projects received adequate oversight and supervision. The Department also had a staff member serve as a project manager on site.

D. Change Orders

Research and interpretation of change orders for the two projects highlighted the complexity of change orders, their development, and management. The following is intended to provide background to the reader regarding change orders.

Procurement of construction services through change orders is problematic in many respects. Research by the Construction Industry Institute (CII), an organization founded in 1983 by a cross-section of construction industry owners and contractors, has found that the introduction of multiple change orders during the course of a construction project potentially disrupts the normal workflow and workplan, interjects complexity into an already complex process, draws upon limited management and engineering resources, and impacts work elements unrelated to the changed work.

Even the value of beneficial changes to project scope will be diminished because of the effects of the disruption that they create. The negative effects of scope change will increase rapidly as the project progresses. Even incremental change can have disproportionate impacts due to indirect and cumulative effects.²

The total actual cost associated with multiple changes is rarely reflected in the final tally of change order amounts. Schedule delays, when supported by critical path analysis and reliable as-built schedule data, produce contract time extensions and additional overhead expenses (often handled in a separate change order). Conversely, efforts to maintain progress can result in additional engineering and procurement support, out-of-sequence work, and acceleration. Productivity losses due to trade-stacking, split work crews, and frequent overtime are notoriously difficult to measure. CII research has found productivity losses as high as fifteen percent as changes increase.

The cost effect of a change depends on the point in time it is introduced. If made very early in (the project), there may be only the direct costs of the change to account for. At any later time, there can be a ripple effect on other engineering work, and there may be construction rework and delays. The consequential effect tends to increase exponentially with time into the project.³

Contractors and sub-tier contractors attempt to recover as much as possible of these tangible, but difficult-to-measure costs. Furthermore, some firms competing in a hard-bid environment may be tempted to recover money “left on the table” at bid time, through change orders. Once the contract is awarded, the pressures to price competitively are gone. Public works contract provisions are typically restrictive as to allowable costs and markups. Firms try to work within these restrictions to price change proposals accordingly. Some pricing strategies are described further in this report.

Measurement

An essential element of project management is the use of measurements and timely reports to inform managers. CII defines a metric as “a measurable outcome that indicates degree of success in achieving some quality objective.” A good metric is one that is:

- Measurable
- Significant to the organization and project team
- Influenced in some predictable way by management action
- Repeatable
- Timely⁴

As an example, the report for the Department by its project management firm on the SRCI project utilizes some very good metrics. Request for information and submittal turnaround times are an indicator of the health of a project, and would flag whether sufficient resources are devoted to these tasks.^P

A commonly used metric in change management is classification of the type and nature of the change. An inordinate number of changes for overtime costs or life-safety improvements, for example, supplies information for managers to strategize accordingly. Furthermore, this information provides a lessons learned database with an eye towards improving future projects.

III. Audit Area: Contracting Practices



Contract compliance with applicable regulations was reviewed by the audit team. The related audit questions addressed appear below.

A. Do subcontractor bidding and change order related contract provisions comply with applicable regulations?

Answer:

Comparison of ORS 279 and OAR 137 to the contracts for the two projects concludes that contracts for the two projects generally comply with these regulations for subcontractor bidding and change order management.^Q

Findings:

Our review found that the Oregon laws regulating CM/GC contracts are fairly broad, thus providing the Department and CM/GC firms some latitude with compliance. More specific CM/GC guidelines for contracting agencies are laid out in OAR 137-040-0500 through 0590 including: the pricing mechanism or guaranteed maximum price negotiation; the RFP and selection process; CM/GC contractual requirements; and post-project evaluation.^R

Addressing subcontractor bidding or selection, OAR 137-040-0570.5(i) reads as follows:

Subcontractor Selection. The CM/GC contract documents shall clearly describe the methods by which the CM/GC shall publicly receive, open and record sealed bids or price quotations, and competitively select subcontractors to perform the Contract Work based upon price, as well as the mechanisms by which the CM/GC and its affiliated or subsidiary entities may compete to perform the Work, including, at a minimum, advance notice to the public of the CM/GC's intent to compete and a public Openings of Bids or quotations by an independent party.

Articles 13 & 14 in the TRCI contract meet these requirements. Article 10 in SRCI's contract does not specify "sealed" bids as required.

Addressing changes to the guaranteed maximum price, OAR 137-040-570.5(b) reads as follows:

Adjustments to the guaranteed maximum price. The contract documents shall clearly identify the standards or factors under which changes or additional work will be considered outside of the Work scope and warrant an increase in the guaranteed maximum price, as

III. Audit Area: Contracting Practices

well as criteria for decreasing the guaranteed maximum price. The guaranteed maximum price shall not be increased without a concomitant increase to the scope defined at the establishing of the guaranteed maximum price.

The SRCI contract provisions for guaranteed maximum price adjustment essentially relies on Section D of the Standard General Conditions which says, in part:

The Owner's Authorized Representative may at any time, without notice to the sureties, either increase or decrease the amount of work to be performed under the Contract. Without impairing the Contract, the Owner reserves the right to require changes determined necessary or desirable to complete the proposed construction within the general scope. These changes may include, but are not limited to:

- (a.) Specifications and design
- (b.) Increases or decreases in quantities
- (c.) Additional work
- (d.) Elimination of any Contract item
- (e.) Duration of project
- (f.) Acceleration or delay in performance of work

We find that these standard general conditions do not clearly identify the standards or factors under which changes warrant guaranteed maximum price adjustment. In fact, there were many SRCI changes performed within the guaranteed maximum price that fit the criteria above.

The TRCI contract provisions better satisfy the OAR 137-040-570.5 requirement to identify factors under which changes fall outside of work scope by stating, in part:

Basis of Guaranteed Maximum Price. The guaranteed maximum price is based upon the guaranteed maximum price Supporting Documents and may only be increased by Change Order that reflects changed site conditions, additional work provided by the CM/GC under this Contract or documented and accepted changes from the Technical Specification.

We found this description to be quite broad. For example, additional work provided by the CM/GC may be for overtime to recover contractor delay, for added scope, or for construction means and methods. Then, as in SRCI, the contract goes on to cite Section D of the General Conditions.

We believe that if the CM/GC is unclear as to what is and what is not to be included in the guaranteed maximum price, the CM/GC is more likely to include considerable contingency in its estimates. Or, conversely, the CM/GC can argue that every change falls outside the guaranteed maximum price and therefore requires a change order with the CM/GC's fee added.^S

In a related matter, OAR 137-040-570.5(c) states:

Cost Savings. The contract documents shall clearly identify the disposition of any cost savings resulting from completion of the Work below the guaranteed maximum price; that is under what circumstances, if any, the CM/GC might share in those cost savings, or whether they accrue only to the owner's benefit. (Note that unless there is a clearly articulated reason for sharing such cost savings, they should accrue to the Agency.)

We found that neither the SRCI nor the TRCI contract comply with this requirement. In actuality, any potential cost savings have been consumed by adjustments and owner-requested changes.^T

B. Do subcontractor bidding and change order contracting practices comply with industry practices?

Answer:

Generally yes, considering that industry practices in this field are still evolving.

Findings:

Our research found that the use of the Construction Manager/General Contractor (CM/GC) project delivery method in the public sector is still a relatively new development. In fact, Oregon was one of the first states to authorize its use on public-works projects that met certain criteria. Since then, Washington, Iowa, and a number of other states have adopted alternative contract delivery methods, including CM/GC. Each state imposes different regulatory restrictions on the practice, however. For example, some states allow the CM/GC to self-perform work whereas others restrict this. Some states allow prequalification of subcontractors, other states do not. This variability complicates the development of standards.

The CM/GC approach has been applied on a variety of projects by owners ranging from municipalities and universities, to state agencies. These owners have had to develop contracts and procedures on a "trial and error" basis, learning from private industry, comparing notes with each other and modifying processes where necessary. The Department recently underwent a complete reevaluation of its project management procedures to factor in the requirements of CM/GC. At present, there is little institutional history of CM/GC to draw upon. Research on CM/GC and other alternative contracting methods in the public sector is just beginning.

IV. Audit Area: Change Order Management



Changes to project plans can impact the cost and scope of the project. The changes, in many cases referred to as change orders, and the processes for managing them were reviewed by the audit team. The following audit questions were addressed regarding change order management:

A. What is the established change order process and is it being followed?

Documentation on the change order process at the time of SRCI is contained in the *1990 Project Management Systems for Construction* and *Construction Management* manuals. The *Construction Management* manual is a condensed version of the former. In reality, however, the change order process followed procedures developed by the CM/GC.

The Department has outlined a change order process in the May 1998 *Project Management Procedures Manual*. The manual also describes a procedure for processing adjustments within the guaranteed maximum price. We found that this process seems to describe the procedures followed on TRCI with several exceptions.

The Department's change status log states, however, that these procedures were not formally implemented on TRCI until September 1998. This is after the initiation of major changes adding the Workforce Addition, the Laundry Transfer Building, the Regional Transport Building, the Vehicle Maintenance Building and the Industrial Laundry. The Department's success at applying these processes is discussed below.^U

1. How does the Department ensure change order work is needed?

Answer:

According to an interview with the Department Project Manager, the consultants and CM/GC were relied upon to determine the appropriateness of change order work. At SRCI, change orders were reviewed by the architect, the CM/GC, the project management consultant and then approved by the Department Project Manager. The "Findings of Fact" forms used on Phase 1 were not used on Phase 2. A Department form was used for owner requested charges but provided minimal explanation or justification.

At TRCI, the Department documented a procedure to be followed for changes outside the guaranteed maximum price or owner-requested changes, as outlined in the 1998 manual. This procedure is to ensure the Team Leader and the Department's Project Manager discuss the merits and impacts of a proposed

change. However, auditors observed a number of instances when procedural steps were not followed.^V

We found that the Department does not afford adjustments the same level of scrutiny as owner change requests, in spite of the fact that adjustments may value in the hundreds of thousands of dollars and impact the costs and schedule of unrelated work. The Department leaves the justification for adjustments to the discretion of the CM/GC. Furthermore, there are numerous changes identified as adjustments that originate from owner-requested changes.^W

Findings:

At TRCI, the Department's owner change request log identifies 52 owner-requested changes. We reviewed over 500 changes and identified over 100 changes that appear to be owner-requested, some of which were classified as adjustments. According to the *Project Management Manual*, the Department is to carefully consider the costs and schedule impacts of these changes. We found that this has been applied inconsistently. Since early 1999, the TRCI CM/GC has been identifying the premium costs for changes separate from the direct costs.^X

Two of a number of typical owner-requested changes that were treated as adjustments at TRCI included:

- Potential Change Order Number 517 calls for the relocation of installed PSE cabinets from inside the fence to between the security fences at a cost of approximately \$105,000. According to the CM/GC, this change was requested by the TRCI Superintendent after a site visit. No potential owner change request or owner change request was issued. The project manager and Team Leader did not complete a Findings of Fact form. An Architect Supplemental Instruction (ASI) was issued without a directive from the Department. An RFP was not issued to the CM/GC. The work is underway without proper authorization and a completed change order *or* adjustment. Despite the Department's assertion that this work did not qualify as an owner-requested change and would be completed within the negotiated cost of work, the CM/GC has identified the potential to split the costs with the Department.^Y
- Potential Change Order Number 441 calls for the installation of an additional grade beam under the inside fence of the perimeter fence system at a cost of \$61,840. This change was requested by the TRCI Superintendent after a site visit. A potential owner change request and owner change request were issued. An architect supplemental instruction was never prepared. An RFP was not issued to the CM/GC. The construction drawings were clear enough that no Request for Information was issued to clarify the location of the grade beam. The initial work for the exterior grade beam was underway for weeks without question. The fact that the CM/GC agreed to install a second grade beam within the negotiated cost of work appears to be an effort to satisfy the Superintendent.^Z

According to Department officials, the Department does not research the justification or cause of adjustments. Adjustments may value in the hundreds of thousands of dollars and impact the costs and schedule of unrelated work.^{AA}

Adjustments are viewed by the Department as draws upon a CM/GC-controlled contingency. The Department only requires notification of the value of the adjustment, justification, and the subcontractors or suppliers affected. Initial notification is provided in bi-weekly meetings working from a log of adjustments. Formal notification is issued via a form letter with a listing of affected subcontractors and pending subcontract modification amounts. If the Department required additional information, it would be available upon their request to the CM/GC.

Recommendations:

The Department should adhere to its prescribed change process for owner-requested changes, particularly the identification of cost and schedule impacts. Further, in the interests of proper cost controls and baseline comparisons, the Department should avoid vague, semantic arguments about “functionality” and “design intent” when requesting changes to the work. The Department and its experts should afford itself numerous opportunities to review design drawings and ensure the “design intent” is conveyed properly. It is the adequacy of these drawings that will determine the bids and final costs for the work. The Department should also review adjustments for applicable charges and for validating the reason for the change. Impacts to cost and schedule must be considered.^{BB}

2. What controls are in place to prevent excessive change order costs?

Answer:

Department officials told us that they rely on the CM/GC to review change proposals for excessive costs. The TRCI CM/GC staff dedicates significant resources to tracking, reviewing and processing changes. In our professional judgment, the TRCI CM/GC has exercised good oversight and review of proposed changes and subcontractor cost proposals. However, the Department should not rely solely on the contractor to protect the owner’s interests in this regard.^{CC}

SRCI’s change order records did not provide as clear evidence of change order management. However, the project management firm applied proven change management techniques to carefully track and review changes, and our review found that at times, the SRCI CM/GC reduced subcontractors’ prices.

Findings:

The TRCI CM/GC has a number of engineers and managers devoting time and attention to changes. The CM/GC project manager reviewed many changes and provided direction to his staff. On a number of occasions, efforts were made to value-engineer proposed design changes to eliminate marginal items, or cut and then re-cut inflated subcontractor labor and equipment costs until a compromise

was reached. Some changes were reduced on the order of tens of thousands of dollars.

In our professional judgment, the Department cannot be assured that every CM/GC will devote as much engineering and management support to change control as seen on TRCI. These are overhead expenses that must be stretched to cover many planning and management tasks. Furthermore, general contractors often must be cautious when faced with the competing interests of subcontractors with whom they have a long-standing working relationship, and owners with whom they wish to earn favor.^{DD}

Recommendations:

The Department should have expertise in-house or under contract to perform and/or review cost and schedule analyses of changes. The Department must have a clear understanding of the true costs of changes, particularly in the area of impact costs.^{EE}

3. Was the change order work appropriately approved by all responsible parties?

Answer:

Generally, yes.

Findings:

Based upon the thirty change orders reviewed on the SRCI and TRCI projects, all necessary signatures were recorded.

However, at times, several approvals were not obtained in a timely manner. Deferred decisions further impact the work by causing rework, work stacking, schedule delays, and additional cost.

An apparent example at SRCI is the change out of security control systems with touchscreens. This owner-requested change was first identified in August 1997. The architect supplemental instruction was not issued until June 1998. Pricing was submitted within weeks, but final cost was not negotiated until September 1998. This change was at the end of SRCI and was with a subcontractor that had already claimed impacts and delays. The subcontractor received over \$35,000 or fifteen percent of the change order amount in extended overhead costs.

On TRCI, according to Department and CM/GC officials, the decision to move forward with the Workforce Alternate was made after bids for the work expired. Subcontractors were given the opportunity to reprice at a significant increase, rationalizing that they should receive costs they did not include in their bids. Furthermore, subcontractors can now claim impacts due to the large scope increase. Better planning would have allowed for rebid of portions of this major change.^{FF}

Recommendations:

Whenever possible, optional changes should be deferred by responsible parties or cancelled rather than imposed at an untimely phase of the project. Changes that can be identified in a discrete package should be bid out or presented to different subcontractors for quotes.^{GG}

4. Was the change order cost and pricing data complete?

Answer:

Cost and pricing data was generally complete and accurate for both SRCI and TRCI. Records at TRCI were more complete in providing backup information and detail in pricing.

Findings:

SRCI's change order records included backup to support the cost of change orders. These files have been culled and archived and, therefore, did not reveal a great deal about the development of change order pricing.^{HH}

TRCI's files are organized differently and required some restructuring to collect all relevant information. However, the audit team was able to derive the detailed quantities, unit prices, and negotiations that produced final pricing for nearly all changes.

