

Portland Building Construction Contract:

Costs reviewed were compliant, although cost classifications required by contract and reconciliations need to start immediately

September 2019

On behalf of:



P O R T L A N D
CITY AUDITOR
Audit Services



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SUMMARY RESULTS

Many leading practices were employed on the Portland Building project and the Design-Build Relocate contractor was generally compliant with contract provisions surrounding cost invoicing, change orders, and subcontractor procurements. However, there are a few improvements needed to address required cost classifications and reconciliations in addition to lessons learned for future capital construction projects.

BACKGROUND AND PURPOSE

The City's Chief Administrative Officer requested the City Auditor's Office to review the Portland Building project.

In March 2019, the Portland City Auditor's Office hired Sjoberg Evashenk Consulting Inc. to conduct a construction performance audit of the prime contractor for the renovation of the Portland Building to determine compliance with the Design-Build Relocate (DBR) contract terms, identify any overcharges and potential cost savings, and improve project controls on this and other future City construction projects.

As part of the audit, Sjoberg Evashenk Consulting Inc. reviewed the following areas:

1. Cost Compliance
2. Change Orders
3. Subcontractor Bid Packages

KEY FINDINGS

For the areas of focus, our audit results revealed good project practices existed and activities were generally accurate, supported, and compliant with small improvements needed. We found the following:

- Neither the City nor the DBR contractor has yet formally classified costs as required by the DBR contract to identify expected documentation to substantiate costs and level of audit access afforded to the City—although we estimate nearly half of the \$157 million contract is subject to audit.
- Without a reasonable cost characterization, the City may be challenged to comprehensively evaluate the reasonableness of contract costs or contract compliance.
- Billing review process was thorough and aligned with best practices.
- Costs reviewed were generally supported, accurate, and allowable, although labor burden charges were based on estimates and support for some subcontractor charges was unavailable.
- Billings included past charges between two and eight months old making it difficult to identify potential duplicate billings.
- City should start cost reconciliations now, rather than wait until project closeout to minimize risks with expected level of effort needed and volume of documents.
- Change orders were well-managed, supported, organized, and properly approved and subcontractor procurement protocols were sound.
- Not all practices were memorialized in project management plans or standard operating procedures.
- Some construction audit services were utilized through provisions available in City's owner's representative contract.

KEY RECOMMENDATIONS

- Perform cost classification required by contract to determine the expected type of documentation to substantiate costs, evaluate reasonableness, assess contract compliance, and aid in final payment reconciliation efforts.
- Begin phased cost reconciliations now rather than waiting until construction closeout, especially for those cost items that are 100 percent complete to date, and ensure DBR contractor's estimated labor burdened rates billed are reconciled with actual rates to identify any potential cost savings.
- Use the third-party audit feature from the City's owner's representative contract or an internal construction auditor to assist with cost reconciliations to help identify unsupported costs or cost savings.
- Memorialize lessons learned and distribute to City Bureaus that manage large-scale capital construction projects. Lessons learned include:
 - Ensuring contract language has clarity and specificity for required payment and cost documentation and better cost identification and linkages between contract documents and billings.
 - Implementing controls to assist monitoring of older cost charges by working with contractors and subcontractors.
 - Creating written or formal procedures for review and approval of contractor billings and ensure project management plans and standard operating procedures are created, completed, formalized, and communicated.

Introduction and Background

Originally built in 1982, the Portland Building is a 15-story office building housing approximately 1,500 City employees, a daycare center, public meeting spaces, retail vendors, and customer services centers. With its unique design by Michael Graves, the Portland Building was listed on the National Register of Historic Places in 2011 as an example of Post-Modern Classicism.

To remedy the known water filtration issues and preserve its asset investment, the City Council decided to renovate the Portland Building in October 2015.¹ The City's goals for the project are to replace the building envelope to eliminate water intrusion, perform seismic upgrades, replace building systems at the end of their life cycle, and meet LEED Gold standards.² To help manage, design, and renovate the Portland Building, the City hired two external firms—an owner's representative for project management and outreach services as well as a prime contractor for design and construction services. As part of the project, the contractor was tasked with relocating City employees to temporary facilities while the Portland Building was under renovation and relocating those employees into the Portland Building upon project completion.

The resulting \$157.5 million DBR contract was structured into four primary phases with related activities and compensation as shown in Exhibit 1. Phase 1 included early design activities; Phase 2 included development of a Guaranteed Maximum Price; Phase 3 included final design, construction, and closeout; and Phase 4 included the post-occupancy and warranty period. As of August 2019, the project was nearing the end of Phase 3 construction with building occupancy planned for late 2019—although closeout activities and costs will stretch into 2020.

EXHIBIT 1. SUMMARY OF PROJECT BUDGETED COSTS BY PHASE, AS OF MARCH 2019

Phase	Activities	Amount
1	Planning, Validation, and Conceptual Design	\$3.9 million
2	Detailed Design Services, Preconstruction, and GMP Development	\$11.2 million
3	Final Design, Construction, and Closeout	\$142.4 million
4	Post-Occupancy, Warranty, and After Care	No funds budgeted
	Total	\$157.5 million

Source: March 2019 Pay Application Schedule of Values.

¹ Portland City Auditor Report, "Portland Building Reconstruction: City faced with important post-planning decisions to ensure project success," December 2016, page 3.

² A building envelope is the physical barrier between the exterior and interior environments enclosing a structure that can include the roof, walls, windows, doors, and foundation. LEED, or Leadership in Energy and Environmental Design, standards are a widely-used green building rating system providing a framework to create healthy, highly-efficient, and cost-saving green buildings.

Further, the DBR contract acknowledges the “open book” arrangement relative to cost of work through an audit clause whereby the City and its auditors are afforded access to and the right to audit the DBR contractor’s records and books with some exceptions.³ Under this audit provision, the Portland City Auditor hired our firm, Sjoberg Evashenk Consulting, to perform a construction performance audit of the DBR contract in 2019 in certain focus areas. This included a review of project costs, change orders, and subcontractor procurement with the objective to identify overcharges, potential costs savings, or potential process improvements to project controls on the Portland Building project or future City projects. This report provides the results, with detailed scope, objectives, and methodology described in Appendix A.

³ Progressive Design-Build Relocate Services Agreement #30005394, Article 10, Section 10.02.

Sampled Project Costs were Compliant, but Costs were not Classified to Identify Expected Documentation to Support Costs

As of March 2019, the DBR contractor had billed nearly \$94 million, or 60 percent of the \$157.5 million contract amount based on a schedule of values (SOV) showing a breakdown of costs for individual project activities and monthly payment applications (billings). Each month, the DBR contractor submits an application for payment to the City that details expenses incurred. These monthly billings contain SOV line items with supporting documentation such as labor reports, subcontractor invoices, and material purchases.

Overall, most costs reviewed were compliant and allowable per the contract and a thorough review process was employed. We also found a few areas to improve related to formally classifying costs as required by the contract to identify expected documentation for supporting costs and starting required cost reconciliations now, rather than wait until project closeout.

Billing Documentation

- **Schedule of Values** is a detailed schedule showing a breakdown of the various project activities and associated cost.
- **Payment Application** is a document outlining the services provided or the equipment and materials used on a construction project that is used as a basis for paying a contractor.

Cost Classification Required by Contract and Needed for Reconciliations has not been Completed Making it Challenging to Identify Required Documentation

The DBR contract provides detail on the types of costs allowable, reimbursable, and compensable and requires the cost for each activity and item on the SOV to be listed as either not-to-exceed, lump-sum, unit-price, or budget.⁴ Each requires different types and levels of supporting documentation to substantiate costs as described below:

- **Not-to-Exceed:** Costs are set at a capped or upper limit amount for an agreed scope of work. The DBR contractor must track the actual cost of work and the City may analyze the underlying supporting documents submitted for payment.
- **Lump-sum:** Costs are set at a fixed amount for an agreed scope of work. The DBR contractor is not required to track actual costs and is paid based on a percentage-of-work completion basis.
- **Unit-price:** Costs are set at a fixed amount for an agreed unit of work, but the quantity is not yet known. The DBR contractor is not required to track actual costs and is paid on a number-of-units basis.
- **Budget:** Because this cost category was not specifically defined in the DBR contract, we worked with the DBR contractor to further distinguish those costs as either “budget-contractor direct cost” for costs that are expected to be reimbursed on an actual cost basis, “budget-percentage” for the contractor’s fee where actual cost documents are not required, or “budget-uncommitted” for unknown costs related to activities that have not yet been determined to be lump-sum or not-to-exceed.

⁴ Progressive Design-Build Relocate Services Agreement #30005394, Article 6.02.A through C, Article 10.02, and General Conditions of the Contract, Exhibit 2-B, Section 107.01.E.2.

Although this cost classification and breakdown plays a central role in determining reimbursement of costs, type of documentation required to substantiate costs, and level of audit access afforded to the City, neither the City nor the DBR contractor provided this breakdown as required by the DBR contract. Without a reasonable cost characterization, the City may be challenged to comprehensively evaluate the reasonableness of contract costs or contract compliance at project closeout. This risk is partially mitigated through the City’s and owner’s representative’s review of monthly billings and supporting cost documentation.

In the absence of this information, we prepared an initial cost characterization using the March 2019 billing in conjunction with various contract documents and subcontractor payment terms as shown in Exhibit 2. This characterization was also necessary to help us evaluate which costs to select for audit testing. However, a precise classification of cost was difficult to develop for a number of reasons. First, the prime contract language allowed discretion in determining whether certain cost categories could be lump-sum or not-to-exceed once a specific activity was known. Second, some subcontract language was at times silent as to whether subcontracted activities were to be reimbursed on a lump-sum or not-to-exceed actual cost basis. Lastly, an individual SOV line item could represent the combined activities of several subcontractors further complicating what type of underlying cost documentation should support the SOV cost line item. Thus, the City may need to review past monthly billings to identify any other subcontractors that had charged costs to the project that could impact the ultimate cost characterization for a particular cost line item.

For the most part, the City and DBR contractor generally agreed with our initial characterization. In fact, there were only a handful of instances in areas classified as “budget-contractor direct cost” where we had different interpretations of the contract payment provisions as shown in Exhibit 2.

EXHIBIT 2. EXAMPLES WHERE AUDITORS’ CLASSIFICATION OF COSTS DIFFERED FROM DBR CONTRACTOR

SOV Line Item ¹	Description	Contractor Doing Work	SOV Budget Amount	Auditor Classification ²	Contractor Classification
44	Preconstruction Labor	Prime	\$1,215,350	NTE	Budget-contractor direct cost
45	Preconstruction MOE’s	Prime	\$206,163	NTE	Budget-contractor direct cost
54	Constructability Engineering	Prime	\$19,000	NTE	Budget-contractor direct cost
56	Building Survey	Prime	\$14,010	NTE	Budget-contractor direct cost
61	Site Supervision	Prime	\$7,288	NTE	Budget-contractor direct cost
62	General Requirements	Prime	\$4,728	NTE	Budget-contractor direct cost
73	Temp Space Preconstruction	Prime	\$220,161	NTE	Budget-contractor direct cost

Source: Progressive Design-Build Relocate Services Agreement #30005394 and related amendments and exhibits—in particular, Exhibit 2-B.

Note 1: SOV line item indicated on March 2019 payment application.

Note 2: Auditor classification is per Progressive Design-Build Relocate Services Agreement #30005394, Amendment Four, Attachment 3.0, Assumptions and Clarifications to the GMP Proposal, dated 10/30/2017.

Differing interpretations could present a challenge at project closeout and may hinder the City’s ability to ensure all costs are supported and appropriate. Therefore, we recommend that the City ensure it agrees on a final cost characterization and focus its reconciliation analysis on those items subject to audit with underlying cost data for review. Further, for future projects, the City should ensure contract language has clarity on the type of documentation expected to be provided with monthly billings and support costs. It also should ensure better cost identification and linkages between contract language, budgets, amendments, activities, SOV line items, and payment applications.