We found that few TRCI potential change orders lacked complete back-up information. Generally, these were for relatively small changes (costs less than \$5,000). Certain subcontractors consistently failed to detail cost and pricing data. In order to complete its records, the TRCI CM/GC has requested this information from these subcontractors.

We found that change records rarely included any quantity take-offs and estimates performed by the CM/GC to crosscheck subcontractor pricing. Engineers performed this type of analysis on the largest, most complex changes (and maintained records in their personal files); however, *independent* assessments were not performed on a regular basis at TRCI.^{II}

Recommendations:

On future projects, in order to better ensure complete cost and pricing data, the Department should develop or retain the expertise to perform independent assessments of change pricing as a check on the CM/GC.^{JJ}

5. What has been the record of change orders and why are they occurring?

Answer:

Definition of Change Orders:

According to the Department's *Project Management Procedures Manual*, changes on current Department CM/GC projects are called "adjustments," or "change orders," depending upon whether they fall within or outside the guaranteed maximum price budget.

This nomenclature differs from that used on SRCI, where SRCI identified all changes within or outside the guaranteed maximum price as Change Orders. This redefinition was driven by an OAR requiring review of all changes orders priced over \$75,000 by the State Attorney General's Office. For the purposes of this audit, a change order is defined as a change to the original scope of the project, with the original scope illustrated in bid documents.

To assess the record of change orders, project changes must be quantified and classified as to type and cause. At SRCI, the project management firm followed proven change management practices and properly classified changes as they occurred. The audit team randomly selected fifty of these change orders and examined them in detail to determine cause. Based on this evaluation, we agree in general with the findings of the project management firm.

The Department and the TRCI CM/GC did not classify the nature of changes as they arose. Assessing them as they occur is the best way to make this review because the issues are well-defined and fresh in everyone's mind. Therefore, with the cooperation of the CM/GC, the audit team reviewed 550 changes and classified them to the extent possible. This was done over the course of five days at the job site.^{KK}

For consistency, we chose categories similar to those used by the project management firm at SRCI. We renamed some of the categories and combined two. Many changes would qualify under more than one category. Exhibit IV-1 outlines the categories used, compared to those of the project management firm.

Exhibit IV-1: Categories

SRCI Project Management Firm Category	Audit Categories	Description
Acceleration	Sequencing/Schedule	Sequencing, overtime, work execution and rework at the CM/GC's discretion
CM/GC		
CM/GC Buyout	CM/GC Buyout	Procurement of work in the guaranteed maximum price but not included in bid packages. Missed scope.
Complete Design	Complete Design	Changes needed due to more complete design information
Design	Design Coordination	Changes to design for constructability, errors and omissions, functionality, code requirements
Miscellaneous	Other	Changes required by outside agencies, VE proposals, inmate labor
Owner	Owner Requested Change	Owner changes and owner-controlled allowances

Exhibit IV-2 presents the results of the project management firm's change order cause evaluation for SRCI, based on the audit categories. Exhibit IV-3 does the same for TRCI.

Exhibit IV-2: SRCI Change Orders by Cause

SRCI			
Cause Category	Number	Cost	Percent
Sequencing/Schedule	251	\$3,853,328	14%
CM/GC Buyout	126	\$4,012,199	14%
Complete Design	124	\$5,329,959	18%
Design Coordination	872	\$7,338,022	25%
Other	123	\$473,191	2%
Owner Requested Change	502	\$7,936,165	27%
TOTAL	1998	\$28,942,864	100%

SRCI Changes by Cause

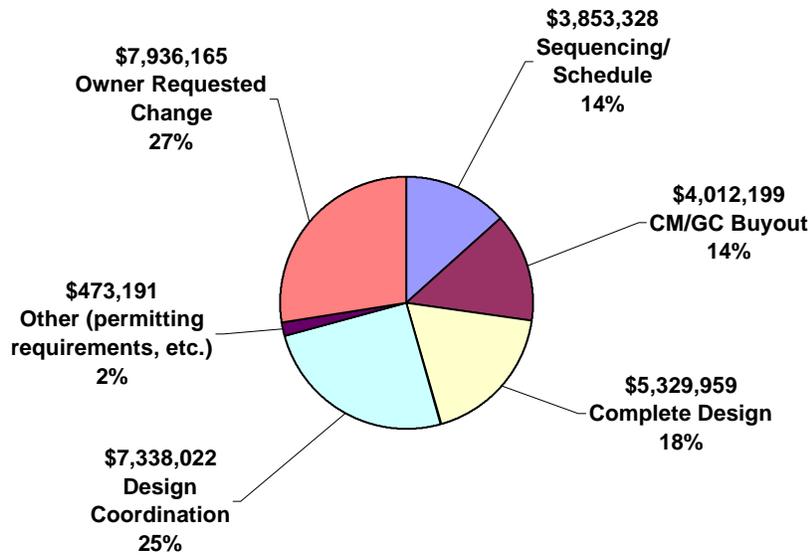


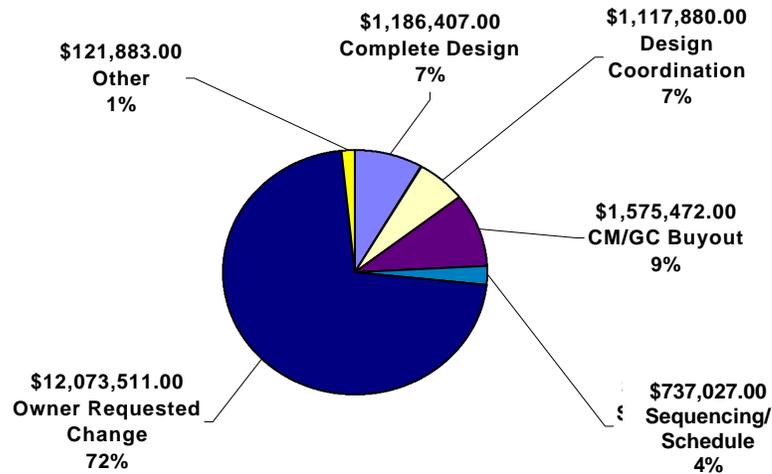
Exhibit IV-3: TRCI Change Orders by Cause

TRCI			
Cause Category	Number	Cost	Percent
Sequencing/Schedule	67	\$732,027	4%
CM/GC Buyout	54	\$1,575,472	9%
Complete Design	30	\$1,186,407	7%
Design Coordination	147	\$1,117,880	7%
Other	66	\$121,883	1%
Owner Requested Change	108	\$12,073,511	72% ^{LL}
TOTAL	472*	\$16,807,180	100%

^{LL} This represents the addition of 5 buildings and approximately 100 other owner-requested changes to the original scope.

* Less than 550 potential change orders reviewed were due to voided or superseded potential change orders.

**TRCI
Changes by Cause**



IV. Audit Area: Change Order Management

In sum, the number of owner change requests dramatically increased from SRCI to TRCI, while the other causes greatly decreased.

Recommendations:

In March 1999, the Department's SRCI project management firm prepared a report that outlined lessons learned on the project and made a number of observations and recommendations. We found many of these assessments germane to the Department's experience at TRCI and include portions of them below. They should be considered for implementation by the Department in future projects.

Owner Requested Changes. A better Department representation (security, programs, physical plant, etc.) should be present during design decisions with proper confirmation through documentation. A more rigorous owner request approval process during construction should also take place. A competitive guaranteed maximum price with less construction contingency would also increase incentive to the CM/GC to control owner requested costs within the guaranteed maximum price.

Schedule/Sequencing. The Department can obtain a more proactive approach to schedule management by requiring the CM/GC to submit and update a resource loaded critical path method schedule where manpower, productivity and project completion can be monitored and forecasted ahead of time to mitigate potential delays. Additionally, more realistic results can be projected by running "what-if" scenarios to meet changing occupancy needs.

CM/GC Buy-out. During procurement, a process should be established to review scope description to ensure necessary work to complete the bid package is not overlapped or inadvertently omitted. When time permits, competitive bidding should always be considered. Justification for change order procurement in lieu of competitive bidding should be approved by the Department when a scope change is significant and can be physically separated (from) current contract work.

Complete Design. The CM/GC contract should be revised to describe and require formal constructability review submittals of the design documents. A staffing plan should be proposed during the proposal/selection phase of the CM/GC to ensure they will provide resources necessary to complete this task. Constructability review results will reveal level of design completeness and assist the Department in making informed decisions on whether to hold schedule or increase time to complete the design and improve quality of the documents. A competitive guaranteed maximum price will also require the CM/GC to hedge their risk of confirming the guaranteed maximum price prior to obtaining sufficient detail in design prior to bidding the work.

Design Coordination, Conflicts and Missing Information In The Documents. Most of the (change order) costs were constructability issues. One of the great benefits of the CM/GC process is to promote designer/contractor collaboration during the design of the project. As indicated in the item above, there should be strong

contractual language requiring a formalized review and deliverables to confirm the review was completed. The owner must be willing to dedicate a portion of time and pay the expense associated with this process. The return for the investment never seems to be realized "prior to construction" but as indicated by the results of SRCI, the cost savings in the long term is significant.⁵ (paraphrased)

6. What is the total number and dollar value of change orders?

Answer:

The total number and dollar value of change orders for the two projects appears below in Exhibit IV-4.

Exhibit IV-4: Change Orders – Total Number, Cost, and Percent

SRCI			TRCI*		
Number	Amount	Percent of Original GMP	Number	Amount	Percent of Original GMP
1998	\$28,942,864	20%	472	\$16,807,180	14%

* As of June 23, 1999 at approximately 73% complete.^{MM}

7. Was the work appropriately classified as change order work?

Answer:

We found that the work was appropriately classified as change order work, except in a few instances. For this question, "change order work" is defined as work that was not clearly shown on bid documents and, therefore, was not included in bids. This would include design changes, corrections, and additions; changed conditions; field directives; and actions not due to negligence of the CM/GC or its subcontractors.

Findings:

The SRCI CM/GC and project management firm reviewed change requests for entitlement. We found that the TRCI CM/GC properly researched change requests from subcontractors and rejected unwarranted claims. There were a few instances when changes were inappropriately classified. The first example is scope that was always intended to be procured through buyout (e.g. dayroom tables, hollow metal door frame installation, gravel at perimeter fence). Calling this a change is a misnomer; however, it is a means of recording the draw from budget allowances.^{NN}

One other example is costs for repair of work that may have been improperly fabricated or damaged by a subcontractor, or for rework of improperly installed

work that should have been corrected by the subcontractor. This was found on at least two occasions and totaled less than \$2,575.^{OO}

The SRCI change log included a number of references to repair of damaged installations or equipment. Again, these costs should be charged back to the responsible parties, whenever possible, and not borne by the owner.^{PP}

Recommendations:

The Department should review all changes, including adjustments, for justification and cause. The contract allows for compensation of rework in as much as the CM/GC properly supervised the work and could not recover costs from the subcontractor. Otherwise, changes should be denied and back charges sought when appropriate.^{QQ}

B. Were the change orders in the best interest of the State?

Change orders that can be shown to add value to, or save money (i.e. value engineering or constructability initiatives) for the project, *after impacts assessments*, were in the best interest of the State. However, a number of design corrections or omissions produced changes that affected the work of subcontractors and opened the door for cost and schedule impacts.

Some changes of this nature are to be expected on projects. However, there were a number of clarifications and changes required on electrical design, for example, on TRCI that could have been averted by good quality control of documents.

1. Was the Department charged excessive amounts for the work performed?

Answer:

The costs for change order work, generally, appeared to be reasonable. However, the Department may have paid more than the value of the changed work due to the cumulative impact of changes and the effects on project cost and schedule.

Findings:

SRCI change orders included settlements with three subcontractors for impacts due to issues such as lost productivity, extended overhead, additional supervision, and uncompensated costs for directed work. Some reasons cited were the magnitude of changes, schedule delays, and acceleration/compression of schedule. Settlements to the security electronics, plumbing and concrete subcontractors totaled \$1,060,100.

Despite the efforts of the TRCI CM/GC to ensure excessive charges were not passed through to the Department, there are indications that subcontractor pricing reflected impact costs.^{RR}

For example, potential change order 191, Workforce Complete, included the Workforce Addition, changes to the laundry, and premium costs for the Workforce Alternate. No owner change request or potential owner change request number is available for this owner-requested change. Three subcontractors quoted and received substantial premiums for this large scope increase. The precast concrete supplier received \$171,052 or 21 percent more than its original bid for precast elements for the Workforce Alternate; the original bid had expired. The concrete subcontractor received \$190,000 for additional supervision and extended overhead for adding the Alternate and the Addition. The electrical subcontractor adjusted its original bid for the Alternate by \$96,165, and received \$33,036 for extended overhead. These costs did not add value to the project and are a result of the late imposition of scope increases.^{SS}

As another example, potential change order 213, Addition of the Laundry Transfer Building, adds a new building to the TRCI complex and is clearly outside the scope of the original guaranteed maximum price.

The electrical subcontractor alerted the TRCI CM/GC that manpower restrictions and schedule limited its ability to perform this work without premium costs. Their proposal to perform the work was \$109,000. The CM/GC then approached a subtler electrical subcontractor for pricing and received a bid \$36,000 lower or 33 percent less than the first. The CM/GC's actions are commendable, but if an alternate subcontractor was not available, or if time or effort discouraged seeking alternate bids, a significant premium would have been paid.^{TT}

TRCI pricing strategies for calculating impact costs varied by subcontractor. The electrical subcontractor submitted an analysis as justification to charge an additional \$6/hour for labor; an additional 7 percent field supervision markup on labor hours; and an additional \$6.50/hour for per diem costs on 10 percent of change order hours. Further, they propose to eliminate a previously negotiated 10 percent discount on National Electrical Contractors Association labor rates.^{UU}

Scope increases and resequencing of two TRCI buildings has caused significant delays and produced costs impacts. The audit team did not observe rigorous Critical Path Method (CPM) schedule comparisons for the justification of time extensions and extended overhead costs. Critical path method is common practice on large public projects. As the project nears completion, the audit team believes that there is the potential for claims at TRCI.

Recommendations:

Impact or premium pricing is a result of the cumulative effect and late imposition of changes. The Department must set guidelines for untimely optional changes. If the value of the change does not substantially exceed the direct costs required to implement it (on the order of 10:1), the change should be rejected or deferred.

Delays or a change in schedule priorities can disrupt subcontractor crewing and work plans. The Department and the project team should agree to a project

schedule and stick to it as much as possible. The Department should retain in house or consultant expertise with schedule development, tracking and evaluation before adjusting schedules and approving time extensions.

Both design-bid-build and CM/GC projects can result in claims because subcontractors are asked to submit fixed or hard-money bids based upon bid documents. The source of claims is not the contract delivery method, rather the quality of the documents, the project management, and the degree of change (and the subsequent negotiation of costs). The following factors can be influenced by the owner: bid packages can be carefully prepared and reviewed for quality; project schedules and priorities can be preserved through the course of the project; and optional changes can be kept to a minimum.^{VV}

2. Was the change order work priced appropriately?

Answer:

Of the 550 change orders reviewed at TRCI and the 50 reviewed for SRCI by the audit team, the majority of changes were carefully checked by the audit team for quantities, costs, and markups. However, included in a number of these changes were costs that are not explicitly allowed in Section D.1.4 of the Standard General Condition in the contract. These were typically computed by percentage markups to labor amounts for expenses such as safety, record drawings, foreman's truck, and small tools and consumables.

Findings:

Section D.1.4 allows compensation for direct costs for changes or extra work, and overhead markups on labor (15 percent), equipment (10 percent), and materials (10 percent). No mention is made (D.1.4) of payment for the expenses cited above.

Expenses for safety, etc. are real and justifiable. Their method of assessment and their application as direct costs are debatable, however. Some subcontractors negotiated higher percentages than others. Others did not request compensation. The relationship of direct labor costs to updating record drawings is questionable. Finally, the 15 percent markup was applied to labor costs inflated by these expenses.^{WW}

Recommendations:

The Department contract language should address these types of charges and the means for computing them. The contract language shared either preset markups should be established in contract language, limits set on applicable changes, or expenses disallowed entirely.^{XX}

3. Was the change order pricing calculation accurate?

Answer:

Of the fifteen SRCI changes reviewed, no major miscalculation was found.

Of 550 reviewed and the fifteen researched in detail, the TRCI change order pricing calculation was accurate, with one exception.