Approximately Half of DBR Contract is Tied to Actual Costs and Subject to Audit

Based on our cost characterization, we estimated that approximately 39 percent or \$61 million of project costs are paid on a lump-sum basis where support for actual costs is not required to be provided to the City for reimbursement and is not subject to audit.⁵ Cost review is typically performed when subcontractors submit initial bids and owner’s negotiate a final, acceptable, and reasonable price for specific scopes of work. Two examples of lump-sum costs included over \$3 million in architectural and interior design services and more than \$5.7 million in interior and exterior demolition.

However, we also estimated that approximately 49 percent of the contract costs will be reimbursed on an actual cost basis that can be reviewed for accuracy, allowability, and cost savings on an on-going basis or at final project closeout. As shown in Exhibit 3, this includes 31 percent of costs characterized as not-to-exceed and 18 percent of costs characterized as “budget-contractor direct cost.” For these types of activities, the DBR contractor would submit detailed invoices and actual cost data upon request.

EXHIBIT 3. AMOUNT OF CONTRACT COSTS BASED ON ACTUAL AMOUNTS AND SUBJECT TO AUDIT

Cost Category Classification	Amount	Percent	Subject to Audit
Lump-Sum	\$61.0 million	39%	
Not-to-Exceed	\$49.0 million	31%	✓
Budget-Contractor Direct Cost	\$28.8 million	18%	✓
Budget-Uncommitted	\$9.0 million	6%	
Budget-Percentage	\$8.4 million	5%	
Unit-Price	\$1.3 million	1%	
Total	\$157.5 million	100%	

Source: Progressive Design-Build Relocate Services Agreement #30005394 and related amendments and exhibits—in particular, Exhibit 2-B General Conditions of the Contract, Amendment 4 GMP Snapshot, Amendment 4 clarifications and assumptions, and Amendment 3 Exhibit 2.

In the bullets that follow, we describe the budget and unit-price cost categories and the extent to which each is subject to audit and cost verification.

⁵ Progressive Design-Build Relocate Services Agreement #30005394, Article 10, Section 10.02.

- The “budget-contractor direct cost” category refers to costs identified as budgeted amounts within the prime contractor’s control. According to the contract, overruns in one line item can be applied to underruns in another line item. Nonetheless, these budgets are supported with actual costs and are subject to audit. Examples of “budget-contractor direct cost” include general conditions labor, miscellaneous general requirements, and site maintenance and clean up.⁶
- The “budget-uncommitted” category refers to cost line items for which the reimbursement methods have not yet been determined, mainly comprised of contingencies and allowances. A contingency is an amount of budget that is set-aside to address unforeseen costs. Allowances are estimated budgets for specific scope areas for which the design is not yet complete, such as moving costs associated with returning occupancy to the Portland Building and a customer service desk. If and when costs are approved from these categories, the specific reimbursement methods would be established and could be either lump-sum, not-to-exceed, or unit-price. Depending on the method selected, those costs may or may not be subject to audit.
- Other costs classified in the “budget-percentage” category that totaled \$8.4 million, or 5 percent of the contract included the DBR contractor’s negotiated fee and insurance percentages, which are not subject to audit.
- The last cost type, unit-price, are costs with a fixed rate for an agreed countable number of units’ work. Support of the actual cost is not required to be provided for payment. Unit-price examples include tower crane rentals, construction engineering, and miscellaneous concrete supply.

Costs Reviewed were Compliant, although we Identified a few Areas that Can be Improved

Monthly billings contain more than 600 SOV cost line items that detail the description of work, firm that conducted the work, original contract value, any budget revisions, current budget value, work completed, percentage complete, balance to finish, and retainage. Since the contract start in 2016, there were 32 monthly billings submitted as of March 2019. We reviewed four monthly billings and found costs were compliant, allowable, and supported with only one identified concern related to older charges, as described in the sections that follow.

Billing Review Process was Thorough and Aligned with Best Practices

The payment application document is the contractor’s billing providing budget, current month expenses for work performed, and cumulative costs for labor, materials, and equipment. Assuring the accuracy and appropriateness of project costs requires a thorough review of the monthly payment applications for mathematical accuracy, reconciling amounts billed with underlying support, ensuring costs are allowable under contract, and validating the reasonableness of the charge.⁷

Although there were limited written procedures to guide City and its owner’s representative in reviewing costs, owner’s representative staff used a robust spreadsheet to perform an in-depth review of monthly

⁶ Progressive Design-Build Relocate Services Agreement #30005394, General Conditions of the Contract, Exhibit 2-B, Section 5.07A.

⁷ Best practices from a variety of sources such as the National Association of Construction Auditors and Design-Build Institute of America.

billings. Current practices include gauging progress of work through project walk-throughs and field reports as well as review of all submitted detail supporting the monthly charges. This allowed the City to ensure:

- Underlying support agreed with schedule of values.
- Calculations were mathematically correct.
- Percentage complete was reasonable and accurate.
- Subcontractors did not bill more than approved in subcontract.
- Budget revisions were accurately reflected.
- Amount invoiced related to project and contract provisions.
- Month-to-month cost variance was reasonable.
- Material rates were in-line with the market and were allowable.

Additionally, the City and its owner's representative conducted detailed project site walk-throughs and used the monthly billings as a tool to ensure percent of work completed was reasonable. Consistent with industry best practices, the City's owner's representative prepared project site walk-through reports that were thorough and contained elements suggested by best practices, including discussions of issues, photographs to show progress or problems, schedule compliance, and review of monthly payment requests.⁸

The owner's representative staff also maintained an invoice review log to track follow-up questions posed on monthly billing line items and support provided. The invoice review log contained various questions including inquiries about the completeness of supporting documentation, accuracy of subtotals and percentage fees, appropriateness of percentage of work completed reported, reasonableness of rates charged, and miscellaneous other areas.

Costs Reviewed were Generally Supported, Accurate, and Allowable, although Labor Burden Costs Charged were Based on Estimates and Support for Some Subcontractor Costs was Unavailable

While we tested many aspects of monthly billings, the volume of data and resources involved prevented us from looking at every SOV cost item or all monthly payment applications. Thus, we reviewed a sample of cost charges and underlying support for four monthly periods—July 2017, January 2018, February 2018, and March 2019—focusing on a range of activities and higher-dollar charges. Often, each SOV line item amount was comprised of numerous charges for labor, material, and/or equipment changes that we sampled for detailed analysis.

For the four monthly billings reviewed, underlying supporting documents generally agreed with amounts charged in terms of accuracy, cost allowability with contract provisions, and reasonableness. Further, most of the monthly costs reviewed were supported by material invoices and subcontractor invoices, and had evidence of reviews and approval. For instance, in the March 2019 billing, the DBR contractor billed a total of \$43,825 for construction debris & recycling, which was substantiated with 12 separate invoices from two different subcontractors. Additionally, subcontractor material and equipment charges aligned with

⁸ Construction Management Association of America, Standards of Practice, Sections 6.5.22.

subcontract, agreement terms, or vendor pricing rate sheets and were generally supported based on additional documentation requested and provided by the DBR contractor.

However, the labor burden rate charged by the DBR contractor was based on estimated rates and will need to be reconciled with actual rates during the cost reconciliation efforts. One example of the variance was a rate of \$20.46 charged for a journeyman position, although the payroll records indicated an actual charge of \$18.38. Additionally, there were no supporting invoices available for approximately \$92,000 of subcontractor costs billed in March 2019. Although the subcontractor had a not-to-exceed contract with a DBR contractor, the contractor did not require cost detail from the subcontracted firm because reimbursement was based on overall job progress. Refer to other results described in Exhibit 4.

EXHIBIT 4. RESULTS OF MONTHLY BILLING/PAYMENT APPLICATION COST TESTING

Cost Type	Prime or Subcontractor Charge	Results	Issues/Comments
Labor	Prime	<ul style="list-style-type: none"> Labor rate billed in pay applications agreed with labor rate shown on Certified Payroll. 	<ul style="list-style-type: none"> None
	Subcontractor	<ul style="list-style-type: none"> Payroll records agreed with amount billed in pay application. 	<ul style="list-style-type: none"> None
Labor Burden Rate	Prime	<ul style="list-style-type: none"> Rates charged were based on estimates and will need to be reconciled with actual rates during cost reconciliation efforts. 	<ul style="list-style-type: none"> Burden rate billed in pay application was higher than actual rate from payroll records.⁹
	Subcontractor	<ul style="list-style-type: none"> Burden rates billed in pay application generally agreed with actual burden rates. Rate properly did not include profit mark-up, dues, vehicle allowance, or tool allowance. 	<ul style="list-style-type: none"> None
Materials	Both	<ul style="list-style-type: none"> Materials delivered on the job-site or to the contractor and City co-location site as well as and subcontractor invoice agreed with amount billed by DBR contractor in the pay application. 	<ul style="list-style-type: none"> While many subcontracts required daily submittals of material usage reports, the DBR contractor informed us they leave it up to the subcontractors to monitor and manage usage. The DBR contractor used field supervisors that prepared daily field reports aligned with best practices that focused on materials—although the primary focus is on scope of work, safety, people on site, delay claims, and schedule.¹⁰

⁹ Labor burden charges include health benefits, social security, workers' compensation insurance, and unemployment taxes.

¹⁰ Construction Management Association of America, Section 6.5.11.

Cost Type	Prime or Subcontractor Charge	Results	Issues/Comments
Equipment	Prime	<ul style="list-style-type: none"> Agreed with vendor pricing sheet, were delivered on the job-site or an appropriate off-site storage area, and were used on the project as documented on invoices or weekly field reports. 	<ul style="list-style-type: none"> None
Fees & Insurance	Prime	<ul style="list-style-type: none"> Amounts charged through negotiated and approved percentages were properly applied to allowable activities and were accurately calculated. 	<ul style="list-style-type: none"> None
Lump-Sum	Subcontractor	<ul style="list-style-type: none"> Items charged to project on a percentage of completion basis generally aligned with written field reports that described the subcontractors on site, scope of work per the previous invoice, and a comment on whether or not progress per the invoice was acceptable. 	<ul style="list-style-type: none"> None

Source: Auditor-generated from monthly billings, invoices, certified payrolls, purchase orders, material reports, and vendor pricing sheets.

Billings Included Old Charges Making It Difficult to Identify Potential Duplicate Billings

While we did not identify any duplicate billings, we found at least 49 instances where current month payment applications included several older charges between two months and eight months in the past. These older charges totaled nearly \$47,000 in March 2019. As shown in Exhibit 5, examples of these costs included numerous material purchases, equipment rentals and training courses. Although that may seem insignificant on a large-scale project of this nature, there could be many other similar instances on other payment applications that could increase the amount and significance of these older charges.

EXHIBIT 5. EXAMPLES OF OLDER INVOICE CHARGES ON MONTHLY BILLINGS

Payment Application Date (Costs Billed)	Supporting Invoice Date (Costs Incurred)	Time between Cost Incurred and Billed (In months)	Amount	Type of Cost
January 2019	9/6/2018	4	\$1,035	Construction materials
February 2019	10/31/2018	4	\$876	Rental equipment
March 2019	7/29/2018	8	\$720	Training course

Source: Auditor-generated from testing of monthly payment applications and underlying supporting invoices.

Contract payment provisions are silent on the time period allowed for older invoice charges and there are no protocols developed to review billing details for these types of potential duplicate costs. While there should be some flexibility in allowing contractors to charge past or missed allowable activities and costs, this practice makes it challenging for the City to ensure whether these costs have not been previously

billed. Given the numerous SOV line items and hundreds of pages of supporting invoices and documentation, it may be impractical to manually track specific costs that have been billed each month to identify any potential duplicate charges.