Findings:

TRCI Change Order 12, which was signed and approved by the Department, included a double-up of charges for the subcontractor that were already covered in Change Order 5. The value of this error is \$105,000. No funds have been paid to the subcontractor yet.^{YY}

The TRCI CM/GC has proposed to correct this error in a subsequent change order planned for value engineering initiatives in the Workforce Building.

Recommendations:

As discussed above, the Department should perform detailed in house review of change order pricing and justification.

4. Were there any resulting changes in the scope of work that should be credited to the Department?

Answer:

Some change order work from TRCI could possibly be credited to the Department.

Findings:

SRCI archived change order files did not provide a means of determining whether all deleted work was properly credited.

The TRCI CM/GC engineering staff appeared to appropriately research changes and identify scope deletions and credits.

TRCI engineers often prepared independent take-offs to compare with subcontractor proposals. Subcontractors were requested to detail scope additions and deletions in their proposals. The Department may be due a credit for labor for TRCI potential change order 493, Add circuit breakers for cell power units.^{ZZ}

Recommendations:

The Department should request to see detailed change proposals whenever a scope deletion is identified. The project architect/engineer or construction manager can assist in identifying potential credits.

5. Did the CM/GC assume any of the change order work, which may have resulted in inflated costs?

Answer:

This was not observed on either the SRCI or the TRCI project.

Findings:

The TRCI CM/GC did not, as a rule, assume change order work. In the two instances CM/GC crews *did* do change order work, namely excavating for propane tank foundations/piping, and set-up of temporary kitchen trailers. The work appeared to be performed in a cost-effective manner – utilizing inmate labor, for example. Correct markups were applied.

Recommendations:

On significant scope increases within their line of work, quotes should be solicited from the CM/GC and subcontractors for comparison. The owner, not only the CM/GC, must review these. If the CM/GC has the resources, the price is right, and statutory guidelines are met, then there should not be a problem with the CM/GC doing change order work.^{AAA}

6. Did the percentage of change order work exceed allowable amounts?

Answer:

Not to date. SRCI changes equaled 20 percent of the original guaranteed maximum price contract. TRCI changes stand at 14 percent of the original guaranteed maximum price (at approximately 73 percent project completion).

Findings:

OAR 125-310-0010 limits amendments to public contracts (including change orders and extra work) to 20 percent of the original contract value (33 percent for renovation or remodeling contracts).

According to industry practices and CM/GC officials from both projects, typical contingency funds on new construction projects range from 3-5 percent construction contingency, and a 5-10 percent owner contingency. The Department's project experience at SRCI and TRCI exceeds these ranges.

Many individual subcontracts experienced increases well over 20 percent. On SRCI, 27 subcontractors had their contracts amended by more than 20 percent, including the major subcontractors for electrical, mechanical, concrete, and site utilities. A case in point on SRCI is the contract for Sealants and Fire Caulking. According to the CM/GC, this scope was not clearly identified in bid packages and was therefore missed. A subcontractor that had bid on similar work in an earlier bid

package (contract amount \$22,920) then was awarded the balance of this scope throughout the project for a total of \$525,148, an increase of over 3000 percent. This price was arrived at with negotiated unit prices and estimated quantities. No other unit price bids were solicited from other subcontractors.^{BBB}

Recommendations:

The Business Roundtable Construction Industry Cost Effectiveness (CICE) Project Report, a well-respected work applicable to industry-wide construction practices, states that: “Poor scope definition at the estimate (budget) stage and loss of control of project scope rank as the most frequent contributing factors to cost overruns.”

Most overruns are calculated by comparing final costs with budgeted costs. If the budgeted costs are not based on a well-defined scope, they are probably low and not a valid base for comparison. Real overruns occur as a consequence of unjustified scope growth during engineering, other engineering changes, and a variety of engineering, procurement, and construction inefficiencies. However, the inescapable conclusion is that scope definition and control is a key factor in both apparent and real cost overruns.⁶

The addition of major scope increases at SRCI and TRCI has been the greatest source of added costs. An additional contributing factor on both projects has been acceleration/compression or resequencing of the project schedule. The Department’s facility planning should plan and budget for desired functional elements from the start, and not simply add elements if money seems available mid-way through the project.

Unavoidable changes for missed scope should be packaged for bid or solicitation of competitive quotes.^{CCC}

7. Were incurred change order costs in violation of contract terms?

Answer:

Some impact costs were included in change orders that are not specifically described as reimbursable in the contract, but can be construed as costs associated with changes. SRCI’s Article 8 and TRCI’s Article XI disallow any costs not specifically and expressly described as reimbursable.

Findings:

Impact costs are not specifically addressed in the contract, except in D.1.9 of the Standard General Conditions: The Contractor is notified that numerous changes are anticipated and that there will be no compensation made to the Contractor directly related to the number of changes. As mentioned above, a number of changes were approved for impact costs.

Recommendations:

The Department can keep impact costs down by: reducing the number of changes, ensuring the timeliness of changes, confirming the validity of charges, and providing quality documents.

8. Were change orders approved prior to work being conducted?

Answer:

There are indications that extra work was performed on both projects before change orders were finalized. The scope of this audit did not allow a thorough review of daily reports and correspondence to subcontractors to cite every instance.

Findings:

On SRCI, correspondence from subcontractors seems to suggest subcontractors were directed to perform work before negotiation of a change order.

On TRCI, work was begun on the Workforce Alternate before potential change order 158 was approved in December 1998. The concrete and precast subcontractors were directed to proceed in September and November, respectively.

Recommendations:

Directing subcontractors to proceed without a negotiated change order places both the subcontractor and the owner at risk. The subcontractor has no assurance they will be paid for the work, and the owner does not know the ultimate costs of the change.

Some may argue that acting immediately on certain changes is necessary to prevent rework or schedule delay, thereby saving money. Many project managers settle on issuing directives to subcontractors with so called “not-to-exceed” amounts. However, this leaves change issues unresolved, and renders calculation of costs to complete the project difficult.

In our professional judgment, managing changes in this manner is indicative of poor up-front planning of the work. Extra work directives should be reserved for emergencies or for unforeseen conditions affecting the work, not for optional changes, poor coordination, or lack of foresight on the part of project participants.

9. Did the amount vary for estimated change order work amounts and the amounts incurred?

Answer:

In some cases. The audit team investigated whether subcontractors billed and were paid more than the amount approved in a given change order. The tight schedule at SRCI necessitated the occasional use of “not-to-exceed” work directives with

estimated cost caps. Subcontractors would perform extra work, at times exceed the cap, and request a supplemental change order. Final costs were not known until the work was completed. TRCI has generally had binding lump sum amounts negotiated for changes.

Findings:

The TRCI CM/GC issues a subcontract modification upon the Department approval of a change order or adjustment. The subcontractor's schedule of values will then include a line item for that modification, which it will bill against. CM/GC project managers review monthly pay requests to insure the extra work has been performed, and has been billed properly.

Recommendations:

As noted above, "not-to-exceed" or, rather, open-ended work orders should be avoided whenever possible.

C. Do change order management practices comply with industry practices?

Answer:

In some cases.

Findings:

Exhibit IV-5, on the following page, summarizes our comparison of industry change management practices with SRCI and TRCI change order practices. It is important to note that the industry practices represent those practices which are common across all construction management approaches, whether they be design-build, CM/GC, etc. Although we understand that the CM/GC process used by the Department has some unique characteristics, we believe that the CM/GC approach has many elements in common with other construction management approaches.^{DDD}

Exhibit IV-5: Construction Change Order Practices Comparison

Industry Practice	SRCI Practice	TRCI Practice
Set a design baseline from which to measure change. Stop scope growth.	Significant scope increases	Very significant scope increases
Documented process, with clear paper trail of actions taken	Unable to discern from SRCI change order records	In TRCI files
Formal change justification process including impact analysis	Not practiced	Practiced inconsistently
Owner review and approval of all significant change orders before work proceeds	Performed by the project management firm	No indication that the Department reviewed detail for changes.
Ongoing critical review of pricing proposals	Provided by CM/GC and the project management firm	Provided by CM/GC
Owner commitment to Change Control	Significant scope increases	Very significant scope increases
Regular review of change order trends through formal reporting mechanisms and change management metrics	Provided by the project management firm	Not provided.
Owner-maintained changes log	Maintained by the project management firm	None
Prepare Lessons Learned Database	Provided by default by the project management firm	Insufficient information to prepare

Sources: Project Management Institute, Construction Management Institute

V. Audit Area: Subcontractor Bidding



As part of the construction process, subcontractors were procured for specialized work on both projects. The processes used to secure them will be assessed through the following questions:

A. Audit Questions: Subcontractor Bidding Process

1. How does the Department ensure that subcontractor work is effectively bid?

Answer:

By contract, the CM/GC is required to support ORS 279.* The Department has attempted to ensure that the subcontractor work is effectively bid by reviewing bid packages to see that the information is clear, and by its involvement in the bid receipt process. The Department has then stepped back and let the CM/GC identify the low bidder and negotiate the contract.

According to the Department, the Attorney General has recommended that the Department limit its involvement in the subcontractor selection process for liability reasons. The Department has expressed that if it gets too involved in the subcontractor bidding process, then it will give up its ability to hold the CM/GC accountable.

Findings:

At SRCI, the Department received bid analysis/approval sheets for all bid items. These sheets were reviewed by the Department and signed as “approved” by the Department’s staff. The bid analysis/approval sheets at SRCI contained minimal explanation of the details of the bid and how comparisons were made.^{EEE}

At TRCI, the Department receives a cover letter containing standard language from the CM/GC regarding the selection and a bid analysis spreadsheet. The Department reviews and approves these packages. The level of detail provided on the TRCI bid analysis sheets is superior to those from SRCI. The TRCI bid analysis sheets have more detail on alternates and separate out the inmate labor portion of the bid.^{FFF}

* ORS 279 contains the Oregon statutes governing competitive bidding of public contracts.

Recommendations:

While it is the policy of the Department to limit its involvement in the subcontractor bidding process, this should not be done at the expense of adequate information on how and why selections are made. A greater level of detail on the bid analysis will provide for more informed approvals by the Department. Level of detail should be increased on how bids are compared when subcontractors bid on different portions of the work, how alternates affect the bid decision, and how the inmate labor portion is assessed.^{GGG}

- **What is the basis for determining the low/best bid?**

Answer:

The basis for determining the low/best bid has been to establish the least cost combination of bids on a particular bid package.

Findings:

On the SRCI project there was considerable difficulty involved in determining the low bid. With only five bid packages for the project, a great deal of work was included in each package;^{*} this resulted in many bid items where firms would bid only on portions of the work. In these cases, the CM/GC had to use allowances to make the bids comparable. The allowances were based on the lowest quote for a particular work item from a responding bidder. However, this process did not allow the subcontractors the opportunity to provide a competitive quote if given the option.^{HHH}

With 11 bid packages on the TRCI project,[&] the work was broken up more and, consequently, the bids were more complete across bid items. This made for more straightforward and transparent bid comparisons in general. The completeness of the bids on the TRCI project also indicate that the bid packages were better prepared.^{III}

Recommendations:

On future projects with the scope of SRCI and TRCI, bid packages should be prepared in sufficient number and level of specificity to interest the greatest possible number of bidders and minimize future scope changes.^{JJJ}

* There was some additional work near the end of the project after bid package number 5, but it was awarded directly to on-site subcontractors, according to interviews with CM/GC personnel.

& Based on records provided to the audit team.

How well is the subcontractor bidding process perceived to work by subcontractors?

- **What concerns do unsuccessful bidders have about the process?**

Answer:

Nine out of the ten bidders interviewed on each project stated that they were comfortable with the subcontractor bidding process and that there was nothing out of the ordinary. Concerns raised on both projects include the short timeframe to put bids together, due to the fast track nature of the projects.

Findings:

The interviews revealed few complaints about the quality and accuracy of the bid packages and other bid information on either project. Firms interviewed stated that, for both projects, the bid packages and drawings were as good as they could possibly be given the project timelines.

One unsuccessful bidder from the SRCI project stated that on this type of project the CM/GC should be “untied” and be given the freedom to negotiate the best prices with the best subcontractors.

Two unsuccessful bidders from TRCI indicated difficulty in obtaining information on the bid results. Both stated that they were only given general results in terms of ranking, as opposed to the actual dollar amounts of the bids. One unsuccessful bidder at TRCI felt that the award of the contract his firm bid on went to a firm that had no experience with a project of the size bid. This bidder felt that the result had perhaps been manipulated by the CM/GC.

Recommendations:

Provide more time for subcontractors to put together bids and provide faster and more complete bid result information. Fully comply with ORS 279 by providing for public inspection of bid results.^{KKK}

- **Did all proposers receive the same information and level of communication?**

Answer:

The interviews conducted revealed no systematic difference in the amount and availability of information between successful and unsuccessful bidders.

Findings:

For both SRCI and TRCI, nine of the ten bidders interviewed became aware of the bids through direct working relationships with the CM/GCs. These

subcontractors, successful and unsuccessful, were solicited directly by the CM/GC. Subcontractors that had no working relationship with the CM/GC heard about the bids through industry word-of-mouth or through industry publications.

All of the bidders contacted stated that they had communications with the CM/GCs to clarify questions they had about the bids. All but one bidder interviewed stated that information was readily provided as needed and questions were answered quickly and effectively. One unsuccessful bidder on TRCI stated that the CM/GC sometimes took a long time to get answers back.

Recommendations:

Continue to encourage equal communication and fair competition by having CM/GCs contractually support ORS 279 in its selection and award of subcontractors.

- **Was the proposed use of inmate labor by subcontractors fairly presented and objectively evaluated?**

Answer:

For both SRCI and TRCI, there were few complaints about the way that the inmate labor requirement was presented. Some bidders stated that they had questions or concerns but that the CM/GCs quickly addressed them.

Findings:

There were no complaints from those interviewed about how the inmate labor requirement was handled on the SRCI project. Respondents said that the parameters were clear and that, if they did have questions, the CM/GC provided prompt and useful information.

Those interviewed from the TRCI project also stated that generally the inmate labor requirement was fairly presented and objectively evaluated. However, one unsuccessful bidder from the TRCI project stated that his firm made a proposal to use inmate labor in an expanded way but that the proposal was ignored. This bidder was disappointed that more attention was not given to the proposal since it had been carefully researched and presented.

Recommendations:

It appears that the CM/GCs are performing the role of presenting and evaluating the inmate labor requirement effectively. The interview results suggest that innovative suggestions by subcontractors should receive a fair amount of evaluation by the CM/GC and Department.

Is the current subcontractor bidding process legally compliant?

The basis for determining legal compliance of the subcontractor bidding process is ORS 279 and other relevant rules. An extensive data analysis process was undertaken to determine the number of bidders, proposed and approved bid amounts, and total actual payments to each subcontractor. This data was also used to answer some of the questions below.

- **Were award decisions made in compliance with competitive award requirements?**

Answer:

Competitive award requirements for public contracts are contained in ORS 279.005 (Policy of Competition in Public Contracts) and ORS 279.007 (Methods of Fostering Competition). ORS 279.005 lists various ways in which competition exists and can be evaluated (technical competence, products used, price, etc.). ORS 279.007 outlines the efforts that should be made to ensure a sufficient number of bidders/suppliers, including easy to read procurement documents, searching for new sources of supply, and broad-based advertising.

Based on the requirements of ORS 279.005 and 279.007 the award decisions made were generally compliant with competitive award requirements. Price competition was the primary criterion for all SRCI and TRCI subcontracts.

Findings:

Award decisions at SRCI were always based on price competition as represented by the initial or acquisition price. Review of the bid responses suggests that there were limited responses in many cases. On 16 bids, there were only one or two subcontractors that responded. This may be a function of the shortage of trade contractors experienced in Oregon at the time of construction of SRCI rather than a lack of fostering of competition. The CM/GC appeared to advertise widely.

At TRCI award decisions also followed competitive award requirements based on price competition. There was one exception at TRCI on Bid Package No. 9C – Building Management System where the Department had specific performance requirements based on the nature and importance of the building management system. This bid was more like a standard Request For Proposal, with the firms evaluated based on a cost and non-cost scoring system.