In terms of an automated alternative, there are certain electronic billing systems available that can create and update SOVs, attach documents, and provide document management and workflow solutions.¹¹ However, many of these seem more tailored to a general contractor's need for managing subcontractor data and can often have a significant price to purchase or lease software. When discussing this issue with the DBR contractor, the firm mentioned that its internal system screens for duplicate payments from subcontractors and might be able to generate a report that could be utilized by the City. Thus, the City should explore this option to provide some assurance that any older charges were only submitted once for payment.

For future projects, the City should consider other preventive controls to assist its monitoring of these types of practices by informally working with its contractor and subcontractors to ensure costs are billed timely or having contractors submit payment applications in a sortable, electronic format to allow the City or its owners representative the ability to use more sophisticated technology tools to identify possible old charges, duplicate billings, or other problem areas.

City Should Start Cost-Reconciliations Now Rather than Wait until Project Close-Out

The DBR contract does not clearly specify when and how the actual project price will be reconciled. The contract does discuss final payment being contingent upon acceptance of work with an implication that its acceptance is based on the difference between the contract amount and sum or payment previously made.¹² We were told that the City and DBR contractor project team members informally agreed to perform a final cost reconciliation at project closeout, although the contract gives the City the right to audit or inspect books from time-to-time through the "open book" arrangement of the DBR contract.¹³ Similarly, the contract states that both during the course of the project and conclusion of project, the City Owner will audit the DBR contractor's records to determine actual expenses for those categories subject to audit.¹⁴

Although the project is expected to be completed within the year, waiting to perform a cost reconciliation until the final closeout may be problematic for several reasons. First, the volume of documents and effort needed will be substantial. With half of the contract amount paid on an actual cost basis, there are increased administrative costs for reviewing costs and greater opportunities for disagreements about cost type and adequacy of supporting documentation required. Given that onerous effort needed, the risk that detailed reviews of all costs will not be diligently performed and potential issues inadvertently overlooked is heightened. Second, performing one large-scale reconciliation places a greater administrative burden on

¹¹ Automated system solutions include Procore, eBuilder, GCPay, and eSub to name a few.

¹² As defined in Progressive Design-Build Relocate Services Agreement #30005394, General Conditions to the Contract, Exhibit 2-B, Section 107.09.

¹³ As defined in Progressive Design-Build Relocate Services Agreement #30005394, Article 10.02.

¹⁴ As defined in Progressive Design-Build Relocate Services Agreement #30005394, General Conditions to the Contract, Exhibit 2-B, Section 107.08.B.4.

the City than if the overall reconciliation was started now and conducted in phases to reconcile and agree on final costs for those SOV line item activities that are at 100 percent completion.

Another challenge will be that certain tools to assist with that reconciliation may not be available. For instance, the contract states that the DBR contractor will provide the City with cost reports as outlined in the Development Plan and Operations Manual; yet, that section of the manual was removed leaving a missed opportunity for the City to have had potentially valuable information to assist in its reconciliation efforts.¹⁵ Although there were other guiding contract documents, they did not clearly define the form, content, or frequency of the cost reports. Also, because neither the DBR contractor nor the City addressed the DBR contract required cost characterization as either lump-sum, not-to-exceed, unit-price, or budget, the City's agreement or adjustment of the draft characterization compiled by the auditors is needed and will be a critical element to aid in the project closeout reconciliation process—especially for costs classified as “budget.”

One important consideration for the City as it conducts its cost reconciliations is that the DBR contractor labor burden rates charged were based on estimated rates due to payroll timing and will vary from actual payroll as noted during our labor cost testing. Given that labor is one of the largest and most consistent areas with identified costs savings during construction audits, it is critical that the City's reconciliations resolve those variances.¹⁶ Further, the effort will likely require significant detailed work to reconcile the rates and charges.

Recommendations

To strengthen cost reviews and calculations of actual costs compensable as well as incorporate lessons learned, the City should:

1. Perform cost classification required by contract to determine the type of documentation required to substantiate costs, evaluate reasonableness, assess contract compliance, and aid in final payment reconciliation efforts.
2. Develop a plan for performing cost reconciliations that discusses parties involved, role, responsibilities, timing, and documentation.
3. Begin phased cost reconciliations now rather than waiting until construction closeout, especially for those cost items that are 100 percent complete to date.
4. Ensure cost reconciliations consider DBR contractor's estimated labor burdened rates billed on the monthly payment applications versus the actual rates paid to identify any potential cost savings.
5. Memorialize lessons learned and distribute to City Bureaus that manage large-scale capital construction projects. Lessons learned include:
 - Ensuring contract language has clarity and specificity for the type of documentation expected to be provided with billings and to support actual costs.

¹⁵ As defined in Progressive Design-Build Relocate Services Agreement #30005394, Article 10.01.

¹⁶ According to the National Association of Construction Auditors, July 2019 webinar.

- Providing better cost identification and linkages between contract language, budgets, amendments, activities, SOV line items, and monthly billings to allow City staff to better assure compliance.
- Implementing preventive controls to assist with monitoring efforts for older charges by informally working with contractors and subcontractors to ensure costs are billed timely.
- Having contractors submit monthly billings in a sortable, electronic format to allow the City or its owner's representative the ability to use more sophisticated technology tools to identify possible old charges, duplicate billings, or other problem areas.
- Ensuring written or formal procedures are created for the review and approval of monthly billings and associated costs with detailed steps of the depth of review to be conducted on specific cost types including labor, labor burden rates, materials, equipment, and subcontractors.

Good Practices Were in Place over Change Orders and Subcontracting, Although Project Management and Audit Improvements Could be Incorporated

Overall, we found good practices in place over change orders and subcontracting on the Portland Building project. In particular, change orders were well-managed, supported, organized, and properly approved. Additionally, our high-level review of subcontracting procurements indicated that practices were sound. However, we found that these practices were not memorialized into formal plans as suggested by best practices and a regular audit function was not incorporated into project delivery practices.

Change Orders were Well-Managed, Supported, Organized, and Properly Approved

We found there were good practices in place to adequately review, vet, and approve change orders on the Portland Building project. Specifically, the costs were supported by independent quotes or detailed cost breakdown and City's review of costs and negotiations was documented when applicable. In addition, costs were properly and accurately included in the pay application only after City approval. These protocols align with best practices for oversight of contract change orders. For instance, with change orders, best practices suggest obtaining and reviewing detailed pricing to establish parameters to evaluate cost events/change orders.¹⁷ However, those steps or protocols were not formalized or memorialized for the Portland Building project. In fact, there was limited formal documentation or standard operating procedures to guide most of the change order review process and mostly relied on the professional expertise of the project team leaders and the continuity of that team. Contract language does address how to execute and approve change orders, but it does not address how the change orders should be reviewed, supported, and vetted.¹⁸

For the DBR contract, there were six separate change orders since December 2017 when the contract guaranteed maximum price was established.¹⁹ These change orders totaled approximately \$10 million as shown in Exhibit 6. Almost all of the changes were owner-requested items with only one for an unforeseen condition of approximately \$3,300 that comprised less than 0.03 percent of all change orders—a negligible percent of the overall contract. One of the benefits of the delivery method used for the project is that there are typically fewer change orders because unforeseen conditions are minimized since the contractor is involved early in design. Further, no changes appeared to be related to contract time extensions that could affect schedule.

We tested seven specific scope areas from change orders issued after the contract guaranteed maximum price was established and found detailed support documenting the reasons for changes, evidence of a cost review and negotiation of price, compliance with contract provisions related to the specific change, and various appropriate levels of approval. Further, we found the change orders were accurately posted on the

¹⁷ Based on National Association of Construction Auditors presentations.

¹⁸ Progressive Design-Build Relocate Services Agreement #30005394, General Conditions of the Contract, Exhibit 2-B, Section 107.07.

¹⁹ Each change order is comprised of multiple specific scope areas, called "Cost Events" by the project team.

monthly pay applications and that work for the applicable change reviewed appropriately started after change order approval.

EXHIBIT 6. EXAMPLES OF CHANGE ORDERS AND AMOUNTS

Examples of Changes	Change Order Number	Net Dollar Amount
Two and half floors of tenant improvements and a credit for builder insurance covered by City	#001	\$5,409,329
Credit to GMP for card access provided by Owner and design change to make all restrooms urinal-free	#002	\$72,140
Credit to GMP due to efficiencies in plumbing and heating infrastructure	#003	(\$117,344)
Upgrade to exterior polished finish and audio-visual design to improve working spaces	#004	\$278,770
Elevator controls and magnetic marker boards	#005	\$1,763,801
Audio-visual equipment for improvements to working spaces	#006	\$2,733,844
	Total	\$10,140,540

Source: Auditor-generated based on owner representative's cost event log.

High-Level Review of Subcontractor Procurement Indicated Protocols were Sound

As part of the contract, the DBR contractor has the responsibility for procuring any needed services from subcontractors including the design architect for the project. In addition, the contract established social equity goals to encourage the award to disadvantaged, minority-owned, women-owned, and small business enterprises. According to the DBR contractor, they collaborated with the City on subcontractor procurements and used several different procurement methods through a phased-approach that included direct awards for lower dollar values, limited solicitation bids to certified firms, open low bid, and qualification-based procurements for certain subcontractors like the design architect and trade partners. We were informed that the City and its owner's representative participated on evaluation and scoring panels, when applicable, advised on outreach, and reviewed bid packages. Thus, the City had insight and input into the procurement and selection processes.

According to the DBR contractor's subcontractor log, there were 140 different subcontractors with contracts totaling more than \$122 million. We performed a high-level review on four subcontractors from different trades and found that outreach, advertisement, bidding, and evaluation practices were sound. All procurement opportunities were advertised through typical industry journals and emails to registered firms. Further, we found that competitive bidding was robust and scoring sheets were used for evaluation, where applicable.

Not all Practices were Memorialized in Project Management Plans or Standard Operating Procedures

To successfully manage construction projects, best practices suggest using a project management plan to guide project implementation and document expectations regarding communication, management, organizational structure, approvals, scope, costs, and schedule among other areas. The plan should define the roles, responsibilities, procedures, and processes that will be used on the project, and standardized daily activities and responsibilities during all pre-design, design, construction, and closeout phases of the project as well as make reference to and use detailed procedures.²⁰ While a partial project management plan was developed for the Portland Building project, not all critical sections were completed nor were informal procedures memorialized in the document.

Specifically, a draft Development Plan and Operations Manual was included in the original DBR contract in June 2016 with the intent to serve as a working tool for those involved with day-to-day project activities to define and standardize practices. While additions to the manual were made as the project progressed in areas such as scheduling, communications, meetings and reports, and design and construction planning tools, many sections of the manual were still not completed in the most recent version as of September 2018. Exhibit 7 illustrates a comparison of the project’s manual with best practices.

EXHIBIT 7. COMPARISON OF PROJECT’S MANUAL WITH BEST PRACTICES

Project Management Plan Best Practice Areas	Draft Project Manual
Project Description/Scope of work	✓
Project Organization Chart and Staffing	✓
Roles, Responsibilities, and Authority	✓
Communication Protocols	✓
Budget and Work Breakdown Structure	✓
Cost Management	
Schedule Management	✓
Quality Management	
Safety Management	✓
Risk Management	
Meetings and Reports	✓
References to and Use of Procedures Manual ²⁰	
Design and Planning	✓

Source: DBR Project Development Plan and Operations Manual and best practices gathered from the Construction Management Association of America, Design-Build Institute of America, National Association of Construction Auditors, Construction Audit and Cost Control Institute, and Project Management Institute.