Recommendations:

The requirement on CM/GC projects that the CM/GC support the public contract requirements of ORS 279 has worked well on the SRCI and TRCI projects and should be continued in order to ensure competitive award practices.^{LLL}

- **Were bid packages appropriately solicited?**

Answer:

ORS 279.025 (Requirements for Advertisement for Bids) contains the requirements the SRCI and TRCI processes were evaluated against. These requirements include advertisement circulation requirements (newspapers, trade publications, minority-focused publications and electronic bulletin boards), length of time to advertise prior to bid day, information to be included in the advertisement procedures to be followed when bids are received, and subcontractors licensing/registration requirements.

Based on the requirements of ORS 279.025, the advertisement processes for SRCI and TRCI have been generally compliant. A notable exception is that, on both projects, the bid openings were not public. Both CM/GCs did however make bid information available to anyone that requested it, however, this information was not always complete. Additionally, it is difficult to determine if certain subcontractors received additional bid information or solicitation by way of telephone calls from the CM/GC as this information is not generally documented.

Findings:

According to the CM/GC for SRCI, it generally advertised all bid packages in the following publications:

Argus Observer (Ontario), Daily Journal of Commerce – Portland, Oregon Contractor, The Portland Observer, Construction Data (Oregon Edition), Idaho Business Review, Seattle Daily Journal of Commerce, The Skanner – Portland, Construction Data (Washington, Alaska edition), Idaho Construction News, and Idaho Statesman (Boise).

The CM/GC at SRCI appeared to advertise widely, including out of state and with one minority-based publication (*The Skanner*), but did not use electronic bulletin boards. The timing and frequency of the advertising suggests an honest effort to foster competition.

According to the CM/GC for TRCI, it advertised all bid packages in the publications below:

The Register Guard – Eugene, The East Oregonian – Pendleton, The Portland Observer, The Statesman Journal – Salem, The Daily Journal of Commerce – Portland, El Hispanic News – Portland, The Tri-City Herald – Kennewick, WA, and The Skanner – Portland.

The CM/GC at TRCI did not advertise in as many publications as the CM/GC for SRCI and also did not use electronic bulletin boards. However, the CM/GC for TRCI advertised in multiple minority based publications.

Recommendations:

On CM/GC contracts for the Department, competition should continue to be fostered through advertisement in minority focused publications and on electronic bulletin boards to more completely conform with the requirements of ORS 279.025.

- **Were bids obtained in compliance with sealed bidding requirements?**

Answer:

Sealed bid requirements under ORS 279 require that a Department representative be present to receive the bids. Industry practices would also suggest that the Department representative record the time, initial, and place bids into sealed envelopes until bid opening. Based on these requirements, SCRI bids were not obtained in compliance with sealed bidding requirements, whereas TRCI bids were compliant.^{MMM}

Findings:

For the subcontractor bidding at SRCI and TRCI, bids were primarily faxed in to the CM/GC headquarter offices in Portland.

At the CM/GC headquarters for SRCI, one or two people handled the bids – placing them into envelopes when received. There was no Department official present during the time of the incoming faxed bids, therefore there are no Department initials on the bids and no time stamp on the bids outside of the facsimile header information.

For the TRCI project, bids are submitted and received at the CM/GC's corporate office in Portland. The bidders are given a timeframe when the bids must be received. Most subcontractors faxed their bids. The bid reception time is specified in hours, such as 12 – 3 p.m. A Department official is present during this time. The Department can authorize the receipt of bids beyond the specified time. If faxes are still coming at 3 p.m., for example, the machine will not be shut off. The Department official ensures that the time is recorded on each bid and that it has the official's initials.

Recommendations:

On future CM/GC projects, a Department official should always be present during a specified fax reception period to initial and time stamp the bids and to ensure that they are sealed into envelopes until bid opening. This will eliminate any concerns that could potentially arise over bid-shopping prior to bid closing and ensures compliance with sealed bid requirements.

- **Did officials managing the bid process effectively carry out their duties?**

Answer:

The TRCI subcontractor bidding process has been more closely managed than the SRCI process – especially in terms of sealed bid oversight. However, on both projects the Department has made little effort to question how bid award decisions have been made. According to Department construction officials, the Department relies on the CM/GC review of the subcontractor award process. Based on our observation, the CM/GC procedures were limited.

Findings:

Officials managing the SRCI subcontractor process were not present during the time subcontractor bid faxes came in to ensure sealed bid requirements were met. The subcontractor awards made by the CM/GC, and the methodology used to determine these decisions, were rarely probed or questioned by the Department, according to interviews with Department officials and documentation they provided.

With their presence at the CM/GC headquarters during the bid submittal period, officials overseeing the TRCI subcontractor bid process did a better job of ensuring that sealed bid requirements were met. Again, however, the subcontractor award decisions made by the CM/GC have received little investigation or questioning by the Department, according to interviews with Department officials and documentation they provided.^{NNN}

Recommendations:

Continue to build on the lessons learned from the SRCI and TRCI projects. Sealed bid oversight procedures have been improved on the TRCI project. The Department should take more of a role in ensuring that subcontractor bid award decisions are made in an objective manner by investigating or questioning award decisions made by the CM/GC.

- **Was the work awarded to subcontractors with the lowest bid – and if not, was it adequately justified and approved?**

Answer:

Work on both projects has been awarded to subcontractors with the lowest responsive bid. This may be a combination of bids when subcontractors bid on portions of the work within a particular bid item. When awards did not go to the lowest bidder, it was for reasons such as: lack of Construction Contractor Board (CCB) registration, bad credit references; or subcontractors withdrawing their bids. These cases were adequately justified and approved.

Findings:

At SRCI, analysis of the bid documentation provided showed that there were three subcontractor bids that did not go to the lowest bidder. Two of these were because the subcontractors had no CCB registration and either would not or could not obtain it. The other was because of poor credit references.

On the TRCI project, three low bidders were disqualified due to incorrect or lack of use of inmate labor. One low bidder withdrew their bid and another low bid was late and therefore not considered.

Recommendations:

The current CM/GC process is, in general, operating in the Department's best interest by awarding subcontracts to the low responsive, responsible bidders. Room for improvement lies in how the low bidder is determined when subcontractors bid on portions of work. Ways to improve this include more and better specified bid packages which break up the work so that bids are more complete, and by soliciting quotes on non-bid items from subcontractors instead of using allowances.

- **Were bid evaluation methods objective, as each subcontractor could bid on different portions of the work?**

Answer:

Bid evaluations on TRCI were more objective than SRCI because the greater number of bid packages on TRCI resulted in more complete bids.

Findings:

There were only five bid packages for the SRCI project. The bulk of the subcontracts were awarded based on bid package No. 1 through 4. Due to the fast track nature of the project, and the small number of bid packages for such a substantial amount of work, many subcontractors bid on only portions of the work within a particular bid package scope.

In evaluating the bids, the CM/GC at SRCI would use the lowest bid amount from a responsive bidder for a particular work item that was not bid by others. This amount would be substituted in for those bidders that did not bid on that item. Low bid was then determined once all bids were comparable based on the use of these allowances. This occurred on about 30 percent of the bids. The problem with this method is that it may not yield the lowest bid price because certain subs may have done the work for less than the allowance amount if asked to quote it competitively.

There have been 11 bid packages on the TRCI project. The greater number of bid packages compared to SRCI has meant that the work is broken up more

and that the bid packages are better specified. This has in turn resulted in more complete and comparable responses from bidders. Unlike the SRCI bid analysis process of using allowances, when there was a missing bid component on the TRCI project the subcontractor was contacted to provide a competitive quote to do the work. If this was not provided, a combination of bidders would be evaluated.

Recommendations:

Experience from the SRCI and TRCI projects shows that more and better specified bid packages should be issued to produce more complete bids and, correspondingly, more objective bid evaluations. Rather than using allowances for unbid items based on another bidder's quote, competitive quotes should be sought from all subcontractors.^{OOO}

- **Was any subcontractor awarded more than initially bid?**

Answer:

Comparison of subcontractor payment accounting records against approved contract award amounts on both the SRCI and TRCI projects showed that, outside of additional and often significant change order work, no subcontractor was awarded more than initially bid.

Findings:

Analysis of SRCI subcontractor payment accounting records against approved contract award amounts showed that, for each subcontract, the amount paid out was exactly equal to what the Department approved based on the bid analysis. In each case, the Department approved amount for the subcontract was equal to the amount negotiated with subcontractors by the CM/GC.

At TRCI, because the project is in progress, it is not possible to determine final payments made to subcontractors. Those contracts that have been paid out in full are equal to the award amount. One finding of interest, however, is that on the TRCI project in a few number of cases, minor modifications to design (sometimes through value engineering) or further clarifications to scope has led to contracts with subcontractors that are below what the Department approved. Of the 49 subcontractors analyzed, 20 were signed below the amount the subcontractor initially bid and the Department approved. The reductions on these 20 subcontractors was \$423,707.^{PPP}

Recommendations:

The Department should increase efforts to ensure that the scope of subcontracts is consistent with the project work scope. Value engineering with subcontractors should not be left solely to the CM/GC.^{QQQ}

- Was any subcontractor consistently awarded large portions of work?

Answer:

More subcontractors received multiple awards on the SRCI project than on the TRCI project. In addition, the value of the work awarded to multiple award winners for SRCI is much greater than for TRCI.

Findings:

Thirteen subcontractors on the SRCI project received two or more contract awards. The value of work awarded to multiple award winners was \$72,290,234. This represents 50.2 percent of the original \$144,036,000 guaranteed maximum price for the project. Additionally, the value of change order work awarded to these subcontractors totaled \$17,635,669 for the project out of the \$28,942,864 in total change order work. This means the multiple bid award winners received 60.9 percent of all change order work. This volume of change order work raises questions about whether it is justifiable to award this amount of work directly to subcontractors without a competitive bidding process, particularly when two of these subcontractors submitted claims for additional costs.

**Exhibit V-1
Multiple Contract Awards – SRCI**

Company	# of Winning Bids	Total of Contracts
Subcontractor A	6	\$ 1,452,566.00
Subcontractor B	6	439,451.00
Subcontractor C	3	20,759,228.00
Subcontractor D	3	11,661,864.00
Subcontractor E	3	1,875,321.00
Subcontractor F	3	1,450,587.00
Subcontractor G	3	256,233.00
Subcontractor H	2	19,378,150.00
Subcontractor I	2	9,945,931.00
Subcontractor J	2	4,525,557.00
Subcontractor K	2	343,750.00
Subcontractor L	2	138,349.00
Subcontractor M	2	63,247.00
Totals		\$ 72,290,234.00

Six subcontractors on the TRCI project received two or more contract awards with the value of work awarded of \$15,691,808. This represents 13.0 percent of the original \$120,668,303 guaranteed maximum price for the project. The project is on-going so it is not possible to assess the total amount of change

order work these multiple award winners will receive. The total value of all approved change order work as of June 23, 1999 is \$16,807,180 for the project.

Exhibit V-2
Multiple Contract Awards – TRCI

Company	# of Winning Bids	Total of Contracts
Subcontractor A	4	\$ 3,641,141.00
Subcontractor B	2	10,640,704.00
Subcontractor C	2	988,250.00
Subcontractor D	2	247,994.00
Subcontractor E	2	98,659.00
Subcontractor F	2	75,060.00
Totals		\$ 15,691,808.00

Recommendations:

While there are no set guidelines on future CM/GC projects, the number of multiple award winning subcontractors and the amount of work awarded to these subcontractors should be monitored to ensure that excessive amounts of work are not awarded to individual subcontractors. In addition, when change order work becomes extensive there should be policies in place for when this work should be competitively bid as opposed to always awarding the work to the on-site subcontractor.^{RRR}

- **Was the CM/GC awarded subcontracting work?**

Answer:

Limited subcontracting work was undertaken by the CM/GCs or their subsidiaries.

Findings:

At SRCI, a subsidiary of the CM/GC (subcontractor X) bid on cast-in-place concrete work from Bid Package No. 3 but was not the low bidder. The CM/GC subsidiary was hired for assignment under a subcontract that was awarded to a subcontractor (Subcontractor Y), at the request of Subcontractor Y. Apart from subcontractor work, the CM/GC subsidiary and another subcontractor (Subcontractor Z, for Field Surveying) performed general conditions work, while another subcontractor (Subcontractor W) commissioned the mechanical system. The CM/GC subsidiary and Subcontractor W were reimbursed on an hourly time and materials basis. The CM/GC subsidiary added a three percent processing fee for payroll, which is

not recognized in the contract terms as separate from overhead. Subcontractor Z was paid a flat rate of \$45 per hour.

At TRCI, a CM/GC subsidiary bid on precast and cast-in-place concrete work from BP#4 but was underbid. Because the CM/GC bid as a subcontractor, the Department undertook the bid evaluations in this case – assuming the responsibility of the CM/GC. Apart from subcontractor work, the CM/GC performed general conditions and various other time and materials work on the project, which was reimbursed at cost, plus standard mark-ups.

Recommendations:

No recommendation required. There have been no excessive subcontract awards to the CM/GC or their subsidiaries.

- **Were there any complaints from subcontractors and, if so, how were they handled?**

Answer:

Interviews with the CM/GC for SRCI determined that there were no formal complaints on the project, outside of normal questions and clarifications associated with the bidding process. The CM/GC stated that, if there had been a complaint, state guidelines would have been used to resolve it.

At TRCI, a masonry subcontractor submitted a proposal for using inmate labor to drive the cost down. The subcontractor complained verbally when they did not receive the award. According to the CM/GC, the complaint went to the Department and was resolved through the CM/GC.

Findings:

Our review found no language in the bid package documents for the SRCI and TRCI projects that document an administrative bid protest procedure. This exposes the Department to costly project delays if an aggrieved bidder pursues legal action to stop award. According to OAR 137.040:

The Contract documents shall clearly establish whether the Agency must approve subcontract awards, and to what extent, if any, the Agency will resolve procurement protests of subcontractors and suppliers. The related procedures and reporting mechanisms shall be established with certainty, including whether the CM/GC acts as the owner’s “agent” in this process and whether the CM/GC’s subcontracting records are considered to be public records. In any event, the Agency shall retain the right to monitor the subcontracting process in order to protect Agency interests.

Recommendations:

Although subcontractor complaints have not been a problem at SRCI and TRCI, formal subcontractor bid protest procedures should be developed and included in bid packages on CM/GC projects. The roles of both the Department and the CM/GC in resolving complaints should be clearly defined and communicated. This will minimize exposure to risk for the Department, should bid protests occur on any future projects.^{SSS}

Does the subcontractor bidding process comply with good industry practices?

Answering this question involved examining how the subcontractor bidding process aligns with industry-accepted CM/GC subcontractor bidding approaches on public projects. The Department's policies, procedures and controls and data gathered were compared against industry practices used by CM/GC firms from the industry practices research, as well as against effective project management practices and techniques.

As noted above, states differ in the degree they regulate the subcontractor bid process on CM/GC projects. Some spell out specific guidelines to follow, others are more hands-off. Time will tell which approach stands up to legal challenges, and produces low cost, high quality project results. To date, little research exists on industry practices for public works CM/GC contracts.

Many CM/GC firms are adapting standard subcontract bid practices to comply with public works competitive bid requirements. Exhibit V-3 below summarizes our comparison of industry subcontractor bidding practices with SRCI and TRCI subcontractor bidding practices. Industry practices represent those practices which are common to public organizations that employ the CM/GC approach, including the Oregon Department of Administrative Services, Oregon University System, Washington State Department of Financial Management, as well as construction industry organizations such as the Construction Industry Institute, Project Management Institute, and the Design – Build Institute.

Exhibit V-3: Subcontractor Bidding Practices Comparison

Industry Practice	SRCI Practice	TRCI Practice
All bidders receive same information about the work	No systematic difference in the amount and availability of information amongst bidders.	No systematic difference in the amount and availability of information amongst bidders.
All bidders receive same level of communication. Contacts are documented.	Prospective bidders contacted during bid package preparation. Nature and extent of telephone communications unknown.	Prospective bidders contacted during bid package preparation. Nature and extent of telephone communications unknown.
Bids are logged as they are submitted and remain sealed until bid review	Bids are faxed or delivered to CM/GC headquarters and placed into sealed envelopes by CM/GC staff until bid opening. No Department representative present when bids received. No time stamp or initials.	Bids are faxed or delivered to CM/GC headquarters. Department representative present when bids received. Time stamped and initialed by Department representative and placed in sealed envelope.
Bid information is not shared with others	No evidence of bid information being shared with others.	No evidence of bid information being shared with others.
Bid results are published	Bid results not published.	Bid results not published.
Bid openings are public	Bid openings not public.	Bid openings not public.
Pre-bid conferences are held in vicinity of project	Pre-bid conferences were held in vicinity of project.	Pre-bid conferences were held in vicinity of project.
No bids are considered after the deadline	Late bids were disqualified.	Late bids were disqualified.
Bids documents are readily available for bidders	Bid documents readily available from the CM/GC or plan centers.	Bid documents readily available from the CM/GC or plan centers.