²⁰ According to the Construction Management Association of America Standards of Practice, Section 2.2.3, a Project Procedures Manual outlines the specific approach to accomplish various management tasks on the project and should include meetings, checklists, and cost controls, among other items.

Additionally, the DBR project's manual initially had earmarked Sections 9 through 20 to map processes viewed as crucial for construction administration related to many activities such as "changes to the work," subcontractor bidding and awards, and contract payments. High-level workflows were used by the project team that depicted the approval process and document flow for change orders and invoice reviews; yet, those documents did not describe the detailed procedures or activities needed as part of cost management over those areas. Further, although the project team employed detailed activities and reviews over monthly billings and change orders, those specific practices were not formalized or memorialized in writing in the project manual or elsewhere.

According to the project team, the planned sections of the project manual were removed because the information was covered in other supplementary documents. Yet, while the project team used other documents that complemented the practices memorialized in the project's manual and aligned with implementation of leading practices, the documents did not fully capture approaches expected in a comprehensive management plan. For example, the project team used a robust risk register, but the approach to risk management was not documented. That is, there was no document describing the processes to be used for identifying, assessing, categorizing severity, assessing impact, or handling risks. In another instance, for quality management, contract language provided some discussion on more technical project areas such as describing expectations of the contractor related to quality of materials. However, the City's project management approach related to managing quality through testing or inspections as well as standard operating procedures detailing quality management activities were missing.

Without a complete project management plan or standard operating procedures to guide the owner's processes and activities, the project has a greater risk of control failures from unclear or uncertain protocols to be followed. This is especially true if there is turnover of any of the key individuals where historic knowledge is lost and newer staff may not be aware of established protocols. Fortunately, the Portland Building project team members have been consistent throughout the project and knowledgeable about contract provisions and needed protocols.

At this stage of the project with construction nearing completion and substantial occupancy scheduled for November 2019, there is little value in finalizing the project management plan for the Portland Building project. However, in the future, the City should ensure all critical practices and procedures are memorialized in project management plans or standard operating procedures that are formalized and communicated early in the project and modified as needed as the project progresses. These documents should contain all elements needed to best manage projects, and control costs, scope, and schedule.

Some Construction Audit Services were Utilized through Available Contract Provisions

Best practices suggest that a construction audit function should be part of the capital construction project process and can be a key defense to control and mitigate risk at four key project stages—preconstruction, construction, closeout, and post-construction.²¹ In fact, these are often referred to as the third line of defense in cost control with the contract document language being the first line of defense and owner's

²¹ National Association of Construction Auditors 7th Annual Training Conference, 9/17/18 and 9/18/18.

representative’s activities being the second line of defense. For the Portland Building project, there was not a formal, dedicated construction audit function utilized other than certain third-party audit services provided through the owner’s representative’s contract.

Often, an audit function—whether internal or externally hired—is a member of a construction project management team and can assist with a variety of project activities such as those shown in Exhibit 8. For instance, during preconstruction, audits can assist in contract negotiations looking at proposed fees and cost components, allowable and non-allowable expenses, and processes related to lump-sum or not-to-exceed payments before contract is final. Additionally, at this stage of the project, an audit function can assist with construction cost estimates as an additional control to ensure there is transparency with actual costs that can be auditable or that lump-sum amounts are reasonable.

EXHIBIT 8. POSSIBLE ACTIVITIES FOR INVOLVEMENT OF A CONSTRUCTION AUDIT FUNCTION

Typical Project Activities	Pre-Construction Phase	Construction Phase	Closeout Phase
Contract Pricing Provisions	✓		
Allowable and Non-allowable Costs	✓		
Change Order Pricing		✓	
Budgets and Cash Flow Analysis		✓	
Payment Application Analysis		✓	
Reconciliations		✓	✓
Shared Savings Calculations			✓
Contingency Reconciliations			✓
Allowances and Credit Reconciliations			✓
Incentive Calculations			✓
Closeout Cost Audit			✓

Source: Industry guidance from entities such as National Association of Construction Auditors and publications from groups such as the Construction Audit and Cost Control Institute and Forensic Institute on Construction Audits, May 9, 2018.

During construction, audits can conduct detailed billing reviews or analysis on a more regular basis. For instance, on the Portland Building project, a construction audit would have added value at the beginning of construction to conduct initial risk-analyses of labor, labor-burdened rates, equipment rental, or credit charges and recommend any needed control improvements. At closeout, audits can help with cost reconciliations and final payment review. In fact, cost industry research and leading practices suggest at least one audit during the term of the contract. Moreover, results of construction audits are not necessarily externally reported. Rather, an audit function should function as an advocate for the owner and be part of the internal practices employed by the City to contain costs and manage the project.

On the Portland Building project, the City’s contract with its owner’s representative contained provisions for “third-party project audits to ensure project and contract compliance throughout the project” through a

subcontracted firm.²² According to the owner's representative, it utilized these services with the subconsultant firm to review the DBR contractor billings through design and into the beginning of construction and perform an in-depth review of the contract guaranteed maximum price submission as well as negotiations with certain subcontractor terms and cost proposals. Further, the owner's representative asserts that its subconsultant provided guidance on a variety of areas such as contracting pricing, allowable costs, change order pricing, and monthly billing analysis. However, there were no formal construction audits conducted or resulting reports available for our review.

Recommendations

To enhance its project closeout practices and incorporate lessons learned, the City should:

6. Use the third-party audit feature from the City's owner's representative contract or an internal construction auditor to assist in cost reconciliations or closeout audit to help identify any unsupported or questionable costs as well as potential cost savings. This could involve detailed labor testing against payroll registers, labor burden analysis and basis for charges, confirmation of lien waivers, and analysis of material credits for returns or discounted payment terms.
7. Memorialize lessons learned and distribute to City Bureaus that manage large-scale capital construction projects. Lessons learned include:
 - Ensuring project management plans or standard operating procedures are created, completed, formalized, and communicated early in a project's lifecycle and modified as needed as the project progresses. These tools should contain all elements needed to best manage projects and control costs, scope, and schedule.
 - Involving an audit function early in the project as part of contract rate negotiations, pre-construction, construction, and final closeout activities. Allocate sufficient resources to conduct necessary detailed testing of supporting documentation for cost allowability.