- **Are controls in place sufficient to allow for an open/competitive process?**

Answer:

Current practices inherently leave room for inadvertent or deliberate preferential treatment of some bidders.

Findings:

The same inherent conflicts exist with current practice as with conventional design-bid-build projects. On the latter, general contractors can discretely work with selected subcontractors to improve their chances of bidding successfully. This has been cited by minority and women owned businesses as a barrier to entry in the industry.

With CM/GC contracts, the CM/GC is privy to information not available to general contractors. The CM/GC knows budgets, estimates, and quantities; and

is familiar with site conditions and upcoming contracts. This may or may not be shared with certain bidders.

Recommendations:

As in public sector design-bid-build projects, contacts with the architect/engineer and the owner's agent (the CM/GC) should be strictly limited to designated individuals named in the bid advertisements. Contacts with any other individuals shared lead to disqualification.

During the project design development process, bid packages should be identified that lead to maximum competitiveness. CM/GCs should guard the owner's interests in preparing bid packages, and not tailor packages for certain subcontractors.^{TTT}

VI. Other Matters



Each project had an owner contingency account. The audit team identified a concern about the use of the account on the two projects. This issue is not within the scope of the audit questions; however, the team felt it deserved being addressed.

At an early stage of design (ranging from 30 percent to 50 percent complete), the CM/GC prepares a “Guaranteed Maximum Price” (GMP) that includes the “Cost of Work,” including allowances for items yet to be defined in the design, and the CM/GC’s Fee. Owners typically require that the CM/GC’s guaranteed maximum price must reconcile with the architect/engineer’s cost estimate, or redesign and value engineering efforts must continue. Negotiations are complicated if large areas of design scope are ill-defined or unfinished. Assumptions must be made about these areas, and consensus attained. This process does not always run smoothly. Some public agency owners in other jurisdictions have had difficulty with CM/GCs submitting inflated guaranteed maximum price estimates and demanding scope reductions or hefty allowances.

Allowances are project budget amounts set aside to cover scope that is anticipated, but of insufficient definition or detail to price. Once design and buyout for that particular scope is complete, a portion of the allowance can be retained for field conditions and coordination and the balance returned to the owner. Good cost controls dictate that allowances be scope-specific, used for that purpose, and managed in individual accounts.

With broadly defined allowance accounts there is a tendency to not recognize early overruns (or scope growth). Also, allowances accounts of a broad nature tend to be identified as convenient management reserve funds or contingency funds.⁷

A CM/GC construction contingency account should be established upon guaranteed maximum price reconciliation (at approximately 95 percent buyout). This can be set at 3-5 percent of the Cost of Work and will cover changes for expedient methods, missing scope, claims, and items within the CM/GC’s control.

A separate owner-controlled contingency account can be used for scope increases, changes in materials, design errors or omissions, and unforeseen site conditions. Like conventional design-bid-build, these funds would cover items outside the CM/GC’s control. Since subcontract bid packages are awarded through competitive bid, the need for quality construction documents is no less than on a design-bid-build project.

SRCI and TRCI blurred the lines between contingency spending, allowances, and scope increases. On SRCI, unused allowances and excess funds after award of bid packages and buyout (estimated by some to be over \$20 million) were comingled with additional

VI. Other Matters

owner monies to pay for a list of owner-requested scope increases. For example, funds originally set aside for medical equipment and ceilings ultimately paid for paving, a guard shack, and a video card access system. Without a means to compare actual costs for the original scope versus a baseline estimate, cost controls and cost savings cannot be established.

The original guaranteed maximum price should be recognized for what it is, an estimate based upon early, incomplete designs. As design is completed, the estimate should be refined and any excess funds returned to the owner. From that point, scope increases should come from an owner-controlled fund.

Rather than institute greater cost controls on TRCI, the role of the Department's project management consultant has been diminished in terms of project controls. There is no longer a full-time the Department Project Manager on the jobsite with the authority to approve changes. According to the Department, none of the onsite staff have previous prison or CM/GC experience. Department officials told us they have purposefully taken a less hands-on approach to managing this project.^{UUU}

Department officials told us that the Department views the guaranteed maximum price as a "sunk" cost. The Department has delegated to the CM/GC the discretion of dispensing excess funds after buyout, and is not expecting any savings returned. Like SRCI, the TRCI CM/GC will occasionally allocate funds from within the guaranteed maximum price to pay for added scope or owner-requested changes. With these funds available, the potential for scope growth is increased, as is the likelihood of multiple changes, impact costs, and claims.^{VVV}

As noted above, some owners in other jurisdictions have encountered CM/GCs that submit inflated guaranteed maximum price estimates, necessitating scope reductions and deletions. Owners find they can no longer afford desired scope items. Owners must preserve their leverage in guaranteed maximum price negotiations. Owners should include a separate Preconstruction Services agreement for work during the design phase and, if necessary, turn to the alternate qualified CM/GC for guaranteed maximum price negotiation and resolution.^{WWW}

Appendices



A. Methodology

1. Interviews

Department administrators, project managers, and other key staff were interviewed. CM/GC officials were also interviewed. A total of ten bidders (subcontractors) from each project were polled by telephone about their bidding experiences.

2. Literature Review

Materials from previous audits of the Department were reviewed. Research results from several organizations, including the Construction Industry Institute, Design-Build Institute of America, and the Project Management Institute were reviewed.

3. Data/Record Analysis

The following data/records were reviewed:

- Contracts for each project, compared to ORS and OAR Statutes.
- Subcontractor bid documents and payment records.
- On-site review of all change orders inside/outside of guaranteed maximum price at TRCI.
- Random sample of 50 change orders from SRCI with validation of the SRCI project management firm work.
- In-depth review of 15 largest change orders for each project (representing 21 percent of all change orders at SRCI and 75 percent of all change orders at TRCI).

B. Glossary of Acronyms

ASI – Architect’s supplemental instruction

CII – Construction Industry Institute

CM/GC – Construction manager/general contractor

COR – Change order request

D/B/B – Design-bid-build

GMP – Guaranteed maximum price

OAR – Oregon Administrative Rule

ORC – Owner requested change

ORS – Oregon Revised Statutes

PCO – Potential change order

POCR – Potential owner requested change

RFI – Request for information

SRCI – Snake River Correctional Institution

T&M – Time and materials

TRCI – Two Rivers Correctional Institution

Bibliography



Endnotes

¹ *Selecting Project Delivery Systems, The Project Delivery Institute; Page 17.*

² *Project Change Management, Construction Industry Institute; Special Publication 43-1, Page 17.*

³ *Scope Definition and Control, Construction Industry Institute; Page 11.*

⁴ *Project Change Management, Construction Industry Institute; Special Publication 43-1, Page 19.*

⁵ *ORCS 279.103 CM/GC Process Evaluation, CRSS Constructors, Inc.*

⁶ *Scope Definition and Control, Construction Industry Institute; Page 1.*

⁷ *Scope Definition and Control, Construction Industry Institute; Page 8.*

Other

Project Management Body of Knowledge, The Project Management Institute.

Agency's Response



Endnotes

^A The Department acknowledges the SRCI project had higher contingency than a fully designed project. However, the Department maintains that with the level of uncertainty and requirement for the Owner to incur risk associated with unknown and undefined requirements for scope of work, it was prudent to carry the level of project contingencies used at SRCI.

The audit report does not acknowledge that levels of contingency carried within the TRCI construction budget were significantly less than those at SRCI and lower than most Owner's would deem appropriate for a "fast-track" construction project. The CM/GC process promotes the use of their construction expertise to recommend to the Owner when terms and conditions of the project are not sufficient to absolutely project the cost.

^B Adjustments within the currently negotiated cost of work are contractual activities between the CM/GC and subcontractors. The Attorney General's office has instructed the Department to not approve subcontractor activities but to review the information provided. Approving the sub-contractors bids and adjustments has the potential for shifting the risks from the CM/GC to the Department.

The audit report does not acknowledge the Department's position that management of subcontractors in the CM/GC process is clearly the contractual responsibility of the CM/GC and the Department does not have any contractual relationship with subcontractors. Adjustments to subcontracts as the result of project buy-out, contract document clarification, contract document completion, resolution of claims by subcontractors against the CM/GC, or a variety of other contractual requirements were reviewed by the Department and challenged if not appropriate. The Department monitors this activity closely through its Project Management staff and the A/E as part of the Project Team concept.

The Department has established strong control over Owner change requests because these changes clearly modify the scope and cost of work currently negotiated within the Guaranteed Maximum Price (GMP). The Department also recognizes that to be a responsible Owner within a contractual relationship for construction projects, control of Owner Change Requests are important.

^C Contractually the CM/GC has been hired to provide Construction Management services for the Department and it is appropriate for the Department to rely on the CM/GC to provide these services. In an effort to reduce costs of prison construction, the Department has made deliberate efforts to not layer contractual responsibilities.

The Project Management (PM) consultant has been hired to assist the Department in fulfilling its managerial responsibilities of the construction process. The PM consultant is used to

review and confirm the performance of the CM/GC, not perform the contractual responsibilities of the CM/GC. At SRCI, the PM consultant assumed too many of the contractual responsibilities of the CM/GC which in turn resulted in distorting contractual roles and responsibilities. Internal review of the SRCI project clearly showed little value was added to the project and significant costs were incurred as a result redundant efforts and unclear responsibilities for resolving issues.

^D The delay in making the decision to add the scope of work associated with the workforce building completed at TRCI was necessary to ensure sufficient savings were available to support the decision to add this scope of work. This decision could not have been made in time to take advantage of additive bid costs versus having to renegotiate. The general statement about the negative ramifications of deferred decisions is agreed with, however, the audit report shows most decisions were made in a timely fashion and processes are in place to minimize impact to the construction project schedule.

^E Impact costs are appropriate under certain circumstances and the CM/GC's exhibited appropriate judgement in the conduct of subcontract negotiations.

^F The Department acknowledges in some instances the TRCI CM/GC interpreted hand-tools as a direct cost versus an overhead item as defined in the Oregon Standard General Condition. However, it is not agreed that computing appropriate direct costs as a percentage of labor is not acceptable practice. The TRCI CM/GC elected to accept this practice and the SRCI CM/GC elected not to, it is the value of these direct costs that the Department relies on the CM/GC to control for the Owner, not the methodology of computing the value. The Department believes that safety programs, record drawings, and the foreman's truck is acceptable direct costs and may be computed as a percentage.

^G The audit report bases the percentages computed on a definition of change order that does not fit the CM/GC. This report does not capture the CM/GC procedures used for managing project risk and separate this process from other type of delivery systems. Further detailed response to this issue will be provided later in this audit report.

^H The audit report does not clarify the definition and application of contingency. Risk management textbooks emphasize the need for contingency to be properly estimated based upon the risk of the project. The SRCI project risk assessment required a higher level of contingency than the TRCI project. The blanket statement that both the SRCI and TRCI projects exceed these ranges does not properly address the contingency issue relating to fast-tracked construction projects.

^I OAR 124-310-0010 is intended for controlling the contract change amount between the State and the Contractor and is not intended to control lower tier contractual relationships. The Department only has a contract with the CM/GC and has no contractual relationship with subcontractors under this type of delivery method. The Department maintains sufficient oversight of the CM/GC was provided to determine changes to the subcontractors were in fact justified and in the best interests of the project. At each contract modification, it was determined in the best interest of the Department to modify a subcontract versus re-bidding the required work.

^J The Department agrees it is poor management practice to incur work prior to having appropriate contract documents in place. However, no payment was made to subcontractors prior to appropriate contract amendments being in place. The audit report does not acknowledge the Department cannot have contractual relationships with lower tier contractors.

The CM/GC's made some construction management decisions when, in their opinion, it was prudent and appropriate to proceed with anticipated work prior to having change orders in place with the Department. In these cases, the CM/GC performed on its own behalf and is assuming the risk of performing this work. The CM/GC was assuming risk to minimize future costs to the project budget and to benefit the Department. The Department believes that this is a commendable practice, but fully recognizes the negative implications it may have on the CM/GC if the work is not covered under appropriate contract documents. This has been rarely done and in the cases of where it was done, the Department believes the CM/GC exercised appropriate judgement.

^K The Department believes information was available and sufficient bid time provided in the two instances. The extension of the bid closure date and addendum were issued consistent with practices stated in ORS 279.

^L The Department did provide bid receipt oversight at both projects. The Attorney General's office has stated that it is not required for the CM/GC to adhere to the requirements of ORS 279 in the award of subcontracts.

^M Again, as stated above, the Attorney General's office has advised the Department to only review and not approve subcontractor bids in order to not assume the risk responsibility of the CM/GC. The Attorney General's office has also indicated the CM/GC is not required to adhere to ORS 279.

^N The audit found no evidence of this statement occurring and is too general to provide any other response.

^O The Department maintains the accounting of savings and contingency is not problematic and if anything, the actual findings of this audit support the Department's position. The complexity of the policy issue associated with the use of savings in a GMP contract will be addressed for future projects. However, the Department maintains that current management practices and procedures clearly document when savings are used for scope adjustment or change.

^P The Department agrees that measurement is essential, however, the measurements made by the PM consultant at SRCI were not agreed upon in both definition and how the data will be used by the Department or Project Team. The information referenced above captured only the opinion of the PM consultant and did not reflect the Project Team's position. Since no action was ever initiated by the PM consultant based upon this measurement and it was not effectively used within the SRCI project team, the Department questions the validity or value of the measurement. The Department is currently providing a "value added" test to all processes and management activities associated with new construction.

^Q The Department is in agreement the CM/GC's have made extensive effort to meet the intent of ORS 279 and OAR 137.

^R The Department recognizes clarity of contract compliance and better definition of processes required by the CM/GC to meet the intent of ORS 279 and OAR 137 will better define future projects. The Department's revision of the Project Management Procedures Manual in combination with the Attorney General's advice will define these requirements and will be incorporated to future CM/GC contracts.

^S The Department does not agree with the above statement and that the GMP was clearly defined. The fasted-tracked nature of both projects caused GMP's to be established at earlier stages in design.

^T The Department does not agree with the above statement. Some savings realized with the execution of the construction contracts have been reprogrammed into the construction project for procuring scope of work that is consistent with the initial project intent and adds needed value to a fully functional prison. Savings consumed by adjustments and owner requested changes are consistent with the originally intended scope of the project and are fully documented. The TRCI project documentation clearly shows where savings have been reprogrammed and savings not expended. The Project Team, through reconciliation of the negotiated cost of work, identified \$4.4 million of cost savings and reprogrammed \$1.5 million to purchase scope that was not considered possible prior to the project buy-out. The audit report did not recognize this process is specifically intended to manage the level of risk associated with meeting the GMP. The GMP initially excluded this work that was eventually added to the currently negotiated scope of work and substantiated by independent estimates performed by the A/E and an estimating consultant. Therefore, the CM/GC did not inappropriately hedge their estimate or shed risk. The CM/GC process is evolving and the Department has worked diligently to develop processes that provide adequate Owner control without interfering with the CM/GC to perform work clearly within their contractual agreement with the Department.

^U The Department has adopted a very rigorous process for identifying and justifying change order work initiated by the Department. The audit report's decision to classify owner requested changes and adjustments within the currently negotiated cost of work as blanket change orders is not consistent with management practices being employed. The adopted procedures for initiating change orders was established prior to the approval of the major work identified above and Department review, justification, and approval of the additional work identified was executed consistently with established procedures.

^V The Department found that in all cases procedural steps were followed.

^W The adjustments within the currently negotiated cost of work initiated by the CM/GC are fully reviewed by project teams consisting of the CM/GC, A/E, and Department PM. There are no adjustments made by the CM/GC that are not concurred with by the Project Team. No adjustment to the cost of work of any subcontract under the CM/GC has been made without the acknowledgement of the Department PM. Some adjustments were initiated as a result of an Owner Change Request. This should not be portrayed as inappropriate and documentation

of the adjustment will show why it was determined by the Project Team to be addressed as an adjustment within the currently negotiated cost of work versus being an increase to the currently negotiated cost of work through a change order.

^X The term “premium cost” does not reflect the work the CM/GC has done in tracking the cost differential between originally bid cost of work and the cost of work associated with an adjustment or change order. Inappropriately costs were not paid for change order or adjustment work and any additional costs are justified as an increase in labor, material, overhead or profit permitted under the Oregon General Requirements for construction contracts.

^Y The relocation of the PSE cabinets was initiated by the TRCI Superintendent through the preparation of a Potential Owner Change Request (POCR) #40 and approved by appropriate Department authority. The TRCI Superintendent identified the construction documents did not adequately capture the Department’s design intent for positioning the PSE cabinets and raised serious security concerns. In order to minimize the cost of this OCR, it was agreed that work should be accomplished within the currently negotiated cost of work. The decision provided cost savings to the Department by not increasing the currently negotiated cost of work and paying additional fees to the CM/GC for this corrective work. To further help minimize cost impacts the A/E did not charge the Department a fee for issuing an ASI for relocation of the PSE cabinets. The CM/GC solicited quotes for the execution of this work and awarded the work to the low bidder for \$84,082. The CM/GC clearly fulfilled their contractual responsibilities as the Department’s Construction Manager by minimizing the costs of this adjustment.

The Department maintains this Owner Change Request was not additional scope of work, but rather, corrective work performed within the currently negotiated cost of work. While the potential savings within the currently negotiated cost of work were reduced, the Project Team insured appropriate Department approval of this work was obtained.

^Z The location of the grade beam under the exterior perimeter fence was identified as a serious security concern. The construction drawings clearly showed the grade beam being located under the exterior fence, but the TRCI Superintendent identified the error and initiated a POCR. The CM/GC solicited two quotes for the performance of the grade beam work. Both lump sum quotes were higher than anticipated and therefore were requested to provide a unit price quote. Both bidders were concerned with the actual elevation of rock based upon the information available. The CM/GC performed the work on a time and materials basis to minimize costs to the Department.

The Department maintains that an adjustment within the currently negotiated cost of work was appropriate because the OCR requested corrective action and was not an increase to the original scope of work. The Department recognizes that potential savings to the Department were expended to make this correction. An ASI has subsequently been issued by the A/E properly documenting this additional work. The Project Team realizes that an ASI should have been issued prior to the actual performance of work. The CM/GC’s prompt response and administration of this work resulted in the work being performed for less cost than originally estimated.

^{AA} The Department does not agree with the above statement as every cost revision on the TRCI project was done in full agreement of the Department PM. The CM/GC was requested to provide supporting documentation for adjustments within the currently negotiated cost of work when the costs did not appear to be consistent with the level of work anticipated. The Department's position is that contractually the CM/GC is responsible for managing and administering the subcontractors and is acting in the Department's interest in obtaining work for the least cost.

^{BB} The Department believes the above recommendation implies inadequacies within current project management practices that are not substantiated by the audit report. Recommendations from the audit report for changes in current management processes should be supported by examples of material defects in existing processes or fraud. The Department does not agree that the audit discovered sufficient evidence to warrant recommendation provided above.

^{CC} The CM/GC is the technical expert employed by the Department to execute construction management activities. Per the CM/GC contract, the CM/GC is to manage all phases of construction to the best interest of the Department. Therefore, the CM/GC is clearly responsible for getting the best price for change orders. The Department reviews and must approve the final change order negotiated by the CM/GC and should not duplicate the effort of the CM/GC. The A/E is contractually responsible to review the change order for appropriateness of scope and cost.

Again, the Department does not believe it is in the best interest of the Department to add layers to this process with additional review. The Department PM monitors the performance of the CM/GC and A/E in the performance of their contractual responsibilities.

^{DD} The contract document drives the performance requirements of the CM/GC and the Department will ensure any CM/GC will fulfill contractual requirements. The Department is satisfied that the TRCI CM/GC has fulfilled their contractual responsibilities and is performing well. Clearly, the contractual requirements, selection, and risk of burden of a CM/GC are very different from those of a general contractor in more traditional delivery methods.

^{EE} The contract document drives the performance requirements of the CM/GC and the Department will ensure any CM/GC will fulfill contractual requirements. The Department is satisfied that the TRCI CM/GC has fulfilled their contractual responsibilities and is performing well. Clearly, the contractual requirements, selection, and risk of burden of a CM/GC are very different from those of a general contractor in more traditional delivery methods.

^{FF} The Department does not agree with the above statement if the statement implies subcontractors were inappropriately provided opportunities to change their prices. Some subcontractors honored their original bids, however, the large subcontractors providing major portions of work did adjust their prices. To bid this work again would have resulted in a 60 to 90 day extension of the contract and any savings realized in more competitive pricing would have been reduced significantly by extended general conditions. In the case of the pre-cast concrete, it would have been nearly impossible for a competitive firm to under bid the current

supplier because of the limited volume of work and the high cost of transportation. The CM/GC clearly made the correct construction management decision to award this work as a change order.

^{GG} The Department agrees that whenever possible and cost effective, work due to change orders should be re-bid. Fast-tracked construction does not always make this possible or practical.

^{HH} Term “culled” has negative connotation and implies wrongdoing by the SRCI CM/GC. The Department is not aware of wrongdoing in this matter.

^{II} The Department does not agree “independent” assessments are either required or justified based upon the audit findings of the audit. The audit report makes positive comments regarding good review procedures throughout several sections of this report. (Reference answer to question #2 on page #15 of this report. Also reference findings to question #4 on page 18 of this report.)

^{JJ} The Department has retained the CM/GC to perform this function and monitors the performance of the CM/GC. The A/E also reviews CM/GC proposals for appropriateness and accuracy on the Department’s behalf.

^{KK} The TRCI Project Team did assess each change and insured Owner requested changes were processed as change orders. Other categories of changes were treated as liabilities against the currently negotiated cost of work. The CM/GC process promotes the project team concept and mistakes are viewed as team mistakes unless gross negligence is encountered. Cases of gross negligence will and have been addressed by exception.

^{LL} The Department is not aware of the criteria used by the audit report to categorize the causes for change and shows Owner Requested Changes approximately \$7 million higher than the Department classification. Provided below is a spreadsheet showing the actual breakdown of changes as defined by the Department. This table is considered by the Department to provide a depiction, using CM/GC methods, of changes and how they were classified.

CAUSE CATEGORY	NUMBER	COST	PERCENT
Change Orders (To Cost Of Work)			
Competitively Bid & Originally Budgeted Items		\$ 1,962,640	39%
Originally Budgeted Not Competitively Bid Items		\$ 193,680	4%
Buy Back Of Originally Intended Scope		\$ 2,380,918	47%
Unforeseeable & Code Compliance Items		\$ 492,076	9%
Other Minor Scope Revisions		\$ 65,761	1%
Total Change Orders Thru Change Order #18	18	\$ 5,095,075	100%

Agency's Response

Adjustments			
CM/GC Buyout	112	\$ 2,216,135	25%
Document Completion, Coordination & Local Code Requirements	137	\$ 2,433,620	28%
Value Engineering	23	\$ (619,175)	-7%
Schedule & Sequencing	22	\$ 129,505	1%
Constructability & Repair	61	\$ 185,819	2%
Buy Back Original Scope	1	\$ 4,484,266	52%
Inmate Labor	17	\$ (344,272)	-4%
Owner Change Requests/Functional Revisions	6	\$ 237,263	3%
Other	7	\$ 23,997	0.30%
Voided Or No Cost Adjustment	122	\$ -	
Total Adjustments Thru 8/22/99	508	\$ 8,747,158	100%
Outstanding Potential Adjustments			
CM/GC Buyout	13	\$ 442,000	50%
Document Completion, Coordination & Local Code Requirements	41	\$ 336,000	38%
Value Engineering	4	\$ (15,000)	-2%
Schedule & Sequencing	3	\$ 56,000	6%
Constructability & Repair	14	\$ 38,000	4%
Inmate Labor	1	\$ 13,000	1%
Owner Change Requests/Functional Revisions	2	\$ 27,000	3%
Total Potential Outstanding Adjustments	78	\$ 897,000	100%
Total Change Orders, Adjustments & Potential Outstanding Adjustments		\$ 14,739,233	
Remaining Owner Contingency In GMP		\$ 1,055,073	
Total		\$ 15,794,306	

^{MM} The Department does not agree with the above table. The audit report does not define change orders in a manner consistent with the standard practices used with the CM/GC definitions, therefore, the conclusions shown in this table are inaccurate. The Department determines the number and amount of true change orders outside the cost of work to be:

TRCI: 18 change orders for \$5,095,075 = 5% total change order activity.

^{NN} The Department did not get clarification on this issue and it may be contrary to other findings and/or recommendations.

^{OO} Based upon the audit findings, the CM/GC has provided clear evidence that it has appropriately back-charged subcontractors. Only two items totaling \$2,575 were challenged by the audit report in over \$125 million in work performed.

^{PP} The CM/GC, within the cost of work, is contractually entitled to be reimbursed for damaged work, provided such damage did not result from the fault or negligence of the CM/GC or the CM/GC's personnel, and only to the extent that the costs of such repairs are not recoverable by the CM/GC from others.

^{QQ} The Department agrees with the above recommendation. This is the process that the Project Team has followed on the TRCI project.

^{RR} The Department will request additional information regarding these findings. To the Department's knowledge no impact costs have been awarded by the CM/GC, but if costs are found to be inappropriate reimbursement will be sought.

^{SS} Workforce Alternate did add value to the project. The Workforce buy back scope was not added back into the project until adequate funding had been identified.

^{TT} The Department believes that the above paragraph detracts from sound construction management professional services provided by the CM/GC with speculation that if another subcontractor were not available, a significant premium would have been paid.

^{UU} The CM/GC anticipated these costs and budgeted for them in an allowance. The CM/CG has been concerned with having to pay a premium for key trades in the Umatilla area, a remote labor area in Oregon.

^{VV} Clarification of this paragraph is requested.

^{WW} It is common industry practice to price certain costs that are directly related to a change in question as a percentage cost of labor. In our opinion costs for safety, record documents, consumables, etc. are considered direct cost as they relate to a specific change. The TRCI CM/GC did not allow subcontractors to charge these type of costs without question, they negotiated fair and reasonable costs associated with these issues.

^{XX} Contract language for future contracts will be developed with the Attorney General's office to ensure clarity of these issues.

^{YY} The final cost was clarified prior to signing a change order with the subcontractor involved and the price reduction was placed into contingency within the currently negotiated cost of work. During the review and approval of Change Order #12, the review of the subcontractor's proposal had not been completed. It was intended that any cost revisions would be handled as a deductive change order. The Department was fully informed by the CM/GC and approved the Change Order with this knowledge.

^{ZZ} PCO #493 was still open when reviewed by the Audit Team and negotiations had not yet been finalized.

^{AAA} The Department would prefer that the CM/GC perform as a construction manager and not compete for subcontract work unless absolutely required. The CM/GC process is built upon the theory that the opportunities to contractors performing work is not reduced or limited by the use of the process. The percentage for change order work was not exceeded beyond allowable limits for both projects.

^{BBB} OAR 124-310-0010 is intended for controlling the contract change amount between the State and the Contractor and is not intended to control lower tier contractual relationships. The Department only has a contract with the CM/GC and it specifically states that it has no contractual relationship with subcontractors.

^{CCC} The audit report recommends unavoidable changes and missed scope be packaged for bid and solicitation of competitive quotes. This was done at TRCI and will continue at future projects.

^{DDD} The Department disagrees with the exhibit IV-5 as it compares the design-bid-build model with the CM/GC model. These are two very separate and different types of contract delivery methods.

^{EEE} The Department had a state representative present prior to and during bid opening at both projects referenced in this audit.

^{FFF} The TRCI letter referenced above was the final documentation of process that included full disclosure of all bid analysis upon the Department's request. The Department's responsibility is oversight of the CM/GC to ensure the work to be awarded to the lowest responsible bidder. The audit clearly shows that this was done without exception and that there are no violations of this intent at either project. The Department concludes that the level of its oversight is sufficient.

^{GGG} This recommendation is not consistent with the Department goal of minimizing project overhead and overlap of contractual responsibilities and would increase the cost of prison bed construction.

^{HHH} The Department agrees that bid package development is very important. However, the Department is emphatic that the most cost effective and appropriate fashion to control quality of bid packages is to manage the CM/GC rather than how the CM/GC manages his subcontracts.

^{III} Many of the adjustments at the TRCI project are a direct result of coordination between multiple bid packages. The Department maintains that the costs and coordination of multiple bid packages exceeds the advantages of easier bid analysis.

^{JJJ} The Department will continue to monitor this issue.

^{KKK} The Department maintains that it is not the State's intent, nor is there a contractual requirement for the CM/GC to fully comply with ORS 279. The Department maintains it is impossible for a CM/GC to fully comply with ORS 279 and the CM/GC process is an exemption from the requirements of ORS Chapter 279.

LLL The Department did require the CM/GC's of both projects to support ORS 279. Competitive practices have been successful on both projects.

MMM Department representatives were present to receive bids on both projects. The practice of time stamping and initialing bids was employed at the TRCI project and clearly exceeds industry standards or requirements set in state statute.

NNN The Department maintains that sufficient oversight was provided. The procedures established at TRCI will be replicated on future Department of Corrections construction projects.

OOO The Department maintains that the recommendation is not practical and could be costly to implement.

PPP The CM/GC bases bid results on a worst case scenario and the fact that contracts are actually awarded for less than the bid amount is appropriate. The Department monitors the actual contract amount on the schedule of value. Savings generated by the award of contracts less than the bid amount, return to the project contingency to pay for adjustments that may be required.

QQQ The Department has responsibly monitored project scope as executed by the CM/GC and does direct the means and methods used by the CM/GC or lower tier contractors. The Department does not believe that there was any indication that full Project Team participation did not occur on any value engineering done within either project.

RRR The audit report indicates that the Department has been successful in this area with these two projects. Continuing efforts will be employed to further examine this issue at each new project.

SSS The audit report indicates that the Department has been successful in this area with these two projects. Continuing efforts will be employed to further examine this issue at each new project.

TTT The Department believes that it is in full compliance with the above recommendation.

Other

Project Management Body of Knowledge, The Project Management Institute

UUU The Department continues to evaluate "overhead costs" associated with each project to minimize the total costs of construction. Experience to-date has delivered two very successful projects on-time and below budgets. At both projects, full-time Department staff consisting of security, community and construction experts have been present during construction. At TRCI the Project Manager was assigned part-time duties, through part of the project, to provide additional support to the Salem office during development of other projects and responding to the last five audits of the construction program.

^{vvv} The Department does not view the guaranteed maximum price as a sunk cost. Current projections from both projects indicate that there will be funds returned to the State because of the outstanding work of the project teams to identify savings where possible. Any changes in the scope of the project must have significant review from Department administrators. As the New Prison Construction Program evolves it will gain valuable experience from lessons learned and will have more time to plan and hopefully avoid “fast-tracked” construction processes.

^{www} The Department agrees with this recommendation as it is what has already been established at the next major project (Women’s Prison & Intake Center). The CM/GC was hired separately for preconstruction services and an independent firm will be used to reconcile the GMP offered by the CM/GC. Note: An independent firm was used at the TRCI project during GMP negotiations and it was required that the CM/GC reconcile their GMP with this firm within 3% before the GMP was approved by the Department.

Audit Team Comments on Department's Response



I. Introduction

The intent of this audit report is to provide the Department of Corrections guidance in improving its project management practices for the prison construction program. The audit addressed contracting practices, change order management, and subcontractor bidding. It found some of the department's project management practices to be sound, while also highlighting areas for improvement in others. Key findings include:

- Contracting practices are compliant with established regulations.
- Project management procedures and controls used for management of change orders are applied inconsistently.
- Current subcontracting practices result in few complaints by subcontractors, but do not fully address methods to avoid deliberate or preferential treatment of some bidders.