²² Portland Building Reconstruction Project Owner's Representative and Public Outreach Services Contract #30005048, Exhibit A, Task C.11.

Appendix A. Scope and Methodology

Sjoberg Evashenk Consulting, Inc. was hired by the Portland City Auditor's Office to conduct an independent performance audit of the prime contractor for the renovation of the Portland Building. Specifically, we were asked to look at compliance with the design-build-relocate (DBR) contract terms, identify any overcharges and potential cost savings, and improve project controls on this and other future City construction audits. The period of audit was from the contract planning and start date in July 2016 through March 2019.

To meet the audit's objectives, we performed the following audit steps:

- Met with City finance and senior project staff, project executives from the DBR contractor, and project managers and analysts from the owner's representative firm to understand practices and processes employed and garner individual perspectives on the audit focus areas including processes over payment applications related to areas such as reviews, approvals, linkage to DBR contract terms, schedule of values, inspection reports, contingency limits, and subcontractor contracts as well as practices over cost event/change orders for review, price negotiation, vetting, and approvals.
- Obtained and reviewed the DBR contract agreement and amendments, related General Conditions of the Contract, Development Plan and Operations Manual, workflows, and cost responsibility matrices to identify reimbursable costs and activities, payment provisions, and key contract compliance provisions as well as roles, responsibilities, processes, and protocols related to our areas of audit focus.
- Verified the City's SAP financial reports with summary of billings/payment applications to date.
- Compared the Portland Building project processes and protocols for the areas under audit with leading industry practices and guidance from a variety of sources including, but not limited to, Construction Management Association of America Construction Management Standards, 2015 edition; Design-Build Institute of America; National Association of Construction Auditors; Construction Audit and Cost Control Institute; Construction Industry Institute; and Construction Extension to the Project Management Body of Knowledge, 3rd Edition.
- Selected four out of the 36 monthly billings for review—one before and three after the contract guaranteed maximum price was set—and determined whether a sample of expenditures (included contracted direct labor, material, equipment, and subconsultant charges) were allowable, accurate, reasonable, supported by underlying documents, and compliant. Documents reviewed included certified payrolls, pay records, timesheets, invoices, purchase orders, equipment pricing sheets from vendor, and field reports. Additionally, we tested whether:
 - Self-performed prime contractor work had reasonable separate pricing and scoping docs that clearly defined scope, rates, materials, and pricing method.
 - Direct labor hours and charges agreed with certified payroll and timesheets.
 - Labor burden charges excluded mark-up, profit overhead, vehicle allowance, tools, union dues, and travel.

- Equipment rental charges tied with agreements, rates were appropriate, and usage was supported by field or other reports.
- Materials charges were supported by purchase orders, usage or field reports, and were delivered to project or appropriate address.
- Lump-sum cost billed on a percent completion basis were supported by walk-through meeting minutes, contractor daily logs, field test reports, material testing reports, or other files for verification of reasonableness of progress.
- Fixed-fee and percent multipliers were correctly calculated and in compliance with contract.
- Selected seven of the 56 changes incorporated into the DBR project through change orders post-guaranteed maximum price based on type, project phase, and dollar value to determine whether documentation of the change was generally:
 - Backup documentation was adequate.
 - Costs and activities were allowable.
 - Change seemed valid.
 - Included evidence of price negotiations.
 - Backup (cost or pricing data) was compliant with contract terms and was accurate.
 - Amounts were mathematically accurate.
 - Properly approved before submitting for payment.
 - Appropriately recorded on pay applications.
- Performed a high-level review of four of the 140 subcontractors to assess the DBR contractor's outreach, advertisement, and bid packages to prospective subcontractors as well as bids submitted and subcontracts negotiated for reasonableness and competition.
- In concert with monthly billing testing for subcontractors' costs, we performed the following:
 - Compared subcontractor charges to the proposed bid package and contract.
 - Evaluated basis of payment (e.g. cost plus or lump-sum) to ensure costs were billed appropriately.
 - Tested whether charges were supported by underlying invoices or schedule of values.
 - Assessed whether contract or bid terms and conditions were met.
 - Ensured applicable lien waiver were obtained in a timely manner and in the required amounts as well as inquire on any billing disputes/issues.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix B. Auditee Response



Tom Rinehart
Chief Administrative
Officer

Ted Wheeler
Mayor

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September 26, 2019

Mary Hull Caballero, City Auditor
1221 SW 4th Ave., Ste. 310
Portland, OR 97204

Madame Auditor,

The Portland Building Reconstruction Project team is heartened by the Audit's confirmation that we are in compliance with financial best practices. We appreciate your team's thoughtful recommendations.

The Audit reflects that costs billed by the contractor, Howard S. Wright (HSW), were mostly accurate and well supported. HSW and the project team has and will continue to provide detailed monthly expenses to maintain accuracy.

The Audit also noted that changes to the contract were well-managed and properly approved. We will continue to maintain our disciplined process for any and all changes.

We are gratified that the Audit notes that HSW's selection of subcontractors has been made with sound outreach, advertising, and bidding practices. I know the team has made this a priority. The hard work has paid off: we have achieved our ambitious goals for both diverse workforce and contractor participation on the reconstruction.

The Audit identified areas for improvement, one being that calculations for final payments likely will be time consuming and should be started sooner rather than later. We fully agree with this assessment. Another recommended area for improvement with which we fully agree is to share lessons learned from this process throughout the organization. We will make sure the learning from this project informs and strengthens future City projects.



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Thanks again to you and your team. A project of this size and scope requires a great deal of effort by all parties involved, and I am confident that the reconstruction is going well and that it will serve as a model for future efforts.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tom Rinehart".

Tom Rinehart
Chief Administrative Officer

cc: Mayor Wheeler