Recommendations for improvement were also made, based on industry best practices and the experience of construction management experts. Key recommendations included:

- Project management procedures and controls should be enhanced for more control by the department (owner).
- Additional project management professionals should be integrated into the department's prison construction management team.
- Subcontracting practices should be more consistently and stringently followed and be reviewed to ensure the most competitive subcontractor bidding practices are being implemented.

Organization of Comments

The audit team carefully reviewed the department's response to above overall findings, recommendations, and their supporting detail. This document summarizes the audit team's comments on this response. In reviewing the department's response the audit team found few comments on the factual accuracy of the audit. Most comments stemmed from different interpretations and different assumptions of audit results. Our comments on the department's response directly address the factual issues raised and respond to the department's interpretation.

II. Disagreement Over Fact

There were few comments in the department's response that questioned the facts presented in the audit. The comments of a factual nature with which we disagree and why we disagree are described below.

- The department's response that "department representatives were present to receive bids on both projects" is factually incorrect. A department representative was present at the time of bid opening on both projects but at the time of bid transmittal there was not a department representative present at SRCI as there was at TRCI. The project manager of the SRCI project stated this information. The audit team recognizes the obvious improvement made in the TRCI process of having a department representative present during the specific hours bids are faxed in or delivered.
- The department response states that TRCI adjustments were reviewed and challenged if not appropriate. The audit team found that the extent of these "reviews" typically consisted of a brief discussion at biweekly meetings with proposed adjustments listed in a log. Minimal, if any, research was done of drawings, documents, and contractual responsibilities.
- The department response states that the SRCI contingency was arrived at through a "textbook" project specific risk assessment. Per audit team observations, the de facto SRCI contingency was the remaining amount after subcontract bids and buyout. This amount was on the order of \$20 million and was applied to department wish list items ("buyback" items), new department requests, and many other changes. Good cost controls would establish a construction contingency at 95% design/buyout completion with the balance returned to the owner. Any subsequent scope changes would come from a separate owner account.

III. Disagreement Over Interpretation

Much of the department's response was based on a different interpretation of audit team findings. The most significant audit areas in which the audit team disagreed with the interpretations appearing in the department response included change order management and subcontractor bidding. The basis for the audit team's response and the difference between our perspective and the department's response appears below.

A. Interpretation of Change Order Management Audit Results

The department's interpretation of the final change order performance of its SCRI and TRCI projects, as outlined in the department response, differed from that of the audit team. In some cases, the audit team believes the department response misinterpreted the audit findings with regard to change orders.

1. Project Performance

- The department states that all change orders were evaluated and classified as to whether they were within or outside the project scope. After reviewing the aspects of these changes with the TRCI CM/GC, the audit team's estimates of out-of-scope owner requests exceeded the department's by 140 percent. The audit team has found a number of the department's decisions in this regard somewhat arbitrary.
- The department's table outlining change orders by cause, number, cost, and percent did not exist during the time of the audit. Changes were not classified in the multiple categories shown at the time they were processed. The difference between "buy back of originally intended scope" and "buy back of original scope" is not explained.

2. Audit Findings

- The department's response indicates audit findings demonstrate that most change decisions were made in a timely fashion, and that processes were in place to minimize impact to the construction project schedule. However, the audit report made no qualitative or quantitative assessment of timeliness beyond that of noting numerous deferred decisions that produced considerable impact costs. Furthermore, the audit found that TRCI had relatively poor schedule controls compared to those observed on other large-scale projects, and little rigorous critical path method analysis of schedule impacts due to changes.
- The department response indicates that the audit rejects computation of certain "direct" costs by percentage. This is not in our findings. We recommend a review of contract language addressing these costs.

B. Interpretation of Subcontractor Bidding Audit Results

The audit team also questions the department's interpretation of the audit findings in the subcontractor bidding audit area. The department's response incorrectly interpreted several audit findings, including:

- The audit findings show that there were improvements in the accuracy and completeness of bid packages between the SRCI and the later TRCI project. The audit team commended the department for these improvements and suggested that more rather than fewer bid packages (as occurred at TRCI) may be a way to further maximize the accuracy and completeness on fast-tracked projects. As a result, subcontractors would implement the recommendation, in turn producing more complete subcontractor bids and reducing the number of change orders related to bid package inaccuracies.

- The department's response, however, seems to interpret the audit team's findings as negative, stating that many of the adjustments at the TRCI project were a direct result of coordination between multiple bid packages. The department maintains that the costs and coordination of multiple bid packages exceed the advantages of easier bid analysis. The audit team fails to see where (and the department does not suggest where) adjustments were required as a result of coordination between multiple bid packages and notes that there were also multiple bid packages at SRCI (five at SRCI compared to eleven at TRCI).
- The audit findings show that \$72,290,234 or 50.2 percent of the original \$144,036,000 guaranteed maximum price on the SRCI project was awarded to 13 multiple award winners. At TRCI there were only six multiple award winners with the value of work totaling \$15,691,808 (or 13.0 percent of the original \$120,668,303 guaranteed maximum price).

The audit team recommended that on future CM/GC projects, the number of multiple award winning subcontractors and the amount of work awarded to these subcontractors should be monitored to ensure that excessive amounts of work are not awarded to individual subcontractors. The department response indicated that the department has been successful in this area with these two projects. This seems to miss the point that excessive multiple awards by a CM/GC to subcontractors is potentially a competitive concern and something that should be monitored by the department to reduce risk of questions raised in that area.

IV. Conclusion

The department is embarking upon an ambitious new prison construction program. The audit team specifically invested time at the beginning of the audit to meet with department management in order to understand the program, as well as the issues and trends impacting it. Resultant findings and recommendations were intended to answer specific audit questions, and, as possible, assist the department in successfully meeting its construction program objectives.

However, the tenor of the department's reaction to the audit, as illustrated in their response, indicates a high level of frustration with the audit – which concerns the audit team. The audit team concludes that a major theme underlying this frustration, according to the number of the department's response comments related to it, is the CM/GC project management approach.

CM/GC is a newer project management approach that has not had widespread application in many sectors of the construction industry. Because of this, it provides wide latitude for defining its parameters and its application to prison construction within Oregon law. The audit team believes that, in some cases, the department has used the undefined nature of the approach to its advantage when defending management decisions and project performance. Some key occurrences in the department response included:

- The department maintains that change order management best practices differ radically between contract delivery methods, and therefore the CM/GC approach cannot be compared to other approaches, such as the more traditional “hard bid. However, change order management incorporates scope definition and control, project cost and schedule controls, and quality construction documents – factors that affect all approaches, including hard-bid contracts. If the department does not exercise good change order management practices, as outlined in audit recommendations, the result will be increased costs, schedule and cost impacts, and diminished return. The view that change order management best practices do not apply to department projects explains why the department’s response views the addition of the Workforce Addition, the Laundry Transfer Building, the Regional Transport Building, the Vehicle Maintenance Building, and the Industrial Laundry as adjustments and not scope increases.
- In response to any findings or recommendations that the department increase its oversight of the subcontractor bidding process, the department response maintained that it was the role and responsibility of the CM/GC to manage lower tier relationships. This is defended based upon “minimizing project overhead and overlap of contractual responsibilities”. The audit team pointed out that while it is true that the CM/GC process does give control over management of lower tier relationships to the CM/GC, it does not negate the responsibility for oversight to reduce risk to the department.
- The basis for analysis of the subcontractor bidding practices at SRCI and TRCI was a comparison against ORS 279 and industry best practices. The contract documents for both projects specify that the CM/GC support ORS 279, while the department response asserts that they are not legally bound to it since the CM/GC process falls outside of the standard public project process. However, since it is the intent of the contract documents that the CM/GC support ORS 279, the audit team determined that evaluation against ORS 279 was appropriate for benchmarking. The department should reconsider its approach in light of the contract documents taken, not the flexibility of the CM/GC approach.

It is important to note that review of the CM/GC approach was not a specific audit question the audit team was asked to answer. However, the issues it raised in light of the department’s response to the audit findings and recommendations make it an issue worthy of consideration. It is the opinion of the audit team that while the department may be able to have good flexibility and fast-track ability with the CM/GC approach, the newness of CM/GC as a project management approach that is not fully defined may not necessarily be a good match with an organization establishing itself in the field of project management.

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AGENCY RESPONSE

Note: when printed, do not include this working endnote section with report. Toss.

^A The Department acknowledges the SRCI project had higher contingency than a fully designed project. However, the Department maintains that with the level of uncertainty and requirement for the Owner to incur risk associated with unknown and undefined requirements for scope of work, it was prudent to carry the level of project contingencies used at SRCI.

The audit report does not acknowledge that levels of contingency carried within the TRCI construction budget were significantly less than those at SRCI and lower than most Owner's would deem appropriate for a "fast-track" construction project. The CM/GC process promotes the use of their construction expertise to recommend to the Owner when terms and conditions of the project are not sufficient to absolutely project the cost.

^B Adjustments within the currently negotiated cost of work are contractual activities between the CM/GC and subcontractors. The Attorney General's office has instructed the Department to not approve subcontractor activities but to review the information provided. Approving the sub-contractors bids and adjustments has the potential for shifting the risks from the CM/GC to the Department.

The audit report does not acknowledge the Department's position that management of subcontractors in the CM/GC process is clearly the contractual responsibility of the CM/GC and the Department does not have any contractual relationship with subcontractors. Adjustments to subcontracts as the result of project buy-out, contract document clarification, contract document completion, resolution of claims by subcontractors against the CM/GC, or a variety of other contractual requirements were reviewed by the Department and challenged if not appropriate. The Department monitors this activity closely through its Project Management staff and the A/E as part of the Project Team concept.

The Department has established strong control over Owner change requests because these changes clearly modify the scope and cost of work currently negotiated within the Guaranteed Maximum Price (GMP). The Department also recognizes that to be a responsible Owner within a contractual relationship for construction projects, control of Owner Change Requests are important.

^C Contractually the CM/GC has been hired to provide Construction Management services for the Department and it is appropriate for the Department to rely on the CM/GC to provide these services. In an effort to reduce costs of prison construction, the Department has made deliberate efforts to not layer contractual responsibilities.

The Project Management (PM) consultant has been hired to assist the Department in fulfilling its managerial responsibilities of the construction process. The PM consultant

is used to review and confirm the performance of the CM/GC, not perform the contractual responsibilities of the CM/GC. At SRCI, the PM consultant assumed too many of the contractual responsibilities of the CM/GC which in turn resulted in distorting contractual roles and responsibilities. Internal review of the SRCI project clearly showed little value was added to the project and significant costs were incurred as a result of redundant efforts and unclear responsibilities for resolving issues.

^D The delay in making the decision to add the scope of work associated with the workforce building completed at TRCI was necessary to ensure sufficient savings were available to support the decision to add this scope of work. This decision could not have been made in time to take advantage of additive bid costs versus having to renegotiate. The general statement about the negative ramifications of deferred decisions is agreed with, however, the audit report shows most decisions were made in a timely fashion and processes are in place to minimize impact to the construction project schedule.

^E Impact costs are appropriate under certain circumstances and the CM/GC's exhibited appropriate judgement in the conduct of subcontract negotiations.

^F The Department acknowledges in some instances the TRCI CM/GC interpreted hand-tools as a direct cost versus an overhead item as defined in the Oregon Standard General Condition. However, it is not agreed that computing appropriate direct costs as a percentage of labor is not acceptable practice. The TRCI CM/GC elected to accept this practice and the SRCI CM/GC elected not to, it is the value of these direct costs that the Department relies on the CM/GC to control for the Owner, not the methodology of computing the value. The Department believes that safety programs, record drawings, and the foreman's truck is acceptable direct costs and may be computed as a percentage.

^G The audit report bases the percentages computed on a definition of change order that does not fit the CM/GC. This report does not capture the CM/GC procedures used for managing project risk and separate this process from other type of delivery systems. Further detailed response to this issue will be provided later in this audit report.

^H The audit report does not clarify the definition and application of contingency. Risk management textbooks emphasize the need for contingency to be properly estimated based upon the risk of the project. The SRCI project risk assessment required a higher level of contingency than the TRCI project. The blanket statement that both the SRCI and TRCI projects exceed these ranges does not properly address the contingency issue relating to fast-tracked construction projects.

^I OAR 124-310-0010 is intended for controlling the contract change amount between the State and the Contractor and is not intended to control lower tier contractual relationships. The Department only has a contract with the CM/GC and has no contractual relationship with subcontractors under this type of delivery method. The Department maintains sufficient oversight of the CM/GC was provided to determine

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changes to the subcontractors were in fact justified and in the best interests of the project. At each contract modification, it was determined in the best interest of the Department to modify a subcontract versus re-bidding the required work.

^J The Department agrees it is poor management practice to incur work prior to having appropriate contract documents in place. However, no payment was made to subcontractors prior to appropriate contract amendments being in place. The audit report does not acknowledge the Department cannot have contractual relationships with lower tier contractors.

The CM/GC's made some construction management decisions when, in their opinion, it was prudent and appropriate to proceed with anticipated work prior to having change orders in place with the Department. In these cases, the CM/GC performed on its own behalf and is assuming the risk of performing this work. The CM/GC was assuming risk to minimize future costs to the project budget and to benefit the Department. The Department believes that this is a commendable practice, but fully recognizes the negative implications it may have on the CM/GC if the work is not covered under appropriate contract documents. This has been rarely done and in the cases of where it was done, the Department believes the CM/GC exercised appropriate judgement.

^K The Department believes information was available and sufficient bid time provided in the two instances. The extension of the bid closure date and addendum were issued consistent with practices stated in ORS 279.

^L The Department did provide bid receipt oversight at both projects. The Attorney General's office has stated that it is not required for the CM/GC to adhere to the requirements of ORS 279 in the award of subcontracts.

^M Again, as stated above, the Attorney General's office has advised the Department to only review and not approve subcontractor bids in order to not assume the risk responsibility of the CM/GC. The Attorney General's office has also indicated the CM/GC is not required to adhere to ORS 279.

^N The audit found no evidence of this statement occurring and is too general to provide any other response.

^O The Department maintains the accounting of savings and contingency is not problematic and if anything, the actual findings of this audit support the Department's position. The complexity of the policy issue associated with the use of savings in a GMP contract will be addressed for future projects. However, the Department maintains that current management practices and procedures clearly document when savings are used for scope adjustment or change.

^P The Department agrees that measurement is essential, however, the measurements made by the PM consultant at SRCI were not agreed upon in both definition and how the data will be used by the Department or Project Team. The information referenced above captured only the opinion of the PM consultant and did not reflect the Project Team's position. Since no action was ever initiated by the PM consultant based upon this measurement and it was not effectively used within the SRCI project team, the Department questions the validity or value of the measurement. The Department is currently providing a "value added" test to all processes and management activities associated with new construction.

^Q The Department is in agreement the CM/GC's have made extensive effort to meet the intent of ORS 279 and OAR 137.

^R The Department recognizes clarity of contract compliance and better definition of processes required by the CM/GC to meet the intent of ORS 279 and OAR 137 will better define future projects. The Department's revision of the Project Management Procedures Manual in combination with the Attorney General's advice will define these requirements and will be incorporated to future CM/GC contracts.

^S The Department does not agree with the above statement and that the GMP was clearly defined. The fasted-tracked nature of both projects caused GMP's to be established at earlier stages in design.

^T The Department does not agree with the above statement. Some savings realized with the execution of the construction contracts have been reprogrammed into the construction project for procuring scope of work that is consistent with the initial project intent and adds needed value to a fully functional prison. Savings consumed by adjustments and owner requested changes are consistent with the originally intended scope of the project and are fully documented. The TRCI project documentation clearly shows where savings have been reprogrammed and savings not expended. The Project Team, through reconciliation of the negotiated cost of work, identified \$4.4 million of cost savings and reprogrammed \$1.5 million to purchase scope that was not considered possible prior to the project buy-out. The audit report did not recognize this process is specifically intended to manage the level of risk associated with meeting the GMP. The GMP initially excluded this work that was eventually added to the currently negotiated scope of work and substantiated by independent estimates performed by the A/E and an estimating consultant. Therefore, the CM/GC did not inappropriately hedge their estimate or shed risk. The CM/GC process is evolving and the Department has worked

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diligently to develop processes that provide adequate Owner control without interfering with the CM/GC to perform work clearly within their contractual agreement with the Department.

^U The Department has adopted a very rigorous process for identifying and justifying change order work initiated by the Department. The audit report's decision to classify owner requested changes and adjustments within the currently negotiated cost of work as blanket change orders is not consistent with management practices being employed. The adopted procedures for initiating change orders was established prior to the approval of the major work identified above and Department review, justification, and approval of the additional work identified was executed consistently with established procedures.

^V The Department found that in all cases procedural steps were followed.

^W The adjustments within the currently negotiated cost of work initiated by the CM/GC are fully reviewed by project teams consisting of the CM/GC, A/E, and Department PM. There are no adjustments made by the CM/GC that are not concurred with by the Project Team. No adjustment to the cost of work of any subcontract under the CM/GC has been made without the acknowledgement of the Department PM. Some adjustments were initiated as a result of an Owner Change Request. This should not be portrayed as inappropriate and documentation of the adjustment will show why it was determined by the Project Team to be addressed as an adjustment within the currently negotiated cost of work versus being an increase to the currently negotiated cost of work through a change order.

^X The term "premium cost" does not reflect the work the CM/GC has done in tracking the cost differential between originally bid cost of work and the cost of work associated with an adjustment or change order. Inappropriately costs were not paid for change order or adjustment work and any additional costs are justified as an increase in labor, material, overhead or profit permitted under the Oregon General Requirements for construction contracts.

^Y The relocation of the PSE cabinets was initiated by the TRCI Superintendent through the preparation of a Potential Owner Change Request (POCR) #40 and approved by appropriate Department authority. The TRCI Superintendent identified the construction documents did not adequately capture the Department's design intent for positioning the PSE cabinets and raised serious security concerns. In order to minimize the cost of this OCR, it was agreed that work should be accomplished within the currently negotiated cost of work. The decision provided cost savings to the Department by not increasing the currently negotiated cost of work and paying additional fees to the CM/GC for this corrective work. To further help minimize cost impacts the A/E did not charge the Department a fee for issuing an ASI for relocation of the PSE cabinets. The CM/GC solicited quotes for the execution of this work and awarded the work to the low bidder

for \$84,082. The CM/GC clearly fulfilled their contractual responsibilities as the Department's Construction Manager by minimizing the costs of this adjustment.

The Department maintains this Owner Change Request was not additional scope of work, but rather, corrective work performed within the currently negotiated cost of work. While the potential savings within the currently negotiated cost of work were reduced, the Project Team insured appropriate Department approval of this work was obtained.

^Z The location of the grade beam under the exterior perimeter fence was identified as a serious security concern. The construction drawings clearly showed the grade beam being located under the exterior fence, but the TRCI Superintendent identified the error and initiated a POCR. The CM/GC solicited two quotes for the performance of the grade beam work. Both lump sum quotes were higher than anticipated and therefore were requested to provide a unit price quote. Both bidders were concerned with the actual elevation of rock based upon the information available. The CM/GC performed the work on a time and materials basis to minimize costs to the Department.

The Department maintains that an adjustment within the currently negotiated cost of work was appropriate because the OCR requested corrective action and was not an increase to the original scope of work. The Department recognizes that potential savings to the Department were expended to make this correction. An ASI has subsequently been issued by the A/E properly documenting this additional work. The Project Team realizes that an ASI should have been issued prior to the actual performance of work. The CM/GC's prompt response and administration of this work resulted in the work being performed for less cost than originally estimated.

^{AA} The Department does not agree with the above statement as every cost revision on the TRCI project was done in full agreement of the Department PM. The CM/GC was requested to provide supporting documentation for adjustments within the currently negotiated cost of work when the costs did not appear to be consistent with the level of work anticipated. The Department's position is that contractually the CM/GC is responsible for managing and administering the subcontractors and is acting in the Department's interest in obtaining work for the least cost.

^{BB} The Department believes the above recommendation implies inadequacies within current project management practices that are not substantiated by the audit report. Recommendations from the audit report for changes in current management processes should be supported by examples of material defects in existing processes or fraud. The Department does not agree that the audit discovered sufficient evidence to warrant recommendation provided above.

^{CC} The CM/GC is the technical expert employed by the Department to execute construction management activities. Per the CM/GC contract, the CM/GC is to manage

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all phases of construction to the best interest of the Department. Therefore, the CM/GC is clearly responsible for getting the best price for change orders. The Department reviews and must approve the final change order negotiated by the CM/GC and should not duplicate the effort of the CM/GC. The A/E is contractually responsible to review the change order for appropriateness of scope and cost.

Again, the Department does not believe it is in the best interest of the Department to add layers to this process with additional review. The Department PM monitors the performance of the CM/GC and A/E in the performance of their contractual responsibilities.

^{DD} The contract document drives the performance requirements of the CM/GC and the Department will ensure any CM/GC will fulfill contractual requirements. The Department is satisfied that the TRCI CM/GC has fulfilled their contractual responsibilities and is performing well. Clearly, the contractual requirements, selection, and risk of burden of a CM/GC are very different from those of a general contractor in more traditional delivery methods.

^{EE} The contract document drives the performance requirements of the CM/GC and the Department will ensure any CM/GC will fulfill contractual requirements. The Department is satisfied that the TRCI CM/GC has fulfilled their contractual responsibilities and is performing well. Clearly, the contractual requirements, selection, and risk of burden of a CM/GC are very different from those of a general contractor in more traditional delivery methods.

^{FF} The Department does not agree with the above statement if the statement implies subcontractors were inappropriately provided opportunities to change their prices. Some subcontractors honored their original bids, however, the large subcontractors providing major portions of work did adjust their prices. To bid this work again would have resulted in a 60 to 90 day delay extension of the contract and any savings realized in more competitive pricing would have been reduced significantly by extended general conditions. In the case of the pre-cast concrete, it would have been nearly impossible for a competitive firm to under bid the current supplier because of the limited volume of work and the high cost of transportation. The CM/GC clearly made the correct construction management decision to award this work as a change order.

^{GG} The Department agrees that whenever possible and cost effective, work due to change orders should be re-bid. Fast-tracked construction does not always make this possible or practical.

^{HH} Term “cullled” has negative connotation and implies wrongdoing by the SRCI CM/GC. The Department is not aware of wrongdoing in this matter.

Audit Team Comments on Department's Response

^{II} The Department does not agree “independent” assessments are either required or justified based upon the audit findings of the audit. The audit report makes positive comments regarding good review procedures throughout several sections of this report. (Reference answer to question #2 on page #15 of this report. Also reference findings to question #4 on page 18 of this report.)

^{JJ} The Department has retained the CM/GC to perform this function and monitors the performance of the CM/GC. The A/E also reviews CM/GC proposals for appropriateness and accuracy on the Department’s behalf.

^{KK} The TRCI Project Team did assess each change and insured Owner requested changes were processed as change orders. Other categories of changes were treated as liabilities against the currently negotiated cost of work. The CM/GC process promotes the project team concept and mistakes are viewed as team mistakes unless gross negligence is encountered. Cases of gross negligence will and have been addressed by exception.

^{LL} The Department is not aware of the criteria used by the audit report to categorize the causes for change and shows Owner Requested Changes approximately \$7 million higher than the Department classification. Provided below is a spreadsheet showing the actual breakdown of changes as defined by the Department. This table is considered by the Department to provide a depiction, using CM/GC methods, of changes and how they were classified.

CAUSE CATEGORY	NUMBER	COST	PERCENT
<u>Change Orders (To Cost Of Work)</u>			
Competitively Bid & Originally Budgeted Items		\$ 1,962,640	39%
Originally Budgeted Not Competitively Bid Items		\$ 193,680	4%
Buy Back Of Originally Intended Scope		\$ 2,380,918	47%
Unforeseeable & Code Compliance Items		\$ 492,076	9%
Other Minor Scope Revisions		\$ 65,761	1%
Total Change Orders Thru Change Order #18	18	\$ 5,095,075	100%
<u>Adjustments</u>			
CM/GC Buyout	112	\$ 2,216,135	25%
Document Completion, Coordination & Local Code Requirements	137	\$ 2,433,620	28%

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Value Engineering	23	\$ (619,175)	-7%
Schedule & Sequencing	22	\$ 129,505	1%
Constructability & Repair	61	\$ 185,819	2%
Buy Back Original Scope	1	\$ 4,484,266	52%
Inmate Labor	17	\$ (344,272)	-4%
Owner Change Requests/Functional Revisions	6	\$ 237,263	3%
Other	7	\$ 23,997	0.30%
Voided Or No Cost Adjustment	122	\$ -	
Total Adjustments Thru 8/22/99	508	\$ 8,747,158	100%
<u>Outstanding Potential Adjustments</u>			
CM/GC Buyout	13	\$ 442,000	50%
Document Completion, Coordination & Local Code Requirements	41	\$ 336,000	38%
Value Engineering	4	\$ (15,000)	-2%
Schedule & Sequencing	3	\$ 56,000	6%
Constructability & Repair	14	\$ 38,000	4%
Inmate Labor	1	\$ 13,000	1%
Owner Change Requests/Functional Revisions	2	\$ 27,000	3%
Total Potential Outstanding Adjustments	78	\$ 897,000	100%
Total Change Orders, Adjustments & Potential Outstanding Adjustments		\$ 14,739,233	
Remaining Owner Contingency In GMP		\$ 1,055,073	
Total		\$ 15,794,306	

^{MM} The Department does not agree with the above table. The audit report does not define change orders in a manner consistent with the standard practices used with the CM/GC definitions, therefore, the conclusions shown in this table are inaccurate. The Department determines the number and amount of true change orders outside the cost of work to be:

TRCI: 18 change orders for \$5,095,075 = 5% total change order activity.

^{NN} The Department did not get clarification on this issue and it may be contrary to other findings and/or recommendations.

^{OO} Based upon the audit findings, the CM/GC has provided clear evidence that it has appropriately back-charged subcontractors. Only two items totaling \$2,575 were challenged by the audit report in over \$125 million in work performed.

^{PP} The CM/GC, within the cost of work, is contractually entitled to be reimbursed for damaged work, provided such damage did not result from the fault or negligence of the CM/GC or the CM/GC's personnel, and only to the extent that the costs of such repairs are not recoverable by the CM/GC from others.

^{QQ} The Department agrees with the above recommendation. This is the process that the Project Team has followed on the TRCI project.

^{RR} The Department will request additional information regarding these findings. To the Department's knowledge no impact costs have been awarded by the CM/GC, but if costs are found to be inappropriate reimbursement will be sought.

^{SS} Workforce Alternate did add value to the project. The Workforce buy back scope was not added back into the project until adequate funding had been identified.

^{TT} The Department believes that the above paragraph detracts from sound construction management professional services provided by the CM/GC with speculation that if another subcontractor were not available, a significant premium would have been paid.

^{UU} The CM/GC anticipated these costs and budgeted for them in an allowance. The CM/CG has been concerned with having to pay a premium for key trades in the Umatilla area, a remote labor area in Oregon.

^{VV} Clarification of this paragraph is requested.

^{WW} It is common industry practice to price certain costs that are directly related to a change in question as a percentage cost of labor. In our opinion costs for safety, record documents, consumables, etc. are considered direct cost as they relate to a specific change. The TRCI CM/GC did not allow subcontractors to charge these type of costs without question, they negotiated fair and reasonable costs associated with these issues.

^{XX} Contract language for future contracts will be developed with the Attorney General's office to ensure clarity of these issues.

^{YY} The Change Order in question was for fire sprinklers and not drywall. The final cost was clarified prior to signing a change order with the subcontractor involved and the price reduction was placed into contingency within the currently negotiated cost of work. During the review and approval of Change Order #12, the review of the subcontractor's proposal had not been completed. It was intended that any cost revisions would be handled as a deductive change order. The Department was fully informed by the CM/GC and approved the Change Order with this knowledge.

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^{ZZ} PCO #493 was still open when reviewed by the Audit Team and negotiations had not yet been finalized.

^{AAA} The Department would prefer that the CM/GC perform as a construction manager and not compete for subcontract work unless absolutely required. The CM/GC process is built upon the theory that the opportunities to contractors performing work is not reduced or limited by the use of the process. The percentage for change order work was not exceeded beyond allowable limits for both projects.

^{BBB} OAR 124-310-0010 is intended for controlling the contract change amount between the State and the Contractor and is not intended to control lower tier contractual relationships. The Department only has a contract with the CM/GC and it specifically states that it has no contractual relationship with subcontractors.

^{CCC} The audit report recommends unavoidable changes and missed scope be packaged for bid and solicitation of competitive quotes. This was done at TRCI and will continue at future projects.

^{DDD} The Department disagrees with the exhibit IV-5 as it compares the design-bid-build model with the CM/GC model. These are two very separate and different types of contract delivery methods.

^{EEE} The Department had a state representative present prior to and during bid opening at both projects referenced in this audit.

^{FFF} The TRCI letter referenced above was the final documentation of process that included full disclosure of all bid analysis upon the Department's request. The Department's responsibility is oversight of the CM/GC to ensure the work to be awarded to the lowest responsible bidder. The audit clearly shows that this was done without exception and that there are no violations of this intent at either project. The Department concludes that the level of its oversight is sufficient.

^{GGG} This recommendation is not consistent with the Department goal of minimizing project overhead and overlap of contractual responsibilities and would increase the cost of prison bed construction.

^{HHH} The Department agrees that bid package development is very important. However, the Department is emphatic that the most cost effective and appropriate fashion to control quality of bid packages is to manage the CM/GC rather than how the CM/GC manages his subcontracts.

^{III} Many of the adjustments at the TRCI project are a direct result of coordination between multiple bid packages. The Department maintains that the costs and coordination of multiple bid packages exceeds the advantages of easier bid analysis.

^{JJJ} The Department will continue to monitor this issue.

^{KKK} The Department maintains that it is not the State's intent, nor is there a contractual requirement for the CM/GC to fully comply with ORS 279. The Department maintains it is impossible for a CM/GC to fully comply with ORS 279 and the CM/GC process is an exemption from the requirements of ORS Chapter 279.

^{LLL} The Department did require the CM/GC's of both projects to support ORS 279. Competitive practices have been successful on both projects.

^{MMM} Department representatives were present to receive bids on both projects. The practice of time stamping and initialing bids was employed at the TRCI project and clearly exceeds industry standards or requirements set in state statute.

^{NNN} The Department maintains that sufficient oversight was provided. The procedures established at TRCI will be replicated on future Department of Corrections construction projects.

^{OOO} The Department maintains that the recommendation is not practical and could be costly to implement.

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PPP The CM/GC bases bid results on a worst case scenario and the fact that contracts are actually awarded for less than the bid amount is appropriate. The Department monitors the actual contract amount on the schedule of value. Savings generated by the award of contracts less than the bid amount, return to the project contingency to pay for adjustments that may be required.

QQQ The Department has responsibly monitored project scope as executed by the CM/GC and does direct the means and methods used by the CM/GC or lower tier contractors. The Department does not believe that there was any indication that full Project Team participation did not occur on any value engineering done within either project.

RRR The audit report indicates that the Department has been successful in this area with these two projects. Continuing efforts will be employed to further examine this issue at each new project.

SSS The audit report indicates that the Department has been successful in this area with these two projects. Continuing efforts will be employed to further examine this issue at each new project.

TTT The Department believes that it is in full compliance with the above recommendation.

Project Management Body of Knowledge, The Project Management Institute

UUU The Department continues to evaluate “overhead costs” associated with each project to minimize the total costs of construction. Experience to-date has delivered two very successful projects on-time and below budgets. At both projects, full-time Department staff consisting of security, community and construction experts have been present during construction. At TRCI the Project Manager was assigned part-time duties, through part of the project, to provide additional support to the Salem office

during development of other projects and responding to the last five audits of the construction program.

^{vvv} The Department does not view the guaranteed maximum price as a sunk cost. Current projections from both projects indicate that there will be funds returned to the State because of the outstanding work of the project teams to identify savings where possible. Any changes in the scope of the project must have significant review from Department administrators. As the New Prison Construction Program evolves it will gain valuable experience from lessons learned and will have more time to plan and hopefully avoid “fast-tracked” construction processes.

^{www} The Department agrees with this recommendation as it is what has already been established at the next major project (Women’s Prison & Intake Center). The CM/GC was hired separately for preconstruction services and an independent firm will be used to reconcile the GMP offered by the CM/GC. Note: An independent firm was used at the TRCI project during GMP negotiations and it was required that the CM/GC reconcile their GMP with this firm within 3% before the GMP was approved by the Department.